

# AAS

## Asian & Asian American Studies

### AAS 102- B: Eastern Religions

An historical introduction to Hinduism, Buddhism, Confucianism, and Taoism.

Attention is given to the cultural background, art, literature, philosophy, and institutional development of each tradition. This course is offered as both AAS 102 and RLS 102.

3 credits

### AAS 110- G: Appreciating Indian Music

An introduction to the basic elements of Indian classical music, such as "raga" and "tala", "gharanas" (schools) and styles. Vocal and instrumental masterpieces are studied. Topics include: the roles of stringed and percussion instruments; the intimate relationship between music and religion, and music and ethnicity; and the influence of Indian classical music on contemporary art forms such as films and folk music. No previous musical training is required.

3 credits

### AAS 201- J: Introduction to the Civilization of the Indian Subcontinent

Key concepts in South Asian civilization in art, architecture, religion, philosophy, science, society, literature, and politics from the Indus Valley to the present. Topics include evolution of Hinduism, Buddhism, yoga, classical and modern languages, the caste system and reform movements, Asoka, Akbar and great emperors, impact of Islam and Western colonization, and Gandhi and the impact of South Asia on the world.

3 credits

### AAS 209- D: Indian Classical Dance: Bharatanatyam

Introduction to the basics of Bharatanatyam (South Indian classical dance) technique. Includes primary postures and basic steps, or adavus. Class also covers the theory of Bharatanatyam including hand gestures, head, neck and eye movements, as delineated in Nandikeswara's Abhinaya Darpana. Students will gain a well-rounded knowledge of the dance by studying Bharatanatyam's form, content, basic history, music, and repertoire. By the end of the class, students will learn and present short dance pieces including a Jathi (string for adavus) and a Shlokam (poem).

*Advisory Prerequisite: Any dance class*

3 credits

### AAS 211- F: Asian and Asian American Studies Topics in the Social Sciences

Using the methodologies of the social sciences disciplines of history, political science, sociology, and economics, this course provides an introductory overview of important topics in Asian and Asian American studies. May be repeated as the topic changes.

3 credits

### AAS 212- G: Asian and Asian American Studies Topics in the Humanities

Using methodologies of the Humanities disciplines, such as literature, linguistics, classics, cultural studies, philosophy, religious studies, art history and criticism, this course provides an introductory overview of important topics in Asian and Asian American Studies. Topics may range from Women in Japanese fiction to Mahatma Gandhi's impact on politics and ethics. May be repeated as the topic changes.

3 credits

### AAS 215- D: Classical Performing Arts of India

An introduction to the stories, histories, and aesthetics of Indian classical performing arts. The course focuses on Bharatanatyam, the solo dance form from South India. Kathakali, Manipuri, Odissi, and Kathak will be introduced to compare and contrast dance-theatre forms of South Asia. Students will be introduced to each performance form by studying its ancient and modern history, practitioners, technique, stage presentation, and aesthetics. The course explores the commonalities of all these performing art forms including: mythology, the classic text: Natya Shastra, abhinaya (mime) and the theory of rasa. Lessons will be accompanied by suitable reading material and visual demonstrations either on video or by a practitioner of the art form.

*Prerequisite: Completion of D.E.C. A*

3 credits

### AAS 216- J: Introduction to Japanese Studies

An introduction to Japanese culture as a foundation for understanding Japan. The changing historical experiences of the Japanese people are examined, exposing students to the diversity of backgrounds, values, and opinions in Japan. Japanese history and culture are also explored in relation to other countries and peoples, especially Korea and China.

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

### AAS 217- J: Introduction to Korean Culture

A general survey of Korean culture from the earliest recorded periods to the 20th century, including painting, music, dance, ceramic art, sculpture, architecture, literature, and folklore. These are discussed in relation to the intellectual, philosophical, and religious movements of their time. Previously offered as KRH 240. Not for credit in addition to KRH 240.

3 credits

### AAS 220- J: China: Language and Culture

A survey of regional languages and cultures of China. Addresses issues of diversity and standardization in the world's most populous country, particularly the role of language as both a system of spoken and written signs as well as a resource for cultural reproduction and social change. Explores discourse norms, key cultural concepts, and the unique problems posed by cross-cultural translation and interpretation.

3 credits

### AAS 221- H: China: Science and Civilization

An introduction to ancient Chinese science and technology, including engineering, medicine, mathematics, architecture and military technology. The global, social and historical impact of these inventions on Western civilization and the subsequent decline of the Chinese scientific paradigm will be examined.

*Prerequisites: One DEC E course and U2 status or higher*

3 credits

### AAS 222- D: Indian Cinemas and Cultures

The course examines the contemporary global art form known as 'Indian cinemas' from its advent of the moving picture in the late 1800's to the present. In this Asian film course, we explore the various cinemas of India and the Indian diaspora such as Bollywood cinema, art cinema, films by Indian directors inside and outside India, music videos, and documentaries. Factors behind its ascent to the most popular art form as well as a lucrative medium of entertainment and potent vehicle for social change not only in India but also beyond its shores are examined in some depth. We discover how these various Indian cinemas address and depict the social mores, cultural practices and political issues of the South Asian subcontinent. Themes for our discussions include but are not limited to

nationalism, sexuality, censorship, activism, tradition, modernity, identity, gender roles, and the pleasures and politics of song, dance and music, as we look at historical, thematic and aesthetic issues of these cinemas and their impact and influence in India as well as globally.

3 credits

### **AAS 232- G: Introduction to Asian American Fiction and Film**

The course is an introductory survey of Asian American fiction (short stories and novels) and films (narratives and documentaries). A central premise of the course is that the histories of racial segregation in the U.S., immigrant exclusion acts, colonial and contemporary wars in Asia, and global migrations are the political and historical contexts of Asian American narratives.

3 credits

### **AAS 236- J: Korean Religions**

Throughout its long history, Korea has experienced and created various religious traditions and became one of the most religiously diverse societies. Korean culture includes a wide variety of religious elements that have shaped the Koreans' way of thinking and living, in the way rarely seen in the European traditions. The objectives of this course are to understand and appreciate the religious heritage of Korea. Instead of trying to abstractly define religions, this course will serve to identify religious practices in which Koreans are engaged. In the process, students will obtain an understanding of important religious concepts, theories, activities, and lives of the religious leaders from ancient times to the present.

3 credits

### **AAS 240- J: Confucianism and Daoism**

An introduction to the basic philosophies and doctrines of Confucianism and Daoism, such as the concept of Dao, non-action, benevolence, and propriety. The course explores both the similarities and the differences between these two traditions. This course is offered as both AAS 240 and RLS 240.

3 credits

### **AAS 250- K: Languages and Cultures of Asian Americans**

Study of language use and cultural accommodation in selected Asian American communities in relation to the changing roles of Asians in U.S. society from the early democracy to the present. Issues include

linguistic and cultural diversity of Asia and Asian Americans; comparison of Asian and European immigration patterns; struggle for equality and acceptance; cultural factors in assimilation; patterns of Asian language use and maintenance in various domains; the role of language in ethnic identity; attitudes toward English and bilingualism; bilingualism as a problem and as a resource. This course is offered as both AAS 250 and LIN 250.

3 credits

### **AAS 256- J: Hinduism**

Survey of the principal religious and philosophical currents of Hindu civilization in India from the time of the Vedas and Upanishads through the development of the major devotional ways and schools of thought current in India today. These include the polytheism of Hindu mythology, the theism of various forms of devotional practice, and the monotheism and nondualism of Hindu philosophy. This course is offered as both AAS 256 and RLS 256.

3 credits

### **AAS 260- J: Buddhism**

An introduction to the basic philosophy and doctrines of Buddhism, beginning with a survey of lives and works of major historical figures of Buddhism. The principal issues of Buddhist thought, drawing from Indian, East Asian, and Western sources, are treated. Particular attention is paid to the meaning of faith, practice, and enlightenment in Buddhism. This course is offered as both AAS 260 and RLS 260.

3 credits

### **AAS 271- J: Religion in Ancient Mesopotamia**

Presents a picture of religion in ancient Mesopotamia based on archaeological data and ancient texts. A major contribution of the Mesopotamian civilization was the development of a special spiritual life of the people. Since the sixth millennium BC, these beliefs were the way they explained un-known and un-seen experiences. Set rules, traditions and special architecture were developed around these beliefs. These will be discussed, including the incorporation of these beliefs by other cultures. Not for credit in addition to AAS 212, Religion of Ancient Mesopotamia.

3 credits

### **AAS 280- J: Islam**

An introduction to the main features of Islamic revelation as contained in the Koran and its impact on the major spiritual, intellectual,

legal, and social teachings and institutions of the Islamic world. The course concludes with an examination of Islam in the modern world. This course is offered as both AAS 280 and RLS 280.

3 credits

### **AAS 300- G: Intellectual History of East Asia**

Study of the historical development of major intellectual traditions of East Asia (China, Japan, Korea). Topics include the Political Thoughts of the Ancient World (Formations of Confucianism, Taoism, and Yin Yang and Correlative Thinking), Era of Metaphysics (Introduction and Development of Buddhism and East Asian Mysticism), Ethics and Nationalism (Neo-Confucianism and Encounter of the Western Civilization), and East Asia's Modern Transformation (Modernization, Socialism, and Westernization).

*Prerequisite: One 200-level course in Asian Studies*

3 credits

### **AAS 305- J: The Pacific, Travel & Empire**

This cultural studies course examines the cultures of travel (i.e. fiction, memoirs, photography, and filmmaking) in narratives by and about the Pacific, South and Southeast Asia. We will study "empire" by analyzing narratives about the former colonies of Spain, France, Britain and the United States. As we discuss the metaphors or tropes of empire, we will also examine the concept of empire as a historical and contemporary formation, or what an empire meant in the 19th century and what it means today in the early 21st century. The course begins with the premise that travel narratives and modern visual culture illuminate the relationship between the violence and romance of travel. The course includes modern travel narratives (i.e. novels by Asian Americans) that focus on the lives of those who are forced to travel or migrate due to civil war, poverty and/or economic instability. This course is offered as AAS 305 and EGL 305.

*Prerequisite: Any 200 and/or 300 level course offered by the Department of Asian and Asian American Studies or the English Department*

3 credits

### **AAS 319- J: Arts of China**

A survey of Chinese art from the Neolithic period to modern-day China. Visual media such as bronze, jade, sculpture, ink painting and pottery as well as their cultural influence on philosophy, literature, religion and politics

will be explored. The course will also examine the influence of India and Central Asian on Chinese art and, in turn, China's influence on Korean and Japanese art.

*Prerequisite: One DEC D course and U3 or U4 standing*

3 credits

### **AAS 320- G: Literature of India**

Introduction to selected classics of Indian literature in English translation. Classical and modern works are discussed, representing Sanskrit (the Vedas, the Upanishads, the epics Ramayana and Mahabharata, classical drama of Kalidasa and Bhasa), Tamil, Kannada, Hindi-Urdu, and Indian English. Western and Indian literary theories and critical approaches are compared and evaluated.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: AAS 201 (or the former SAS 240)*

3 credits

### **AAS 321- G: Korean Literature**

An introduction in English to the literary tradition of Korea. Representative literary texts chosen from various periods are studied with attention to their historical background and the aesthetic and cultural values that inform them. Previously offered as KRH 251. Not for credit in addition to KRH 251.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: AAS 217 (formerly KRH 240)*

3 credits

### **AAS 322- G: Literature of Japan**

An introduction in English to the literary tradition of Japan. Representative texts chosen from various periods are studied with attention to their historical background and the aesthetic and cultural values that formed them.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: AAS 216 (formerly JNH 240)*

3 credits

### **AAS 326- G: Indian Mythology**

Study of the major themes in Indian mythology and their evolution, including the relation of these myths to philosophy and religions such as Hinduism, Buddhism, and Jainism. Myths are traced from the Vedas of 1500 B.C. to the modern Indian myths. The course will consider the impact of myths on classical Indian literature and art forms, as well as their impact on contemporary art forms such as film, television, and theatre.

*Prerequisite: AAS 201 or 212*

3 credits

### **AAS 327- G: Great Epics of India: Ramayana and Mahabharata**

The themes, characters, and plots of Ramayana and Mahabharata are analyzed in detail. The moral dilemmas presented and their sometimes controversial solutions are explored in the context of "dharma", or righteousness--the central concept of Hinduism. The course will compare the two epics with each other.

*Prerequisite: AAS 201 or 212*

3 credits

### **AAS 328- K: Race, Humor and Asian America**

This comparative ethnic American cultures course examines how contemporary American comedians, fiction writers, visual artists, independent filmmakers, feminist and transgendered comics deploy the language of comedy to invoke serious social matters in contemporary American life such as racism, immigration, homophobia, class biases against the poor and the undocumented, misogyny, war and other burning issues of the day. We will explore how the ends of comedy are more than laughter and how comedy confronts political issues that are constitutive of and threatening to the U.S. body politic.

*Prerequisite: 100-level course in AAS, AMR, or AST*

3 credits

### **AAS 330- J: Language and Society in South Asia**

Study of the evolution, structure, and role of representative languages in South Asia. Focus is on multilingualism, lingua francas, national language, contact, convergence, and use, especially in education, administration, business, religion, literature, and the media. Topics may also include language, ethnic identity, and conflict; English in India; globalization and localization; and India's impact on linguistics.

*Advisory Prerequisite: LIN 101*

3 credits

### **AAS 331- J: Japanese Literature in the Feminine Domain**

This course examines both writings of Japanese women and writings about Japanese women. It will challenge the application of current Western feminist standards to Japanese culture through the analysis of Japanese literary works. We will begin with Japanese mythology focusing on the stories of the creator goddess and Amaterasu, the sun goddess, from whom the imperial line was descended. We will consider the great Heian Era women writers and their culture, examining the difference between men's and

women's writing. From the Heian era we will move to the Meiji Era, when Japan's isolationist period had ended and centuries' worth of Western literature was introduced to Japan. We will concentrate on the writings of Higuchi Ichiyo, noting how the position of women had changed by her day and how it affected her literary style. The course will close with a focus how literature treats Japanese women in our own time. This course is offered as AAS 331 and WST 331.

3 credits

### **AAS 332- J: Japanese Literature in the Meiji Era**

This course examines Japanese literature of the Meiji era, an era unique in the history of the world. Until the 1400s, Japan had no contact with the West due to its geographic location. After a brief and limited exposure to Western literature, Japan closed its doors to the West and remained isolated from approximately 1600 until 1868. During the Meiji Era (1868-1912) Japan was flooded with examples of all the phases of Western literature it had missed, and Japanese writers soon responded to the Western developments. This course will deal with that response, from Tsubouchi Shoyo's criticism of modern Japanese novels and their lack of appreciation for Realism, to the development of the Japanese I-novel. Due to Japan's literary response to the West, it can also be argued that the Meiji Era marked the end of Japanese literature as a unique entity, and this course will explore this issue as well.

3 credits

### **AAS 334- J: English in Asia**

Study of the expanding roles of English in South Asia, East Asia, and Southeast Asia. With more non-native speakers than native speakers, and more in Asia than elsewhere, English has acquired new identities. We will study functions of English in colonial and post-colonial times; how it competes with, and complements local languages in business, advertising, media, education, research, administration, judiciary, creative literature, call centers, and on the Internet; the evolution of dynamic new Asian Englishes, such as Indian English, and their social and cultural contexts; controversies regarding English medium education and its impact on local languages, relevance of native English standards, and implications for theory, description, and method in diverse disciplines, such as, business communication, cultural studies, English, lexicography, speech recognition, journalism, media studies, sociolinguistics, teaching English as a second language, and Asian Studies.

*Prerequisite: U3 or U4 status*  
*Advisory prerequisite: LIN 101*  
 3 credits

### **AAS 337- J: History of Korea**

Examines Korean history from ancient to modern times. Korea is one of the many ancient, non-European civilizations claiming a cultural influence on the region and one of the main players in the history of East Asia. Reflecting its unique historical experiences, Korean history has raised diverse debatable issues. The primary goal of this course is to provide an overview of Korean history and, at the same time, through introducing multiple debatable issues of historical significance, the course attempts to enhance students' analytical capability in approaching complicated historical issues. This course is offered as both AAS 337 and HIS 337.

*Prerequisite: U3 or U4 status*  
*Advisory Prerequisite: AAS 217*  
 3 credits

### **AAS 338- J: Contemporary India: History, Politics, and Diplomacy**

Study of the forces shaping India's post-independence history, domestic politics, and foreign diplomacy. As the world's largest democracy, second most populous nation, and Asia's second fastest growing economy, its impact on the international scene in the coming years will be carefully analyzed. The course, taught by a former Ambassador, will also focus on emerging trends in Indo-U.S. relations and impact of the Indian diaspora. This course is offered as both AAS 338 and POL 338.

*Prerequisites: One previous course in AAS or POL; U3 or U4 standing*  
 3 credits

### **AAS 339- J: Contemporary China: History, Politics, and Diplomacy**

This course will analyze the evolution of major events in contemporary China following the communist revolution that led to the establishment of the People's Republic in 1949. The course, taught by a former Ambassador, will examine major political, economic, and social developments in light of both their general global impact and their particular relationship with the U.S. This course is offered as both AAS 339 and POL 339.

*Prerequisites: One previous course in AAS or POL; U3 or U4 standing*  
 3 credits

### **AAS 340- J: Topics in Asian History**

Past topics have included titles such as Late Imperial China; The Chinese Diaspora; and

Overseas Chinese and Chinatowns. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes. This course is offered as both AAS 340 and HIS 340.

3 credits

### **AAS 347- J: South Asia Before Colonialism**

The South Asia region (contemporary India, Pakistan, Bangladesh, Sri Lanka, Nepal and Afghanistan) has been a crossroads of diverse people, ideas and commodities for millennia. This course covers key themes and developments in the subcontinent from antiquity to the rise of British colonialism. We will begin by covering major issues in early South Asia, and proceed to consider closely the medieval and early modern periods. Central themes include pre-modern dimensions of the Hindu-Muslim encounter, emergence of South Asian regions, the subcontinent in global networks, and early presence of European powers. This course is offered as both AAS 347 and HIS 347.

3 credits

### **AAS 351- J: Revolutionary China: Politics, Culture, and Power**

Explores the history of revolutionary nation-building efforts in 20th century China, examining social, cultural, economic and political developments during the "Republican" and "Maoist" periods. Focuses on key terms and concepts used by agents and analysts of revolutionary change. Draws on interdisciplinary scholarly studies, government documents, media reports, auto-biographical accounts, and popular fiction to assess the consequences of major events on people's lives, livelihoods, worldviews, and personal relationships. This course is offered as both AAS 351 and HIS 351.

*Prerequisite: One AAS or HIS course*  
 3 credits

### **AAS 352- H: Environmental History of China**

The history of interaction between human activities and the natural environment in China, with special attention to ecological consequences of various paradigms of economic development throughout Chinese history. Focus in on the political ecology of state-level societies, and the relationships

between cultural ideas, behavioral practices, human health, and environmental change. This course is offered as both AAS 352 and HIS 352.

*Prerequisites: U3 or U4 standing; completion of D.E.C. category E*  
 3 credits

### **AAS 357- J: India's Foreign Policy**

A critical analysis of the foreign policy of India since Independence in 1947, especially Non-alignment and relations with major powers. The factors behind India's entry into the nuclear club and its impact on her international relations within the subcontinent and beyond. Analysis of issues such as Kashmir, terrorism, India's quest for a permanent seat in the U.N. Security Council, economic reforms, and role of Indian diaspora to the country's relations with the countries of their adoption.

*Prerequisite: U3 or U4 standing or permission of instructor*  
*Advisory Prerequisites: AAS 201 and 348*  
 3 credits

### **AAS 366- G: Feminine Spirituality**

The role and destiny of human beings as envisaged by the world's great traditions, especially the Chinese and the Islamic. The course focuses on the concept of femininity as a principle in the realms of theology, metaphysics, cosmology, and spiritual psychology; and the theoretical and practical applications of the feminine principle to the place of both men and women in society. Topics include feminine and masculine as metaphysical and cosmological principles; woman and religious law; woman's role in symbolism, mythology, and literature; and the feminine aspects of the self that both women and men need to develop on the path of achieving spiritual perfection. Previously offered as RLS 426, this course is now offered as RLS 366. Not for credit in addition to the former RLS 426. This course is offered as both AAS 366 and RLS 366.

*Prerequisite: any 200-level or higher RLS course*  
 3 credits

### **AAS 367- J: Meditation and Enlightenment**

A critical analysis of the traditions, practices, and literature of Zen and other traditions of Buddhism, with particular attention paid to the meaning of enlightenment and the practice of meditation. Previously offered as RLS 341, this course is now offered as both AAS 367 and RLS 367. Not for credit in addition to the former RLS 341.

*Prerequisite: AAS/RLS 102 or 260*

*3 credits*

### **AAS 368- J: Yoga: Theory and Praxis**

In this course we investigate Yogic systems of philosophy and self-transformation in their many forms throughout history. Topics include the origins of Yoga in ancient India, the philosophy of the Yoga Sutras and its commentarial traditions, Buddhist Yoga, Hatha Yoga, Tantric Yoga, and the medicalization and globalization of Yoga in the modern period. Students are encouraged to supplement class discussions by participating in Yoga classes at the Stony Brook University Wellness Center. This course is offered as both AAS 368 and RLS 368.

*Prerequisite: One previous course in AAS or RLS*

*Advisory Prerequisite: Junior or Senior standing*

*3 credits*

### **AAS 370- J: Intercultural Communication**

Through combination of theory and research from discourse linguistics and linguistic anthropology, this course examines (i) how culture shapes ways of speaking; (ii) how language constructs identities, dispositions, role relations; and (iii) what challenges people from different cultures may face when they communicate with each other. The following analytical perspectives will be presented: speech act theory, ethnography of communication, linguistic politeness, and sequential organization of turn taking. This course is offered as both AAS 370 and LIN 370.

*Prerequisite: One previous course in D.E.C. J or one previous course in Linguistics*

*3 credits*

### **AAS 371- J: Ancient China**

Explores the development of social, economic, political, and cultural systems in ancient China, from the neolithic period through the Han dynasty. Draws on archaeological data and historical texts to examine the emergence of state-level polities and their subsequent unification under imperial authority. Analytical focus is on political economy, social organization, ritual exchange, and notions of power and rulership expressed in philosophical thought. This course is offered as both AAS 371 and ANT 371.

*Prerequisites: U3 or U4 standing; completion of D.E.C. category F*

*3 credits*

### **AAS 372- J: Family, Marriage, and Kinship in China**

Examines forms and dynamics of social organizations in Chinese society, focusing on cultural, social, and economic aspects of family, marriage, and extended kinship relations such as lineages, clans, and sworn brotherhoods. Particular attention is paid to how gender, generation, class, and ritual exchange shape identity, status, and power. This course is offered as both AAS 372 and ANT 372.

*Prerequisite: ANT 102*

*Advisory Prerequisites: AAS 220 and ANT 354*

*3 credits*

### **AAS 379- J: Ethnicity and Ecology in China**

This course explores issues of ethnic and national identity in the context of the social ecology of the Chinese state, both past and present. It focuses on the material and social relationships that have shaped perceptions of, and interactions between, cultural groups in China and along its frontiers. Drawing on case studies from the Himalayan plateau, Yunnan highlands, Inner Asian steppes, Taiwan, and elsewhere, students examine how sustenance strategies, economic organization, and political administration have influenced construct of ethnic identity. This course is offered as both AAS 379 and ANT 379.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: AAS 220 or HIS 219 (or the former CNS 249 or 250)*

*3 credits*

### **AAS 380- G: Islamic Classics**

A study in depth of Islamic texts in translation. Selections may be made from the Qur'an, the Hadith, the Law, and from one or more of the major intellectual schools, such as Kalam (scholastic theology), Peripatetic philosophy, illuminationist theosophy, Sufism, and the "transcendent theosophy" of the School of Isfahan. May be repeated as the topic changes. Previously offered as RLS 408, this course is now offered as both AAS 380 and RLS 380.

*Prerequisite: AAS/RLS 280*

*3 credits*

### **AAS 382- G: Japanese Buddhism**

An introduction to the teachings and practices of two major schools of Japanese Buddhism: Zen and Pure Land. The course focuses on the writings of the founders of the important lineages within these schools. Formerly offered as RLS 406, this course is now offered as both AAS 382 and RLS 382. Not for credit in addition to the former RLS 406.

*Prerequisite: AAS/RLS 260*

*3 credits*

### **AAS 387- J: Islam and Confucianism**

The goal of this course is to compare the basic teachings of Islam and Confucianism concerning the correct way to achieve true human status. Special stress will be placed on books that Muslim scholars wrote in Chinese beginning in the seventeenth century. These books employed Neo-Confucian language to introduce Chinese Muslims to their own theology, cosmology, and spiritual psychology, thus providing a rare pre-modern example of inter-religious dialogue. This course is offered as both AAS 387 and RLS 387.

*Prerequisites: AAS 260 or RLS 260 or AAS 280 or RLS 280; U3 or U4 standing*

*3 credits*

### **AAS 391- G: Humanities Topics in Asian and Asian American Studies**

Past topics have included titles such as Sikhism; Introduction to Indian Philosophy; Modern Indian Literature; and Appreciating Indian Music. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated as the topic changes.

*Prerequisite: Junior or Senior Standing*

*3 credits*

### **AAS 392- F: Social Science Topics in Asian and Asian American Studies**

Topics may include titles such as Indian Grammatical Tradition, English in Asia, and Indian Economics. Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social science discipline(s) studied. May be repeated as the topic changes.

*Prerequisite: Junior or Senior Standing*

*3 credits*

### **AAS 394- J: Topics in Asian Art**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Past topics have included titles such as The Art of India and The Art of the Silk Road. Designed for upper-division students,

this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes. This course is offered as both AAS 394 and ARH 394.

*Prerequisites: U3 or U4 standing; one ARH course*

3 credits

#### **AAS 400: Seminar in Korean Studies**

A seminar for upper-division students in the Korean studies minor, exploring in depth a single theme chosen to illustrate the relations among literary, religious, philosophical, historical, and cultural aspects of Korean life. Use of original texts and other materials is emphasized. May be repeated once as topic changes.

*Prerequisites: U3 or U4 standing; one 200-level course in Korean Studies*

3 credits

#### **AAS 401: Senior Seminar in Asian and Asian American Studies**

An intensive study of the theoretical and methodological issues in Asian and Asian American Studies, examining the intellectual histories and political contexts of 'area' and 'ethnic' studies and their relationship to broader interdisciplinary research and public discourse. Possible topics may include history, memory, and representation; Asian American social activism; global/local interactions; and the politics of national identity and security.

*Prerequisites: U4 standing; AAS major*

3 credits

#### **AAS 404: Senior Seminar in China Studies**

An intensive in-depth study of key texts and issues relating to China Studies. Emphasizes critical scrutiny of original source materials and close reading of interpretative commentaries, as well as constructive debate and analytical writing at an advanced level. Focal topic varies with offering, ranging from the literary to the political, from the classical canon to contemporary social concerns.

*Prerequisite: U4 status; completion of upper-division writing requirement for AAS majors; permission of instructor for non-AAS majors or non-CNS minors*

3 credits

#### **AAS 447: Directed Readings in Asian and Asian American Studies**

Independent readings in advanced topics in Asian and Asian American studies. May be repeated.

*Prerequisites: U3 or U4 standing; permission of instructor*

1-6 credits

#### **AAS 472- J: Topics in Asian Philosophy (I)**

Designed for upper-division students, this course presents in-depth study of a specific topic in an Asian philosophical tradition. Students are expected to demonstrate knowledge through mastery of native terms and concepts from that tradition. May be repeated as the topic changes. This course is offered as both AAS 472 and PHI 472.

*Prerequisites: One previous course in AAS or PHI*

*Advisory Prerequisite: Junior or Senior Standing*

3 credits

#### **AAS 473- J: Orientalism**

Investigation of the history and theory of Western engagement with Asian cultures. Following from Edward Said's influential book *Orientalism*, we examine the alleged imperialism inherent in the study of the Orient, also considering some opponents of Said's thesis. Special attention is paid to the history of interpretation of Asian philosophies in the West, and of Asian postcolonial responses to such portrayals. We conclude by exploring the possibilities for post-orientalist approaches to the study of Asia.

*Prerequisite: U3 or U4 standing*

*Advisory prerequisite: one previous course in AAS or PHI*

3 credits

#### **AAS 475: Undergraduate Teaching Practicum I**

Students assist instructors in Asian and Asian American studies courses with large enrollments. Under the supervision of the course instructor, they are responsible for conducting discussion and review sections and helping students with course readings and assignments.

*Prerequisites: U3 or U4 standing; permission of instructor*

3 credits, S/U grading

#### **AAS 476: Undergraduate Teaching Practicum II**

Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded.

Students may not serve as teaching assistants in the same course twice.

*Prerequisites: AAS 475; permission of instructor*

3 credits, S/U grading

#### **AAS 487: Supervised Research in Asian and Asian American Studies**

Independent research under the supervision of a faculty member. May be repeated to a limit of 6 credits.

*Prerequisites: U3 or U4 standing; permission of instructor*

0-3 credits

#### **AAS 488: Internship**

Participation in a local, state, or federal governmental agency or community organization. Students are required to submit progress reports to their department sponsor and a final report on their experience to the department faculty. May be repeated up to a limit of 12 credits.

*Prerequisites: Permission of instructor and undergraduate program director*

0-6 credits, S/U grading

#### **AAS 495: Senior Honors Project in AAS**

This is a course for AAS majors who are candidates for the degree with honors. The project involves independent readings or research and the writing of a thesis. Not for major credit.

*Prerequisite: Admission to the AAS Honors Program; permission of department*

3 credits

## **ACH**

### **Arts, Culture and Humanities**

#### **ACH 101: Introduction to Stony Brook**

A seminar intended to integrate students into the Undergraduate Arts, Culture, and Humanities and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, LDS 101, GLS 101, HDV 101, ITS 101, SSO 101, SBU 101, SCH 101, or LSE 101.

*Prerequisite: Admission to the ACH Undergraduate College*

1 credit, S/U grading

**ACH 102: Undergraduate College Seminar: Arts, Culture, and Humanities**

A seminar for all students in the Undergraduate College of Arts, Culture and Humanities. The seminar covers various topics under the general scope of the arts, culture, and humanities. Seminars vary by section and include examination of topics such as performance, philosophy, language arts, cultural studies, theatre arts, dance, music, art, filmmaking, and communications. Required for all first year students. Not for credit in addition to GLS 102, HDV 102, ITS 102, LDS 102, or SSO 102.

*Prerequisite: Admission to the ACH Undergraduate College*

*1 credit, ABC/U grading*

**ACH 275: Undergraduate College Fellows Seminar**

Creates a curricular component for the second year of the Undergraduate College Experience. College fellows will enroll in ACH 275 in the spring semester of their freshman year and ACH 276 in the fall semester of their sophomore year. 275 (spring) engages students in four main content areas: student development theory, scholarship on mentoring and leadership development, concepts of teaching and learning, and programming and event planning. These areas prepare students for supervised learning and teaching experiences that will occur primarily in the fall 276 course.

*Prerequisites: Grade of "S" in ACH 101 and a strong desire to help other students. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

*1 credit, S/U grading*

**ACH 276: Undergraduate College Fellows Practicum**

The second semester in the sequence following ACH 275. Students assume higher responsibility and are given opportunities to apply teaching theories and concepts as learned in ACH 275. Students act as a TA for ACH 101.

*Prerequisites: A grade of "S" in ACH 275. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

*1 credit, S/U grading*

**ACH 475: Undergraduate College Teaching Practicum**

The purpose of this course is to allow upper-division students the opportunity to work with a faculty member as an assistant in one of the faculty member's scheduled

Undergraduate College seminars. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of the instructor and department*

*1 credit, S/U grading*

**ACH 488: Undergraduate College Internship**

Students learn about contemporary issues in higher education, community building, and teaching at a research university through hands-on work with faculty mentors. Work assigned will include participation in the planning and operation of events and initiatives sponsored by the Undergraduate Colleges. Students are required to submit written reports on their experiences to the Undergraduate Colleges office and Faculty Directors. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of the instructor and department*

*0-3 credits, S/U grading*

## ADV

### Advising

**ADV 101: Advising 101: Transfer Seminar**

A seminar intended to integrate transfer students into the University community by sharing information about Stony Brook and creating a forum to develop intellectual, social, writing, and communication skills. The course emphasizes institutional expectations to promote student success. Recommended for first semester transfer students entering with less than 57 earned credits. Required for all first semester international transfer students. Not for credit in addition to ACH 101, GLS 101, HDV 101, ITS 101, LDS 101, LSE 101, SBU 101, SCH 101, or SSO 101.

*Prerequisite: New transfer student*

*1 credit, S/U grading*

**ADV 201: Preparing for Medical School**

This course provides a broad survey of pre-medical studies, preparation for medical school admission, and the medical profession. The course will review medical school admission requirements and procedures, the academic coursework at both the undergraduate and professional school levels, the residency

training of the physician, the typical routines of a medical practice, and other issues affecting the training of a medical doctor in the United States. In addition, the class will provide students opportunities for continual self-evaluation of personal motivations to enter the health profession. The course follows the chronological sequence taken by the traditional student to become a licensed medical doctor, and examines how this sequence of events plays an integral role in the development of a capable physician.

*Prerequisites: U2 or higher standing.*

*Completion of at least one pre-medical science sequence and permission of the instructor.*

*1 credit, S/U grading*

**ADV 475: Undergraduate Teaching Practicum I**

Work as an assistant with an instructor of an ADV 101 regularly scheduled class or with the coordinator/instructor of ADV 488. The student is required to attend all classes, keep current with the regularly assigned work, and meet with the instructor at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisite: U3 or U4 standing; permission of ADV 101 or ADV 488 coordinator and director of the Academic & Transfer Advising Services Center; completion of ADV 101 or ADV 488 or equivalent experience*

*1-3 credits, S/U grading*

**ADV 476: Undergraduate Teaching Practicum II**

Work as an assistant with an instructor of an ADV 101 regularly scheduled class or with the coordinator/instructor of ADV 488. The student is required to attend all classes, keep current with the regularly assigned work, and meet with the instructor at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. The student assumes greater responsibility in such areas as leading discussions and researching class-appropriate topics.

*Prerequisite: ADV 475; permission of ADV 101 or ADV 488 coordinator and director of the Academic & Transfer Advising Services Center*

*1-3 credits, S/U grading*

**ADV 488: Academic Peer Advisor Internship**

This two semester internship offers outstanding juniors and seniors an opportunity to gain advising experience, improve personal and professional skills, and explore career aspirations while providing assistance to others. Responsibilities include

a teaching assistantship for a first semester transfer student seminar, provide support to undergraduates on making the academic and personal transition to Stony Brook, conducting oral presentations with other Academic Peer Advisors to students, and serving as a role model and mentor for other Stony Brook undergraduates. Interns are required to attend a weekly Academic Peer Advisor seminar, complete a set number of outreach hours, assist with events across campus and work in the Advising and Transfer Advising Services Center. Repeatable to a maximum of 12 credits.

*Prerequisite: Students are selected for the course based on an application which may be obtained from the advising office. Students must have earned 45 credits and a 3.0 cumulative GPA by the application date.*

*1-4 credits, S/U grading*

## AFH

### Africana Studies/Humanities

#### AFH 206- B: Great Books of the Black Experience

An exploration of some of the key writings from autobiographies to novels, etc., important to becoming familiar with central lines of thought and interpretation in the larger Black Experience. Focus and readings vary depending on each semester's emphasis.

*Advisory Prerequisite: U2 standing*

*3 credits*

#### AFH 249- K: African-American Literature and Music in the 19th and 20th Centuries

A detailed look at African-American literature and music and their importance for American literature and music of the 19th and 20th centuries. An examination of the literature with attention to the special stylistic devices, tones of literary voice, and characterization that writers use in their efforts to match the music experience with the written word. Selections from the recordings of African-American and African-American inspired musicians -- from Bessie Smith and Louis Armstrong to Jimi Hendrix and the Rolling Stones. This course is offered as both AFH 249 and EGL 249.

*Advisory Prerequisite: One D.E.C. category B or D course*

*3 credits*

#### AFH 329- J: Pan-African Literature I

An examination of the cultural themes of Pan-Africanism and negritude, drawing on a selection of writers from the United

States, Africa, and the Caribbean. The course treats the development, diffusion, and significance of these themes. It involves intensive consideration of selected literary works of African and African-American expression. This course is offered as both AFH 329 and HUF 318.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in literature*

*3 credits*

#### AFH 330- J: Pan-African Literature II

An examination of the cultural themes of Pan-Africanism and negritude, drawing on a selection of writers from the United States, Africa, and the Caribbean. The course treats the development, diffusion, and significance of these themes. It involves intensive consideration of selected literary works of African and African-American expression.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in literature*

*3 credits*

#### AFH 339- G: Arts of the African Diaspora

A study of the arts of the African Diaspora from the African continent to Brazil, Surinam, the Caribbean, and the United States.

Emphasis is on the full range of art forms, including not only sculptural and performance traditions, but also textiles, basketry, and other crafts. Cultural continuities, spiritual belief, and significant changes in context, meaning, style, and technology are examined. This course is offered as both AFH 339 and ARH 329.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: ARH 201*

*3 credits*

#### AFH 368- G: Caribbean and American Connections in Literature

An exploration of the connections between writers from the French-speaking and English-speaking Caribbean and from the African-American community, who share a similar cultural heritage, historical heritage, and historical experience, but differ in geopolitical situations. Special attention is paid to spirituality, gender, and identity motifs in the literature. This course is offered as both AFH 368 and EGL 368.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

*3 credits*

#### AFH 379- K: Philosophy of Race (III)

Examination of our assumptions about race and the impact of those assumptions on issues concerning gender, class, and sexuality throughout American history. Readings include critical race theory, feminist theory, and critical legal theory. Students examine racial issues from a philosophical perspective and consider the ways in which representations of race may reinforce patterns of power and privilege. This course is offered as both AFH 379 and PHI 379.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One course in philosophy*

*3 credits*

#### AFH 382- G: Black Women's Literature of the African Diaspora

Black women's literature presents students with the opportunity to examine through literature the political, social, and historical experiences of Black women from the African Diaspora. The course is structured around five major themes commonly addressed in Black women's writing: Black female oppression, sexual politics of Black womanhood, Black female sexuality, Black male/female relationships, and Black women and defining self. This course is offered as AFH 382, EGL 382, and WST 382.

*Prerequisite: Junior or Senior Standing*

*3 credits*

#### AFH 385- J: French Caribbean Literature

A study of representative texts from the French Caribbean translated into English, focusing on literary manifestations of a search for a specific identity by writers from Martinique, Guadeloupe, French Guiana, and Haiti. This course is offered as both AFH 385 and HUF 385.

*Prerequisite: Junior or Senior Standing*

*3 credits*

#### AFH 390- G: Topics in Africana Studies

May be repeated for credit as the topic changes. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. Past topics have included titles such as Black Women Writers; Autobiography and Biography as Black History; and The African Novel: Origins and Development. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: AFS 101 or 102 or two courses in the humanities*

3 credits

### **AFH 391- G: Topics in Africana Studies**

May be repeated for credit as the topic changes. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. Past topics have included titles such as Black Women Writers; Autobiography and Biography as Black History; and The African Novel: Origins and Development. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: AFS 101 or 102 or two courses in the humanities*

3 credits

### **AFH 417: Advanced Topics in Africana Studies**

Semester supplements to this Bulletin contain descriptions when the course is offered. May be repeated as the topic changes.

3 credits

### **AFH 423- J: Africana Literature in French**

An examination of a range of literature in French produced by writers throughout the African diaspora who claim affiliation with Africa. While the course is conducted in French, students will have the option to write papers in either French or English. Competence in reading and speaking French is a requirement for the course. This course is offered as both AFH 423 and FRN 423.

*Prerequisite: A 200-level course in literature. For French majors, FRN 395, 396 or Permission of the Instructor.*

3 credits

### **AFH 447: Readings in Africana Studies**

Individually supervised reading in selected topics in the Black Experience. May be repeated once.

*Prerequisite: Permission of instructor and program director*

1-3 credits

### **AFH 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required

to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students may not serve as teaching assistants in the same course twice. Not for major or minor credit.

*Prerequisites: Africana studies major or minor; U4 standing; permission of instructor*

3 credits, S/U grading

### **AFH 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Not for major or minor credit.

*Prerequisites: AFS 475; permission of instructor*

3 credits, S/U grading

### **AFH 487: Research in Africana Studies**

Individual research projects in the Black Experience carried out under the direct supervision of a faculty member. May be repeated to a limit of 6 credits.

*Prerequisite: Permission of instructor and program director*

0-3 credits

## **AFS**

### **Africana Studies/Social and Behavioral Sciences**

#### **AFS 101- F: Themes in the Black Experience I**

An historical survey of the experience of black people against the background of a thorough review of American history and the events which impacted upon the black experience in America. This course also examines the responses of African Americans to the changing historical circumstances that they encountered in the United States. Consideration is also given to the similarities and differences among the lifestyles of people of African descent in America. This course treats themes to 1865.

3 credits

#### **AFS 102- F: Themes in the Black Experience II**

An historical survey of the experience of black people against the background of a thorough review of American history and the events which impacted upon the black experience in America. This course also examines the responses of African Americans to the changing historical circumstances that they encountered in the United States. Consideration is also given to the similarities and differences among the lifestyles of people of African descent in America. This course treats themes from 1865 to the present.

3 credits

#### **AFS 221- J: Introduction to Modern African History**

Historical themes in 19th- and 20th-century Africa. Topics include social and political relations in African states; slavery and the slave trade in West Africa; the impact of Christianity and Islam on African colonialism; colonialism and its consequences; nationalist movements and de-colonization; pan-Africanism and the politics of African unity; the postcolonial state project; economic planning in postcolonial Africa; and African states and international politics in the Cold War era. This course is offered as both AFS 221 and HIS 221.

*Advisory Prerequisite: One D.E.C. category F course*

3 credits

#### **AFS 239- J: Introduction to the Caribbean Experience**

An introduction to the political economy of contemporary Caribbean societies with emphasis on the historical roots of their present underdevelopment.

*Advisory Prerequisite: One D.E.C. category F course*

3 credits

#### **AFS 240- J: Issues in Caribbean Society**

An analysis of the process of social change in the English, Spanish, and French Caribbean with special emphasis on those societies undergoing rapid transformation.

*Advisory Prerequisites: AFS 101, 102, and 239*

#### **AFS 277- K & 4: The Modern Color Line**

An exploration of the significance of race in 19th- and early 20th-century America. Topics include forms of political organization and collective struggle; the social and psychic consequences of racist subjection; the

relationship among race, racism, and culture; and the cultural politics of race and gender. This course is offered as both AFS 277 and HIS 277.

*Advisory Prerequisites:* AFS 101 and 102; completion of D.E.C. categories I and J

3 credits

### **AFS 283: Community Service**

Through field experience, readings, research, and discussion, students focus on social and educational problems relating primarily to the African-American experience. Specific programs may include working with children from low-income families, educational and cultural enrichment projects, tutoring in various institutional settings, and other projects to be announced. May be repeated once.

*Prerequisite:* Permission of instructor

3 credits, S/U grading

### **AFS 300- K: Blacks in the City**

The urban experiences of blacks as a force in determining the character, culture, and social climate of the American city. A central theme is that blacks have greatly impacted U.S. urban life and made important contributions to its sense of vitality and cultural diversity.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 310- K: American Attitudes Toward Race**

An historical examination of the growth and development of racism in America from the arrival of the first Africans to the continent to the present day. The focus is on African Americans and their relationships with the American system, its institutions, and culture. References are made to other ethnic groups in order to give balance to the examination of social conditions and attitudes shaping American society throughout.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 319- F: The Politics of Race**

An analysis of political concepts often associated with racism and the tracing of the origins of the concept of race. Forms in which racism manifests itself today are identified and discussed showing the similarities and differences where they exist.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 320- K: Black Popular Culture and the Terrain**

A study of black popular culture in 20th century America through close readings of

text, music, and film. We will examine black cultural production and its relationship to black political activism, particularly in the urban terrain. Enables students to interrogate the relationship between African Americans, culture and American society during the 20th century.

*Prerequisite:* Successful completion of one D.E.C. category F course.

3 credits

### **AFS 325- K & 4: The Civil Rights Movement**

A detailed study of the movement for civil rights from its origins, examining the establishment of the NAACP, race relations between whites and blacks since 1900, the role of the Supreme Court and the federal government, and the turn to militancy in the 1950s and after. This course is offered as both AFS 325 and HIS 325.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* HIS 104 or AFS 101 or 102

3 credits

### **AFS 337- J: The Politics of Africa**

A study of nationalism, political thought, and political institutions in Africa. Consideration is given to the quest for unity, the problems of liberation, and the political implications of social change. This course is offered as both AFS 337 and POL 337.

*Prerequisites:* Two AFS or POL courses

3 credits

### **AFS 339- K: Recent African American History**

A study of recent African American history. Topics will include the dramatic increase in the number of black elected officials, rise of the black middle-class, the urban crisis, contemporary civil rights struggles, affirmative action, the decline of black radicalism, and the incorporation of black leadership. Enables students to examine the relationship between African Americans and American society during the past 100 years, particularly since 1970. This course is offered as both AFS 339 and HIS 339.

*Prerequisite:* Successful completion of one D.E.C. category F course.

3 credits

### **AFS 345- J: Culture and Gender: Women in Africa and the Caribbean**

Comparative analysis of the status and role of women in colonial and contemporary societies of Africa and the Caribbean. Exploration of the forces that shape women's lives and the

ways in which women have contributed to the development of these societies.

*Prerequisite:* AFS 239 or 240

3 credits

### **AFS 346- J: Political and Social History of Africa**

An exploration of theoretical perspectives in the historical sociology and comparative politics of Africa. Topics include the crisis of state legitimacy; the patriarchal society; ethnicity, religion, and politics; the politics of modernization; development and the environment; population growth and underdevelopment; globalization, neo-liberal economic policy and the postcolonial state; and the history of state and society relations. This course is offered as both AFS 346 and HIS 346.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Two AFS or HIS courses

3 credits

### **AFS 350- J: Black Women and Social Change: A Cross-Cultural Perspective**

A cross-cultural survey of the history of black women in the context of the struggles for social justice in the Caribbean (English- and Spanish-speaking), Africa, and the United States. Several major topics are covered: the slave resistance and the anti-slavery movement; the anti-colonial struggle in Africa and the Caribbean; the trade union movement in the United States and Africa; the struggle against underdevelopment in Cuba, Puerto Rico, and Jamaica; and the anti-apartheid movement in South Africa. This course is offered as both AFS 350 and WST 350.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Completion of D.E.C. category F

3 credits

### **AFS 355- J: Ancient African Civilizations**

The archaeology of Africa's later prehistoric and historic periods offers exciting contributions to global debates on the origins of agriculture and civilization. Covering the last 20,000 years, this course begins by examining the economic underpinnings of Africa's complex societies: intensive hunting and gathering, animal domestication, and early farming. Detailed case studies of six ancient civilizations (Egypt, Kerma, Aksum, Jenne, Swahili, and Great Zimbabwe) then demonstrate distinct processes of prehistoric social change in different parts of Africa. The course concludes by discussing African archaeological heritage conservation, research,

and public education. This course is offered as both AFS 355 and ANT 355.

*Prerequisites:* One 100-level course in AFS or ANT; U3 or U4 standing

3 credits

### **AFS 360- K: African-American Social Commentary**

A study of African-American responses to the social order in America. The course concentrates on the various ways African Americans have conceptualized and described their condition since their arrival in America. Discussion of the solutions proposed by African-American spokespersons from the Civil War period to the present day.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 363- F: Blacks and Mass Media**

An historical examination of the major media characterizations of black Americans and the Black Experience, and the impact of these portrayals on American society at large. The roles of newspapers, books, magazines, plays, radio, movies, television, and advertisements are studied.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 365- J: Introduction to African Society**

Examination of the ways that the slave trade and colonization affected African societies' incorporation into the world economy as well as the development of their social and political institutions. The nature of African institutions, organizations, belief and value systems before the colonial impact and how these histories were understood and experienced by African men and women are considered. The historical continuities and discontinuities in contemporary African societies as well as the effects of globalization and modernization in Africa are examined. This course is offered as both AFS 365 and SOC 365.

*Prerequisite:* SOC 105 or AFS 101 or 102 or POL 101 or 103

*Advisory Prerequisite:* AFS 221

3 credits

### **AFS 370- K: The African-American Family**

The African-American family from the early 1800's to the present day. The nature and structure of that family, the obstacles it has faced, and its interrelationships with the African-American community and the diversity of American society.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **AFS 372- K: African-American Political Thought**

A critical analysis of the major architects of black political thought and their movements in the context of their distinctive historical development. Emphasis is on the intellectual and ideological ferment of the 19th and 20th centuries.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Completion of D.E.C. categories F, I and J

3 credits

### **AFS 373- J: Sexualities: African and Caribbean Perspectives**

Designed to introduce students to the complexities of human sexuality from a perspective that places subaltern individuals at the center of the analysis. It locates these individuals, and their sexual practices, in the tropics--or "warm, warm climates"--first in those man-made communities where sexuality was one of the (unspoken) exigencies of the slave economy and later in the modern era where the slave economy gave way to "neo-colonies."

*Prerequisite:* U3 or U4 standing

3 credits

### **AFS 375- F: Slavery**

The historical experience of blacks in slavery from a social and historical perspective with emphasis on the American South and with comparative references to slave systems as they developed in the western hemisphere.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 380- J: Race and Ethnicity in Latin America and the Caribbean**

Concepts and theories of race and ethnicity in Latin American and Caribbean settings. The historical evolution and the contemporary social and cultural significance of racial and ethnic identities within the region are explored. Specific examples of social relations characterized by ethnic or racial conflict are presented. This course is offered as both AFS 380 and ANT 380.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* AFS 240 or LAC 200

3 credits

### **AFS 381- H: AIDS, Race, and Gender in the Black Community**

Review of current biological and epidemiological knowledge about the HIV virus, and examination of the virus' social impact on the Black community. This course is offered as both AFS 381 and WST 381.

*Prerequisites:* U3 or U4 standing; one D.E.C. category E course

3 credits

### **AFS 388- J: Slavery in Latin America and the Caribbean**

The institution of slavery and its impact on plantation societies in the Americas, with particular attention to Brazil and the Caribbean. Topics include conquest and enslavement, the formation of slave communities, African culture in Latin America, resistance and oppression, the process of emancipation, and race relations. This course is offered as both AFS 388 and HIS 388.

*Prerequisite:* One of the following: AFS 239, AFS 240, AFS 277, HIS 213, HIS 214, or LAC 200

3 credits

### **AFS 392- K: The Black Power Movement**

A study of the Black Power Movement's promotions of racial pride, self-determination, unity, and revolution in American society and abroad from 1955-1975.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One D.E.C. category F course

3 credits

### **AFS 393- K: The Caribbean Immigrants in the United States: Dreams and Realities**

This course analyzes the forces that shape Caribbean migration to the United States and the pressures that are exerted upon the immigrants to fit into the United States' social structure. It also explores the immigrants' responses to these pressures as they choose among the following possibilities: total assimilation into the ranks of the existing ethnic and racial minority groups, multicultural identity, and transnational identity.

*Prerequisite:* Junior or Senior Standing

3 credits

### **AFS 394- K: Black Nationalism in America**

A study of the history of black nationalism in America. Centered around racial pride, unity, and self-determination, black nationalism has been a potent strain within African Americans'

long struggle for liberation within America's shores and beyond.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One D.E.C. category F course*

3 credits

### **AFS 395- J: Religions of the Caribbean**

An ethnographic approach to the relationship among religion, social organization, and identity politics through studying cultural and historical bases of Christianity, Islam, Hinduism, and their related religious manifestations in the Caribbean. Class stratification, ethnic conflict, and fundamentalist movements are explored. This course is offered as both AFS 395 and ANT 395.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: ANT 351*

3 credits

### **AFS 396- K & 4: Topics in African-American History**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Topics may include titles such as Urban African-American history Since 1865; and Slavery, Abolition, and Emancipation 1600-Present. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to American history. Students are expected to demonstrate knowledge of 1) a basic narrative of American history, political, economic, social, and cultural, including knowledge of unity and diversity within American society; 2) knowledge of common institutions in American society and how they have affected different groups; and 3) an understanding of America's evolving relationship with the rest of the world. May be repeated as the topic changes.

*Prerequisite: AFS 101 or 102 or HIS 103 or HIS 104*

3 credits

### **AFS 400: Ancient Egypt (KMT): Historical and Contemporary Views**

An exploration of the rise and development of ancient Egypt (KMT) through study of Egyptian peoples, religions, cultural transformations, and monument building. Examines the periods of the Old Kingdom, Middle Kingdom, and New Kingdom and introduces students to the museum culture that has fueled ongoing interest over time. Particular attention to scholarly debates about the nature and composition of Egyptian society, including interpretations of ethnicity and identity.

*Prerequisite: Junior or Senior Standing*

3 credits

### **AFS 410: Computers and Third World Social Issues**

A consideration of significant Third World issues using basic computing skills. The use of computer concepts and word processing skills to evaluate current social issues and their impact. The course encourages use of the computer in problem solving, research, and decision making.

*Prerequisites: U3 or U4 standing; permission of instructor*

*Advisory Prerequisites: Two AFS courses*

4 credits

### **AFS 421: Topics in Africana Studies**

May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: AFS 101 or 102 or two other courses in the social sciences*

3 credits

### **AFS 422: Topics in Africana Studies**

May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: AFS 101 or 102 or two other courses in the social sciences*

3 credits

### **AFS 447: Readings in Africana Studies**

Individually supervised readings in selected topics in the Black Experience. May be repeated once.

*Prerequisite: Permission of instructor*

1-3 credits

### **AFS 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Not for major or minor credit.

*Prerequisites: Africana studies major or minor; U4 standing; permission of instructor*

3 credits, S/U grading

### **AFS 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading

discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served. Not for major or minor credit.

*Prerequisites: AFS 475; permission of instructor*

3 credits, S/U grading

### **AFS 487: Research in Africana Studies**

Individual research projects in the Black Experience carried out under the direct supervision of a faculty member. May be repeated to a limit of 6 credits.

*Prerequisite: Permission of instructor*

0-3 credits

### **AFS 488: Internship**

Participation in public and private agencies and organizations under the supervision of a faculty sponsor. Students are required to submit progress reports and a final written report on their experiences to the faculty sponsor. May be repeated up to a limit of 12 credits.

*Prerequisites: Africana studies major or minor; 15 credits in AFS courses; permission of instructor and program director*

0-6 credits, S/U grading

### **AFS 491: Interdisciplinary Seminar in Africana Studies**

Exposes students to methods of research and writing within history, anthropology, literature, sociology, etc., important to understanding and producing scholarship related to the African heritage. Exploration of the ways in which past and present research and writing have portrayed Africans. The importance of interdisciplinary approaches and methodologies to understanding Africana Studies is emphasized. Students are required to select topics, conduct in-depth library research and present their findings in written and oral formats.

*Prerequisites: U4 standing; six courses in Africana Studies; permission of instructor and department*

3 credits

## **AIM**

### **Advancement on Individual Merit**

#### **AIM 102: Expository Writing**

The fundamentals of grammar through investigating methods of interpreting various

forms of literature with emphasis on the process of writing and re-writing. Does not count toward graduation. A through C/Unsatisfactory grading only. The Pass/No credit option may not be used. Open to EOP/AIM students only.

*Prerequisite: Placement by writing placement examination*

*Corequisite: WRT 101 or ESL course*

3 credits

### **AIM 104: Literary Analysis and Critical Reasoning**

Introduction to literary analysis and critical reasoning through close examination of selected works. Open to EOP/AIM students only. A through C/Unsatisfactory grading only. The Pass/No credit option may not be used.

*Prerequisite: Placement by writing placement examination*

3 credits, ABC/U grading

## **AMR**

### **American Studies**

#### **AMR 101- F: Local and Global: National Boundaries and World-Systems**

Introduction to the contemporary capitalist world-system as a complex network of unequal power relationships and its inextricable role in our daily lives. Consideration of the ways the Americas have been incorporated into the world-system through colonialism and early capitalist ventures, with emphasis on the 20th century in terms of transnationalism, globalization, and the mobility of capital and labor, especially as this creates racial formations.

3 credits

#### **AMR 102- G: Making American Identities**

A chronological representation of some of the ways that the peoples living in the current U.S. have identified themselves collectively as Americans and individually as belonging to distinct groups marked by racial, ethnic, gender, and class differences. Readings include texts of various kinds: historical, fictional, and theoretical. A computer (virtual) classroom is part of the coursework.

3 credits

#### **AMR 301- K: Ethnicity and Race in American History**

Overview of the role and place of ethnicity and race in the history of North America through investigation of the ways that ethnic belonging and identity have evolved through the 19th

and 20th centuries. Readings and discussion consider how ethnicity is forged through engagement with other "outside" as well as "inside" groups toward an understanding of how and why notions of "ethnicity" and "race" have changed over time. Groups that may be considered include African, Arab, Asian, German, Hispanic, Irish, Italian, Jewish, Native, and South Asian Americans.

*Prerequisites: U3 or U4 standing; AMR 101 or 102*

3 credits

#### **AMR 390- G: Humanities Topics in American Studies**

Selected topics in American studies in the humanities. Topics may include philosophy and drama in the United States, North and South American films, literary trends in the Americas. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: To be announced with the topic*

3 credits

#### **AMR 392- F: Social and Behavioral Sciences Topics in American Studies**

Selected topics in American studies in the social and behavioral sciences. Topics may include political history of the United States and Latin America, North and South American economies. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: To be announced with the topic*

3 credits

#### **AMR 395- J: Topics in American Studies**

Selected topics in non-Western cultures, societies, traditions, literatures, etc. Topics may include contemporary Indian societies in Central and South America, sociology of Latin and South America. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: To be announced with the topic*

3 credits

#### **AMR 397- K: Topics in American Studies**

Topics in U.S. literature, culture, history, etc., placed within a broad historical context, including social, political, economic, and cultural history and institutions. Topics may include, for instance, women and men in the contemporary United States and contemporary U.S. culture. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: To be announced with the topic*

3 credits

#### **AMR 401: Senior Seminar in American Studies**

Students synthesize the theories, methods, and knowledge gained in previous coursework through in-depth study of a particular issue or question. Discussion is structured around topics that engage the central themes of the histories, cultures, and societies of the Americas from an interdisciplinary perspective.

*Prerequisites: U4 standing; AMR major or minor*

*Advisory Prerequisite: AMR 301*

3 credits

#### **AMR 447: Directed Readings in American Studies**

Independently supervised readings in selected topics in American Studies. May be repeated.

*Prerequisites: Permission of instructor and department*

1-6 credits

#### **AMR 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: Permission of instructor and department*

3 credits, S/U grading

#### **AMR 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to

discuss the intellectual and pedagogical matters relating to the course. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* AMR 475; permission of instructor and department

3 credits, S/U grading

### **AMR 487: Independent Research**

Intensive readings and research on a special topic undertaken with close faculty supervision. May be repeated.

*Prerequisites:* Permission of instructor and department

0-6 credits

### **AMR 488: Internship**

Intensive readings and research on a special topic undertaken with close faculty supervision. May be repeated.

*Prerequisites:* Permission of instructor and department

0-6 credits, S/U grading

### **AMR 495: Senior Honors Project in American Studies**

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

*Prerequisite:* Permission of department

3 credits

## **AMS**

### **Applied Mathematics and Statistics**

#### **AMS 102- C: Elements of Statistics**

The use and misuse of statistics in real life situations; basic statistical measures of central tendency and of dispersion, frequency distributions, elements of probability, binomial and normal distributions, small and large sample hypothesis testing, confidence intervals, chi square test, and regression. May not be taken by students with credit for AMS 110, 310, 311, 312; ECO 320; POL 201; PSY 201; or SOC 202. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* Satisfaction of entry skill in mathematics requirement (Skill 1) or satisfactory completion of D.E.C. C

3 credits

#### **AMS 105: Introduction to Business Statistics**

The application of current statistical methods to problems in the modern business environment. Topics include probability, random variables, sampling techniques, confidence intervals, hypothesis testing, and regression. Students analyze real data sets using standard statistical software, interpret the output, and write extensively about the results.

*Prerequisite:* BUS Maj/Min, CME Major, or ISE Major.

*Advisory Prerequisite:* BUS 110, 111, 112 or 115, or MAT 122. *Advisory Prerequisite for BUS or ISE Major:* BUS 210

3 credits

#### **AMS 110: Probability and Statistics in the Life Sciences**

A survey of probability theory and statistical techniques with applications to biological and biomedical situations. Topics covered include Markov chain models; binomial, Poisson, normal, exponential, and chi square random variables; tests of hypotheses; confidence intervals; t tests; and analysis of variance, regression, and contingency tables. May not be taken for credit in addition to AMS 310. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* AMS 151 or MAT 125 or 131 or 141

3 credits

#### **AMS 151- C: Applied Calculus I**

A review of functions and their applications; analytic methods of differentiation; interpretations and applications of differentiation; introduction to integration. Intended for CEAS majors. Not for credit in addition to MAT 125 or 126 or 131 or 141 or 171. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* B or higher in MAT 123, or level 5 on the mathematics placement examination, or B or higher in MAT 122 and concurrent registration for MAT 130

3 credits

#### **AMS 161- C: Applied Calculus II**

Analytic and numerical methods of integration; interpretations and applications of integration;

differential equations models and elementary solution techniques; phase planes; Taylor series and Fourier series. Intended for CEAS majors. Not for credit in addition to MAT 126, MAT 127, MAT 132, MAT 142, or MAT 171. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* C or higher in AMS 151 or MAT 131 or 141, or level 7 on the mathematics placement examination

3 credits

#### **AMS 210: Applied Linear Algebra**

An introduction to the theory and use of vectors and matrices. Matrix theory including systems of linear equations. Theory of Euclidean and abstract vector spaces. Eigenvectors and eigenvalues. Linear transformations. May not be taken for credit in addition to MAT 211.

*Prerequisite:* AMS 151 or MAT 131 or 141 or corequisite MAT 126

3 credits

#### **AMS 261: Applied Calculus III**

Vector algebra and analytic geometry in two and three dimensions; multivariable differential calculus and tangent planes; multivariable integral calculus; optimization and Lagrange multipliers; vector calculus including Green's and Stokes's theorems. May not be taken for credit in addition to MAT 203 or 205.

*Prerequisite:* AMS 161 or MAT 127 or 132 or 142

4 credits

#### **AMS 300: Writing in Applied Mathematics**

See Requirements for the Major in Applied Mathematics and Statistics, Upper Division Writing Requirement.

*Prerequisites:* WRT 102; AMS major; U3 or U4 standing

1 credit, S/U grading

#### **AMS 301: Finite Mathematical Structures**

An introduction to graph theory and combinatorial analysis. The emphasis is on solving applied problems rather than on theorems and proofs. Techniques used in problem solving include generating functions, recurrence relations, and network flows. This course develops the type of mathematical thinking that is fundamental to computer science and operations research.

*Prerequisite:* AMS 210 or MAT 211 or AMS 361 or MAT 303

3 credits

### **AMS 303: Graph Theory**

Paths and circuits, trees and tree based algorithms, graph coloring, digraphs, network flows, matching theory, matroids, and games with graphs.

*Prerequisite:* AMS 301

3 credits

### **AMS 310: Survey of Probability and Statistics**

A survey of data analysis, probability theory, and statistics. Stem and leaf displays, box plots, schematic plots, fitting straight line relationships, discrete and continuous probability distributions, conditional distributions, binomial distribution, normal and t distributions, confidence intervals, and significance tests. May not be taken for credit in addition to ECO 320. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* AMS 201 or 210 or MAT 211

3 credits

### **AMS 311: Probability Theory**

Probability spaces, random variables, moment generating functions, algebra of expectations, conditional and marginal distributions, multivariate distributions, order statistics, law of large numbers.

*Prerequisites:* AMS 301 and 310 or permission of instructor

*Corequisites:* MAT 203 or 205 or AMS 261

3 credits

### **AMS 315: Data Analysis**

Statistical analysis of data. Exploratory data analysis. Estimation. Parametric and nonparametric hypothesis tests. Power. Robust techniques. Use and interpretation of statistical computer packages, such as SPSS.

*Prerequisite:* AMS 102 or 310

3 credits

### **AMS 316: Introduction to Time Series Analysis**

Trend and seasonal components of time series models, autoregressive and moving average (ARMA) models, Box-Jenkins methodology, Portmanteau test, unit-root, generalized autoregressive conditionally heteroskedasticity (GARCH) models, exponential GARCH, stochastic volatility models. This course is offered as both AMS 316 and AMS 586.

*Prerequisite:* AMS 311 and AMS 315

3 credits

### **AMS 318: Financial Mathematics**

This course will focus on accumulation functions, yield rates, annuities, loan repayment, term structure of interest rates/spot rates/forward rates, options, duration/convexity. This course follows the syllabus for the Financial Mathematics (FM) Exam of the Society of Actuaries and prepares students to pass the FM Exam.

*Prerequisite:* AMS 310

3 credits

### **AMS 321: Computer Projects in Applied Mathematics**

The simulation methodology for a variety of applied mathematical problems in numerical linear and nonlinear algebra, statistical modeling, and numerical differentiation and integration. Graphical representation of numerical solutions.

*Prerequisites:* AMS 210 or 261 or MAT 203; prior programming experience in C, FORTRAN, or Java

3 credits

### **AMS 326: Numerical Analysis**

Direct and indirect methods for the solution of linear and nonlinear equations. Computation of eigenvalues and eigenvectors of matrices. Quadrature, differentiation, and curve fitting. Numerical solution of ordinary and partial differential equations.

*Prerequisites:* AMS 210 or MAT 211; programming experience in Pascal, FORTRAN, or C

3 credits

### **AMS 332: Computational Modeling of Physiological Systems**

Introduces students to the fundamental principles underlying computational modeling of complex physiological systems. A major focus of the course will be on the process by which a model of a biological system is developed. Students will be introduced to the mathematical methods required for the modeling of complex systems (including stochastic processes and both temporal and spatial dynamics) as well as to tools for computational simulation. Roughly one half of the class will focus on models for general cellular physiology, while the remaining half will focus on the development of higher-level models of a particular physiological system (for example, the neurobiological systems underlying learning).

*Prerequisite:* MAT 127 and one of the following: BIO 202, BIO 203, CHE 132, PHY 127, PHY 132

3 credits

### **AMS 333: Mathematical Biology**

This course introduces the use of mathematics and computer simulation to study a wide range of problems in biology. Topics include the modeling of populations, the dynamics of signal transduction and gene-regulatory networks, and simulation of protein structure and dynamics. A computer laboratory component allows students to apply their knowledge to real-world problems.

*Prerequisites:* AMS 161 or MAT 132; BIO 202; U3 or U4 standing; or permission of the instructor

3 credits

### **AMS 335: Game Theory**

Introduction to game theory fundamentals with special emphasis on problems from economics and political science. Topics include strategic games and Nash equilibrium, games in coalitional form and the core, bargaining theory, measuring power in voting systems, problems of fair division, and optimal and stable matching. This course is offered as both AMS 335 and ECO 355.

*Prerequisites:* MAT 126 or 131 or 141 or AMS 151; C or higher in ECO 303

3 credits

### **AMS 341: Operations Research I: Deterministic Models**

Linear programming with a view toward its uses in economics and systems analysis. Linear algebra and geometric foundations of linear programming; simplex method and its variations; primal dual programs; formulation and interpretation of linear programming models, including practical problems in transportation and production control. Optional computer projects. AMS 341 and 342 may be taken in either order, though it is recommended that AMS 341 be taken first.

*Prerequisites:* AMS 210 or MAT 211

3 credits

### **AMS 342: Operations Research II: Stochastic Models**

Methods and techniques for stochastic modeling and optimization, with applications to queueing theory, Markov chains, inventory theory, games, and decisions. AMS 341 and 342 may be taken in either order, though it is recommended that AMS 341 be taken first.

*Prerequisites:* AMS 210 or MAT 211; AMS 311

3 credits

### AMS 345: Computational Geometry

The design and analysis of efficient algorithms to solve geometric problems that arise in computer graphics, robotics, geographical information systems, manufacturing, and optimization. Topics include convex hulls, triangulation, Voronoi diagrams, visibility, intersection, robot motion planning, and arrangements. This course is offered as both AMS 345 and CSE 355.

*Prerequisites:* AMS 301; programming knowledge of C or C++ or Java

3 credits

### AMS 351: Applied Algebra

Topics in algebra: groups, informal set theory, relations, homomorphisms. Applications: error correcting codes, Burnside's theorem, computational complexity, Chinese remainder theorem. This course is offered as both AMS 351 and MAT 312.

*Prerequisite:* AMS 210 or MAT 211  
*Advisory Prerequisite:* MAT 200 or CSE 113

3 credits

### AMS 361: Applied Calculus IV: Differential Equations

Homogeneous and inhomogeneous linear differential equations; systems of linear differential equations; solution with power series and Laplace transforms; partial differential equations and Fourier series. May not be taken for credit in addition to the equivalent MAT 303.

*Prerequisite:* AMS 161 or MAT 127 or 132 or 142

4 credits

### AMS 410: Actuarial Mathematics

Integrates calculus and probability with risk assessment and insurance in a quantitative manner to prepare students for the first actuarial examination.

*Prerequisites:* AMS 261 or MAT 203 or 205; AMS 310; AMS 311 or 315

3 credits

### AMS 412: Mathematical Statistics

Estimation, confidence intervals, Neyman Pearson lemma, likelihood ratio test, hypothesis testing, chi square test, regression, analysis of variance, nonparametric methods.

*Prerequisite:* AMS 311

3 credits

### AMS 441: Business Enterprise

Explores the strategy and technology of business enterprises. Integrates the practice of

engineering and quantitative methods with the operations of a business in today's globalized environment, whether in product development, financial management, or e-commerce.

*Prerequisite:* Junior or Senior Standing

3 credits

### AMS 475: Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty advisor. May be used as an open elective only and repeated once.

*Prerequisites:* U4 standing as an undergraduate major within the college; a minimum g.p.a. of 3.00 in all Stony Brook courses and the grade of B or better in the course in which the student is to assist; permission of department

3 credits

### AMS 476: Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty advisor. May be used as an open elective only and repeated once.

*Prerequisites:* U4 standing as an undergraduate major within the college; a minimum g.p.a. of 3.00 in all Stony Brook courses and the grade of B or better in the course in which the student is to assist; permission of department

3 credits

### AMS 487: Research in Applied Mathematics

An independent research project with faculty supervision. Permission to register requires a B average and the agreement of a faculty member to supervise the research. May be repeated once. Only 3 credits of research electives (AMS 487, CSE 487, MEC 499, ESE 499, ESM 499, EST 499, ISE 487) may be counted toward engineering technical elective requirements.

*Prerequisites:* Permission of instructor and department

0-3 credits

### AMS 492: Topics in Applied Mathematics

Treatment of an area of applied mathematics that expands upon the undergraduate curriculum. Topics may include applied mathematics, statistics, or operations research

and change from semester to semester.

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated once, as the topic changes.

*Prerequisite:* Permission of instructor

3 credits

## ANP

### Biological Anthropology

#### ANP 120- E: Introduction to Biological Anthropology

An introduction to the evolutionary study of humankind based on a survey of the diversity and evolutionary history of primates. The development of scientific and evolutionary thought and method. The biological basis of inheritance and variation. Human variations and adaptations in relation to the environment. Physical characteristics and behavior of living primates. Evolution of primates and current research on human origins. ANP 121 is the associated laboratory component of ANP 120.

3 credits

#### ANP 121: Biological Anthropology Laboratory

Laboratory exploration of the fundamentals of Biological Anthropology based on a survey of the diversity and evolutionary history of humans and nonhuman primates. The development of scientific and evolutionary thought and method. The biological basis of inheritance and variation. Human variations and adaptations in relation to the environment. Physical characteristics and behavior of living primates. Evolution of primates and current research on human origins. Two hours of laboratory per week during which students will experience the research process, methods, and skills, and learn to collaborate in formal inquiry. Not for credit in addition to ANP 120 as offered prior to Fall 2010.

*Corequisite:* ANP 120

1 credit

#### ANP 200- F: The Evolution of Human Behavior

An examination of how evolutionary theory informs our understanding of human behavior, psychology and culture. Topics include assessing what behavioral traits are unique to humans and critical to our ecological expansion. Course will provide a synthetic overview of current topics in human behavioral ecology, evolutionary psychology, and gene-culture coevolution.

*Prerequisite:* ANP 120 or BIO 201 or BIO 202

3 credits

**ANP 201- E: Human Evolution**

An overview of the evolution of the human lineage from its origins to the appearance of modern humans. Our evolutionary history involved some dramatic changes in anatomy and behavior, and we will explore both the significance of these changes, and the methods that scientists use to interpret them. The human fossil record is abundant, and will be our central focus. Emphasis will be placed on how we learn things about the past, as well as what we know.

*Advisory Prerequisite:* ANP 120, GEO 102, GEO 103, GEO 109, or any BIO course

3 credits

**ANP 220- H: Controversies in Human Biology and Behavior**

The study of controversially debated issues in the work of Physical Anthropologists. Surveys general aspects of primate and human behavior, human variation and adaptation, and the evolution of humans and human ancestors exploring previous and recent debates that have centered around issues such as for example the concept of evolution, gender roles and mating systems, role of aggression, and the role of hunting and gathering.

*Advisory prerequisite:* Introductory Anthropology or Biology course

3 credits

**ANP 300- E: Human Anatomy**

An introduction to the structure of the human body considered from both systems and regional approaches. Subject matter includes the musculoskeletal, respiratory, nervous, cardiovascular, digestive, and urogenital systems, together with an appreciation of these systems in a regional anatomical context. Laboratory sessions entail examination of plastic models, exercises in living anatomy and computer "dissection." Instructor permission required to repeat ANP 300. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* ANP 120 or one BIO course

4 credits

**ANP 305: Vertebrate Paleontology of the Turkana Basin**

Vertebrate fossils are important sources of information about the appearance, evolution, and extinction of major organisms. As such, they provide a valuable window into changes in climate and selection pressures, and organisms' diverse adaptive responses to these changes. They are also significant in placing hominid discoveries within a relative

local chronology, and helping reconstruct environments associated with hominid finds. This course acquaints students with methods of vertebrate paleontology employed in different chronological contexts of the Turkana Basin, used to solve diverse theoretical questions.

*Prerequisite:* Permission of the instructor/Study Abroad office

3 credits

**ANP 306: Paleoanthropological Discoveries of the Turkana Basin**

The Turkana Basin is home to many paleoanthropological discoveries that fundamentally reshaped ideas about human evolution. Richard, Maeve, and Louise Leakey will share perspectives on eight of these finds, including Nariokotome ("Turkana boy") and KNM-WT1700 (the "Black Skull"). Lectures and readings for each discovery will cover: 1) the research questions and strategies that led to the find; 2) the kind of analyses that have yielded the most important interpretive conclusions about the find; 3) how this discovery reshaped views of the human past; and 4) what new directions it catalyzed in human evolution research. Class activities consist of lectures by the Leakeys, laboratory exercises (reconstructions, measurements) using casts of the 5 kinds, and field trips to discovery locations.

*Prerequisite:* Permission of the instructor/Study Abroad office

3 credits

**ANP 307: Comparing Ecosystems in Madagascar**

The major goal of this course is to introduce the biodiversity and diversity of ecosystems on the island of Madagascar. In addition to exploring the different habitats within Ranomafana National Park, we will embark on a ten-day trip across Madagascar.

*Prerequisite:* Permission of instructor/Study Abroad office

3 credits

**ANP 321: Primate Evolution**

The evolution of the order Primates from its origins to the appearance of the human family. Primate origins; the first primates of modern aspect; origins and adaptive radiations of monkeys; appearance and adaptations of apes and humans. Relevant topics in geology such as geochronology, paleogeography, taphonomy, and paleoecology.

*Prerequisite:* ANP 120

3 credits

**ANP 325- E: Primate Behavior**

An introduction to primate social systems and the factors that influence their maintenance and evolution, including foraging strategy, demographic processes, mating and rearing strategies, conflicts and coalitions, and communication.

*Prerequisite:* ANP 120

3 credits

**ANP 326: Lemurs of Madagascar**

The course explores the biology, ecology, social behavior, and conservation of Madagascar's lemurs. We will discuss case studies based on current field and captive research, in this way highlighting important principles in behavior and ecology. Critical thinking on current topics in general primate behavior will be emphasized through various discussion formats. The evolutionary continuum between humans and other primates will be explored. Throughout the course, we will pay attention to conservation threats that menace the well-being of lemur today.

*Prerequisite:* Permission of instructor/Study Abroad office

3 credits

**ANP 350: Methods in Studying Primates**

Introduction to the concepts and practical skills needed to conduct scientific work, particularly in the study of primates, including how to collect and analyze data focusing on habitat description, primate densities, use of space, and social interactions. Topics include design and presentation of research; ecological field methods; behavioral observations and other techniques. Students are required to plan a small research study and to present their proposal in class. Some computer work outside class required.

*Prerequisite:* Permission of instructor/Study Abroad office

3 credits

**ANP 360- H: Primate Conservation**

Review of endangered species of primates and case histories of conservation programs in Asia, Africa, South America, and Madagascar, highlighting different problems and solutions.

*Advisory Prerequisite:* ANP 120 or BIO 201 and BIO 204

3 credits

**ANP 391: Topics in Biological Anthropology**

Discussion of a topic of current interest in physical anthropology. May be repeated as the topic changes.

*Prerequisite:* ANP 120

*Advisory prerequisite: One other ANP course  
3 credits*

**ANP 399: Advanced Field Research in the Turkana Basin**

Intended to follow the Turkana Basin Institute (TBI) Field School in NW Kenya. It should facilitate TBI field school alumni participation in ongoing field projects directed by senior researchers within the Turkana Basin. Upper-division Stony Brook undergraduates who demonstrate readiness may undertake a junior role within a larger project focusing on archaeology or human ecology (ANT 399) or paleoanthropology or vertebrate paleontology (ANP 399). The nature of ANT/ANP 399 offerings each semester will depend on which senior scholars are conducting field research and whether their projects are suitable for undergraduate involvement. They may include the opportunity to join a paleoanthropological survey of ancient landscapes for vertebrate remains (ANP 399), or to join an archaeological excavation of a 4000-year-old habitation site (ANT 399). Credit for each offering is determined for by the TBI faculty and is consistent for all registrants.

*Prerequisite: Permission of the instructor. One or more of the following courses: ANP 305, ANP 306, ANT 304, ANT 307, GEO 303  
3-12 credits*

**ANP 403: Seminar in Biological Anthropology**

Research and discussion of selected topics in physical anthropology. May be repeated as the topic changes.

*Prerequisite: Permission of instructor  
3 credits*

**ANP 404: Human Osteology**

A detailed study of the anatomy of the human skeleton with special emphasis on the interpretation of skeletal remains from archaeological contexts. Consideration is given to the growth, structure, and function of bones, and to forensic aspects such as the determination of age, sex, stature, and pathology from skeletal remains. Students conduct a research project on a human skeleton.

*Prerequisites: ANP 300; permission of instructor  
3 credits*

**ANP 405: Human Evolution in the Headlines**

Exploration of how anthropologists reconstruct the biology and behavior of extinct human species. The class addresses

how anthropologists estimate body size in individual fossils, establish the evolutionary relationships among species, and determine what different species ate when they were alive, among other topics. Topics are approached by reading scientific articles and reading popular accounts of anthropological discoveries and research. Students are encouraged to actively participate in class through presentations and discussion of readings. Emphasis is on developing critical thinking and writing skills. The goals of this class are multifaceted and include learning modern techniques for reconstructing the behavior, systematics, and biology of extinct humans, and discerning between facts, analysis, and interpretation in science. Note: students who have taken ANP 403 with this topic may not take ANP 405 for credit.

*Prerequisite: ANP 120 or ANP 201  
3 credits*

**ANP 406: Pseudoscience and Anthropology**

Course will examine some common misconceptions, as well as deliberate frauds, related to the field of Anthropology. Bigfoot, Atlantis, and ancient astronauts remain common subjects in mainstream media, but what do we, and what can we, really know about such subjects? In this course we will assemble a basic toolkit for skeptical inquiry, and apply it to several examples of anthropological pseudoscience. Dissecting these cases leads to an investigation of how we can distinguish truth from falsehood, and knowable facts from unknowable conjectures. Lastly, we will try to understand the persistence of pseudoscience and other forms of nonsense in our culture, as these clearly thrive despite their lack of grounding in reality.

*Prerequisite: ANT 104, ANP 120, and either ANP 201 or ANP 220  
3 credits*

**ANP 447: Readings in Biological Anthropology**

Individual advanced readings on selected topics in physical anthropology. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of instructor  
3 credits*

**ANP 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty

member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: U3 or U4 standing; anthropology major; 3.00 g.p.a.; permission of instructor*

*3 credits, S/U grading*

**ANP 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served. Not for major or minor credit.

*Prerequisites: U3 or U4 standing; anthropology major; 3.00 g.p.a.; permission of instructor*

*3 credits, S/U grading*

**ANP 487: Independent Research in Biological Anthropology**

Independent research projects carried out by upper-division students. The student must propose the research project, carry it out, analyze the data, and submit the results in a written form acceptable to the sponsor. May be repeated up to a limit of six credits.

*Prerequisite: 15 credits in anthropology; permission of instructor  
0-6 credits*

**ANP 488: Internship in Biological Anthropology**

Participation in state, local, and national public and private agencies and organizations. Students are required to submit written progress reports and a final written report on their experiences to the faculty sponsor and the department. May be repeated to a limit of 12 credits.

*Prerequisites: 15 credits in anthropology; permission of instructor  
0-6 credits, S/U grading*

**ANP 495: Senior Honors Project in Anthropology**

First course of a two-semester project for anthropology majors who are candidates for the degree with honors. Arranged in consultation with the department through the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty

member on a suitable topic selected by the student. Students enrolled in ANP 495 are obliged to complete ANP 496 the following semester. Students receive only one grade upon completion of the sequence ANP 495-496.

*Prerequisite: Admission to the anthropology honors program*

3 credits

### **ANP 496: Senior Honors Project in Anthropology**

Second course of a two-semester project for anthropology majors who are candidates for the degree with honors. Arranged in consultation with the department through the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students receive only one grade upon completion of the sequence ANP 495-496.

*Prerequisite: ANP 495; admission to the anthropology honors program*

3 credits

## **ANT**

### **Anthropology, Cultural and Archaeology**

#### **ANT 102- F: Introduction to Cultural Anthropology**

The analysis of social and cultural topics such as kinship, family, marriage, politics, and religious systems, with an emphasis on their particular expression in non-Western societies.

3 credits

#### **ANT 104- F: Introduction to Archaeology**

An introduction to the study of human behavior through the analysis of material residues. Case studies illustrate how archaeologists answer research questions originating in other social sciences, natural history, or humanities disciplines, thereby creating a unique interdisciplinary and long-term perspective on human behavior. The course provides a critical perspective on recent ethical and interpretive controversies about the human past.

3 credits

#### **ANT 200- J: Contemporary and Historical Perspectives on Insular Southeast Asia**

The history, politics, and cultures of Indonesia, Malaysia, Singapore, the Philippines, East Timor, and Brunei. Special attention is given to the religious ideas and rituals, and relationships of power throughout the archipelago. The largest country by far in the region, Indonesia, receives most attention.

*Prerequisite: ANT 102*

3 credits

#### **ANT 201- J: Peoples of South America**

A survey of the social, cultural, and historical aspects of South American native peoples. Attention is given to issues of demography and biology, ecology, and cultural evolution. In-depth study of selected cultures and comparative study in selected cultural topics form the core of the course. Particular emphasis is given to topics of culture contact, culture change, tribal cultures in a context of national development, and cultural pluralism.

*Advisory Prerequisite: ANT 102*

3 credits

#### **ANT 203- J: Native Peoples of North America**

The various peoples and cultures of North America are studied with respect to their political, educational, linguistic, social, and cultural patterns. Selected societies are studied in depth.

*Advisory Prerequisite: ANT 102*

3 credits

#### **ANT 205- J: Ancient Japanese Civilization**

This course surveys the emergence of early Japanese civilization from prehistoric times to the Nara period in the 8th century A.D. Analytical focus will be placed on specific topics, including the significance of population movement, the influence of Chinese civilization, the centralization of political authority, the development of Japanese language and early literacy, and the roles of ancient Japanese religion and mythology. These topics will be examined from archaeological, anthropological, and historical perspectives. The course aims to provide a thorough foundation for further study in Japanese history and culture.

*Prerequisite: U2 standing or higher*

3 credits

#### **ANT 210- F: Sunken Cities and Pirates: The World of Underwater Archaeology**

Explores the variety of underwater archaeological sites found around the world, including submerged Stone Age sites in the Old and New Worlds and sunken cities

such as Alexandria, Egypt and Port Royal, Jamaica. The class also treats the development of global seafaring through the study of sunken ships, starting with the Bronze Age in the Mediterranean Sea through Viking age ships in northern Europe and the later Age of Exploration. Methods of underwater excavation and site interpretation based on anthropological theory will also be discussed.

3 credits

#### **ANT 230- J: Peoples of the World**

A comparative study of the lifeways of selected types of peoples, defined by adaptation, focusing on their ecology, economy, political organization, and social organization. Groups discussed include the gathering-and-hunting Ju/'hoansi of Africa, the horticultural Kaluli of New Guinea, the pastoralist Basseri of Iran, plus selected peasant and migrant groups. Recent changes affecting indigenes, brought about by technological developments and intercultural contact, are discussed.

*Prerequisite: ANT 102*

3 credits

#### **ANT 250- J: African Peoples and Cultures**

The prehistoric cradle of humankind, Africa is today home to diverse cultures, environments, languages, and economies. Western mass media often generalizes across this immense diversity, or focuses on areas of conflict, famine, or environmental devastation. This course introduces students to Africa via the voices of Africans themselves, or those of anthropologists who have spent many years on the continent.

3 credits

#### **ANT 252- F: Personality and Culture**

The role of culture as a factor in personality and character formation and how different cultures handle the basic human drives, especially aggression. The course also discusses cultural influences on gender role, violence and social control, and mental health. Case studies from South America, Oceania, Malaysia, and southern Europe are compared.

*Prerequisite: U2 standing or higher*

3 credits

#### **ANT 260- K: How We Eat**

This course explores how people's food habits are shaped not only by their biological needs, but also by the economic, political, ecological, and social worlds in which they live. The breadth of anthropology (biological anthropology, cultural anthropology, and

archaeology) is brought to bear on issues including the economic and political underpinnings of American as well as other food cultures; the relationship between food habits and health (both over-and under-eating); the environmental impacts of various methods of food production; the relationship between food and social status; gendered food production as well as food consumption; food's role in religion; ethical eating; the limits of current knowledge (e.g., changing dietary recommendations); and the socioeconomic pressures that keep individuals eating according to cultural norms. The class discusses foodways in a variety of present and past cultures, but the emphasis is on modern American food culture and the cultural, economic, ecological, and political realities that shape it. Students will explore how these realities affect their own lives and eating habits.

3 credits

#### **ANT 270- F: Great Archaeological Discoveries**

Recent controversies surrounding the most important social transitions in human prehistory. These include the origin of modern human societies, the rise of agrarian communities, and the formation of early states, all examined in cross-cultural perspective. Major theories and models of human sociocultural evolution are tested with evidence from the best-documented archaeological sites in Africa, Eurasia, and the Americas.

*Prerequisite:* U2 or higher standing

*Advisory Prerequisite:* ANT 104

3 credits

#### **ANT 290- H: Science and Technology in Ancient Society**

Examination of the role of advances in science and technology in societies ranging from the earliest humans to the archaic civilizations of the Old and New Worlds. The course focuses on such innovations as tool making, fire, metallurgy, writing, mathematics, complex architecture, and relates these innovations to changes in sociopolitical organization.

*Prerequisite:* One D.E.C. category E course

3 credits

#### **ANT 296- I: Anthropology of the European Mediterranean**

This course explores the societies and cultures of the southern European countries with emphasis placed on rural/agrarian adaptations, gender relations, ritual, religion and folklore, social stratification and social class, community organization, and rural-

urban distinctions. Students will read case studies from Portugal, Spain, Italy, and Greece, as well as background material on "The Mediterranean" as a social and cultural construct. The monographs for this course cover mainly the post-War period, from the 1950s and up to the present, but a brief time is spent on the historical background from classical antiquity to the modern period. Not for credit in addition to ANT 396 with the topic "The Mediterranean."

*Prerequisite:* ANT 102

3 credits

#### **ANT 304: Modern and Ancient Environments of Eastern Africa**

With the world's longest sequence of datable deposits containing fossils of our ancestors, eastern Africa is the ideal place to examine humans' changing relations with our environment. This course familiarizes students with diverse ecological settings in the region today through tours and field exercises in highland forests, low-altitude grasslands, and lacustrine and riparian settings. Students learn various methods for paleoenvironmental reconstruction, and practice integrating different kinds of paleoenvironmental evidence in the field and laboratory facilities at TBI-Turkwel, Kenya. Examining modern vegetation and fauna in central and northwest Kenya shows students how human actions can degrade or conserve environments and resources in eastern Africa today.

*Prerequisite:* Permission of the instructor/ Study Abroad office

3 credits

#### **ANT 305: Culture and Language of Madagascar**

The major goal of this course is to introduce students to the Malagasy culture. Students will attend formal classes with native Malagasy speakers meet with local community and school groups, and attend a variety of cultural activities within the towns and villages that surround RNP.

*Prerequisite:* Permission of instructor/Study Abroad office

3 credits

#### **ANT 307: Archaeology of the Turkana Basin**

Sites in the Turkana Basin show changes in human technology and social organization from earliest times to today. Class trips to Early Stone Age sites show innovations in lithic technology during the first stages of stone tool production. Practice surveys and excavations focus on the past 10,000 years, when local hunter-gatherers began using

pottery and bone harpoons, and eating aquatic resources. Additional site tours highlight 1) early herding in eastern Africa and the construction of stone pillar sites, possibly for ceremonial use, and 2) integration of fishing, herding, farming, and use of iron tools during the past 2000 years. Linking the human evolution finds with the present, class lectures, lab exercises, and field excursions show students how archaeologists document technological innovation, adoption, and transformation through material cultural evidence. Students learn diverse methods of survey and excavation appropriate for different sites and contexts.

*Prerequisite:* Permission of the instructor/ Study Abroad office

3 credits

#### **ANT 310- J: Ethnography**

A particular cultural area of the world, such as sub-Saharan Africa, Oceania, Mexico and Guatemala, Asia, or the Middle East, is considered in terms of its history and ecology, with a comparative analysis of the cultural systems and social arrangements of representative ethnic groups. The aim of the course is to provide an overview of cultural diversity and uniformity in an area outside of Europe. May be repeated as the topic changes.

*Prerequisite:* ANT 102

*Advisory prerequisite:* One other ANT course

3 credits

#### **ANT 311- J: Immersion in Another Culture**

A specific world area, such as the highlands of New Guinea or the Nilotic Southern Sudan, or a particularly well-documented people such as the Trobriand Islanders, are considered in detail. Lectures, texts, and films consider ecology, history, social change, language, cultural systems, and social arrangements toward providing students with a comprehensive understanding of another cultural system. May be repeated as the topic changes.

*Prerequisite:* ANT 102

3 credits

#### **ANT 320: Historical Archaeology**

Explores the archaeology of North America from the 15th century through the mid-20th century, looking at how historical archaeologists use artifactual, documentary, and oral history evidence to reconstruct and interpret the past. Recent theoretical, methodological, and thematic developments in historical archaeology will be examined, along with the study of how material culture

can reflect social identity (race, class, gender, ethnicity).

*Prerequisite:* ANT 104

3 credits

### **ANT 350- F: Medical Anthropology**

An introduction to the cross-cultural study of health, illness, and curing. Topics covered include the human body as cultural construct, theories of illness causation, alternative medical systems, epidemiology, ethnopharmacology, cross-cultural psychiatry, sex and reproduction, nutrition, and the implications of culture for pain perception, stress, and health risk management.

*Prerequisite:* ANT 102

3 credits

### **ANT 351- F: Comparative Religion**

A survey of religious behavior in cross-cultural perspective. The approach is broadly comparative and eminently anthropological, involving theories of origin and evolution of religious systems, as well as the functioning of religious behavior and institutions within the total culture. Case study material is drawn primarily from preliterate societies, but some reference is made to the large organized religious systems of complex stratified societies.

*Prerequisite:* ANT 102

3 credits

### **ANT 353: Archaeological Analysis and Interpretation**

Laboratory analysis of recently excavated materials from Long Island archaeological sites. Types of prehistoric material analyzed include lithic and ceramic artifacts and the remains of shellfish and vertebrates.

*Prerequisite:* Permission of instructor

3 credits

### **ANT 354- F: Family, Kinship, and Marriage**

Concepts of family, kinship, marriage, incest, exogamy: their source in nature and culture and their social implications. Major theories are discussed historically, demographically, and ecologically. Brief case studies are presented to illustrate theories of social anthropology.

*Prerequisite:* ANT 102

3 credits

### **ANT 355- J: Ancient African Civilizations**

The archaeology of Africa's later prehistoric and historic periods offers exciting contributions to global debates on the origins

of agriculture and civilization. Covering the last 20,000 years, this course begins by examining the economic underpinnings of Africa's complex societies: intensive hunting and gathering, animal domestication, and early farming. Detailed case studies of six ancient civilizations (Egypt, Kerma, Aksum, Jenne, Swahili, and Great Zimbabwe) then demonstrate distinct processes of prehistoric social change in different parts of Africa. The course concludes by discussing African archaeological heritage conservation, research, and public education. This course is offered as both AFS 355 and ANT 355.

*Prerequisites:* One 100-level course in AFS or ANT; U3 or U4 standing

3 credits

### **ANT 357- F: The Agricultural Revolution**

The origins and consequences of agrarian (food-producing) adaptations. Examination of the social, technological, and ecological changes that occurred when humans shifted from hunting and gathering to agriculture and pastoralism around 8000 years ago. Current theories about the origins and consequences of agro-pastoralism are evaluated in light of recent evidence from both Old and New Worlds.

*Prerequisite:* ANT 104

3 credits

### **ANT 358- J: Ways to Civilization**

A comparative study of processes of cultural evolution from simple agricultural societies to the achievement of civilization in different parts of the world. Emphasis is on current theories of state formation and on how these theories are supported by cultural evidence, especially from the six 'pristine' states of Mesopotamia, Egypt, Indus Valley, China, Meso-america, and Peru.

*Prerequisite:* ANT 104

3 credits

### **ANT 359: The Archaeology of Food**

Explores the archaeological study of food and foodways. The emphasis is on the social aspects of food, particularly its roles in past power structures, social relationships, conceptions of identity, ritual practices, and gender roles. Also covers the theoretical and methodological approaches archaeologists use to study food in the past.

*Prerequisite:* ANT 104

3 credits

### **ANT 360- J: Ancient Mesopotamia**

The organization and development of the social, economic, political, and religious systems of ancient Mesopotamia through study of the archaeological and textual records. This course stresses the first two thousand years of this civilization, from 3500 B.C. to 1500 B.C.

*Prerequisite:* U3 or U4 standing

3 credits

### **ANT 361- F: Peasants**

The concept of peasantry from political, religious, cultural, and social-class perspectives, as well as from the more traditional economic viewpoint. These agricultural peoples are described and analyzed especially in relation to the national societies of which they form a part. Case studies from Latin America, Europe, and Asia are used as illustrations. Special attention is given to the agrarian political movements and revolutions in the Third World.

*Prerequisite:* ANT 102

3 credits

### **ANT 362- J: Long Island Archaeology**

Life on Long Island from its first settlement by Native Americans 12,000 years ago until the end of the 17th century. Trends and changes in human behavior are studied in the context of environmental and cultural processes affecting all of northeastern North America.

*Prerequisite:* ANT 104

3 credits

### **ANT 363- F: Approaches in Archaeology**

A survey of archaeological thought from early antiquarianism through the culture history, processual, and post-processual approaches to the investigation and analysis of past societies. Emphasis is placed on the ways in which changes in archaeological theory reflected changes in ideas within the sister fields of sociology, cultural anthropology and geography. Other topics discussed include ethnographic analogy, systems theory, site formation processes and spatial analysis.

*Prerequisite:* ANT 104

3 credits

### **ANT 367- F: Male and Female**

A study of the manifestation of sex roles in different cultures. Discussion topics include the impact of social, economic and political organization on gender roles and relationships, sexual orientation in cross-cultural perspective, and contemporary theories of gender inequality. Readings present both the male and female viewpoints.

*Prerequisite:* ANT 102

3 credits

### **ANT 368: Archaeology of Human Origins**

A survey of the archaeological evidence for behavioral variability and adaptation by early humans during the course of the Pliocene, and Early-Middle Pleistocene epochs (2.7-0.1 million years ago). Topics include early stone tool use, origins of hunting, early fire use, adaptations to glacial climates, behavioral differences among hominins living in Africa, Europe, and Asia.

*Prerequisite:* ANT 104

3 credits

### **ANT 371- J: Ancient China**

Explores the development of social, economic, political, and cultural systems in ancient China, from the neolithic period through the Han dynasty. Draws on archaeological data and historical texts to examine the emergence of state-level polities and their subsequent unification under imperial authority. Analytical focus is on political economy, social organization, ritual exchange, and notions of power and rulership expressed in philosophical thought. This course is offered as both AAS 371 and ANT 371.

*Prerequisites:* U3 or U4 standing; completion of D.E.C. category F

3 credits

### **ANT 372- J: Family, Marriage, and Kinship in China**

Examines forms and dynamics of social organizations in Chinese society, focusing on cultural, social, and economic aspects of family, marriage, and extended kinship relations such as lineages, clans, and sworn brotherhoods. Particular attention is paid to how gender, generation, class, and ritual exchange shape identity, status, and power. This course is offered as both AAS 372 and ANT 372.

*Prerequisite:* ANT 102

*Advisory Prerequisites:* AAS 220 and ANT 354

3 credits

### **ANT 373: Archaeology of Human Dispersals**

A survey of the archaeological evidence for the dispersal of Homo sapiens during the Late Pleistocene epoch (128,000-13,000 years ago). Topics include African origin of Homo sapiens, dispersals into Eurasia, Australia, and the Americas, large mammal extinctions, origins of art, music, and symbolic behavior, and emergence of hunter-gatherer. Not for credit in addition to ANT 394 topic "Origin of Modern Humans."

*Prerequisite:* ANT 104

3 credits

### **ANT 379- J: Ethnicity and Ecology in China**

This course explores issues of ethnic and national identity in the context of the social ecology of the Chinese state, both past and present. It focuses on the material and social relationships that have shaped perceptions of, and interactions between, cultural groups in China and along its frontiers. Drawing on case studies from the Himalayan plateau, Yunnan highlands, Inner Asian steppes, Taiwan, and elsewhere, students examine how sustenance strategies, economic organization, and political administration have influenced construct of ethnic identity. This course is offered as both AAS 379 and ANT 379.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* AAS 220 or HIS 219 (or the former CNS 249 or 250)

3 credits

### **ANT 380- J: Race and Ethnicity in Latin America and the Caribbean**

Concepts and theories of race and ethnicity in Latin American and Caribbean settings. The historical evolution and the contemporary social and cultural significance of racial and ethnic identities within the region are explored. Specific examples of social relations characterized by ethnic or racial conflict are presented. This course is offered as both AFS 380 and ANT 380.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* AFS 240 or LAC 200

3 credits

### **ANT 381- F: Applied Anthropology**

A practical, career-oriented examination of how anthropological theory and method can be put to use in non-academic areas such as economic development, public health, environmental conservation, education, technology development, cultural advocacy, business, and law. Coordinated readings provide case illustrations.

*Prerequisite:* U3 or U4 standing

3 credits

### **ANT 385- J: Prehistoric Peoples of the Americas**

Life in the Americas from first settlement at the end of the last ice age until the arrival of the Europeans in the 15th and 16th centuries. The culture, history, and evolution of prehistoric peoples of North, Central, and South America are treated. Specific topics covered include settlement by Native Americans, hunting-gathering lifeways, plant

and animal domestication, the origins of village life, and state-level societies.

*Prerequisite:* ANT 104

3 credits

### **ANT 390- F: Topics in Social and Cultural Anthropology**

May be repeated as the topic changes.

*Prerequisite:* ANT 102

3 credits

### **ANT 391- F: Topics in Social and Cultural Anthropology**

May be repeated as the topic changes.

*Prerequisite:* ANT 102

3 credits

### **ANT 393- F: Topics in Archaeology**

Topics in archaeology are taught from a social sciences perspectives. Recent topics have included: Origin of Modern Humans, Advent of the Iron Age, Old World Archaeology, and Ancient Egypt. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites:* ANT 104 and one other anthropology course

3 credits

### **ANT 394- F: Topics in Archaeology**

Topics in archaeology are taught from a social sciences perspectives. Recent topics have included: Origin of Modern Humans, Advent of the Iron Age, Old World Archaeology, and Ancient Egypt. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites:* ANT 104 and one other anthropology course

3 credits

### **ANT 395- J: Religions of the Caribbean**

An ethnographic approach to the relationship among religion, social organization, and identity politics through studying cultural and historical bases of Christianity, Islam, Hinduism, and their related religious manifestations in the Caribbean. Class stratification, ethnic conflict, and fundamentalist movements are explored. This course is offered as both AFS 395 and ANT 395.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* ANT 351

3 credits

**ANT 399: Advanced Field Research in the Turkana Basin**

Intended to follow the Turkana Basin Institute (TBI) Field School in NW Kenya. It should facilitate TBI field school alumni participation in ongoing field projects directed by senior researchers within the Turkana Basin. Upper-division Stony Brook undergraduates who demonstrate readiness may undertake a junior role within a larger project focusing on archaeology or human ecology (ANT 399) or paleoanthropology or vertebrate paleontology (ANP 399). The nature of ANT/ANP 399 offerings each semester will depend on which senior scholars are conducting field research and whether their projects are suitable for undergraduate involvement. They may include the opportunity to join a paleoanthropological survey of ancient landscapes for vertebrate remains (ANP 399), or to join an archaeological excavation of a 4000-year-old habitation site (ANT 399). Credit for each offering is determined for by the TBI faculty and is consistent for all registrants.

*Prerequisite:* Permission of the instructor. One or more of the following courses: ANP 305, ANP 306, ANT 304, ANT 307, GEO 303

3-12 credits

**ANT 401: Problems in Social and Cultural Anthropology**

Research and discussion of a selected topic in social and cultural anthropology. May be repeated as the topic changes.

*Prerequisite:* ANT 102

*Advisory prerequisite:* Two other ANT courses at the 200 level or higher

3 credits

**ANT 402: Problems in Archaeology**

Research and discussion of a selected topic in the prehistory of the Old and New Worlds. May be repeated as the topic changes.

*Prerequisite:* ANT 104

*Advisory prerequisite:* Two other archaeology courses

3 credits

**ANT 405: Cultural Ecology**

Using the model of ecological adaptation as a starting point, this course explores the impact of the natural and social environment upon human culture. By the latter is meant the way of life of a particular society: its politics, religion, ways of thought, moral standards, rituals and ceremonies, gender ideals and sex roles, and other aspects of ideology and belief. The course uses two anthropological texts that provide background concepts and terminologies, then exposes students to

empirical case studies of ecological adaptation, both in pre-literate and literate societies.

*Prerequisite:* ANT 102

*Advisory prerequisite:* 200 level or higher ANT course

3 credits

**ANT 415: Ethnoarchaeology**

Ethnoarchaeology uses observations of present-day peoples to inform archaeological inquiry, based on analogies between past and present. Advanced undergraduate and graduate students will develop their ability to construct and evaluate such analogies. Using this skill, they will then explore ways in which ethnoarchaeological data contribute to archaeological research: hypothesis building, survey and excavation strategies, interpretation of site and artifact data, and understanding the causes and processes of human behavioral change. In addition to seminar discussions of theoretical issues and case studies, the course incorporates practical exercises in the surrounding community.

*Prerequisite:* ANT 104; ANT major or minor

3 credits

**ANT 417: Primitive Technology**

An introduction to the technology of hunter-gatherers. The course examines how archaeologists use both ethnography and experimentation to shed light on prehistoric human technological adaptations.

*Prerequisite:* Permission of instructor

3 credits

**ANT 418: Lithic Technology**

A detailed overview of the methods archaeologists use to extract behavioral information from prehistoric stone tools. The course examines raw material economy, technological strategies, tool use, and discard behavior. Analytical methods are practiced through the computer-assisted analysis of tools from simulated archaeological sites.

*Prerequisite:* Permission of instructor

3 credits

**ANT 419: Zooarchaeology**

The study of animal bones from archaeological sites. Special emphasis is on the identification of fragmented bone and surface modification, calculation of indexes of abundance, and measurement and metrical analysis of mammal bone. Computer analysis is stressed, and the class seeks a fusion of traditional zooarchaeology and actualistic studies. Three to four hours of computer laboratory work required per week.

*Prerequisites:* ANT 104 or ANP 120;

*permission of instructor*

*Advisory Prerequisite:* One other archaeology course

3 credits

**ANT 420: Environmental Analysis Using Remote Sensing and Geographic Information Systems**

The use of aerial and satellite imagery in environmental analysis and the manipulation of geographic data sets of all types using Geographic Information Systems. Concentrating on Long Island, each student designs and completes a research project on a particular section of the area, focusing on the habitats of local wildlife, the locations of archaeological sites, coastal regimes, etc. Students should expect to spend approximately 10 hours per week beyond regularly scheduled classes in a University computer laboratory. This course is offered as both ANT 420 and GEO 420.

*Prerequisite:* Upper-division course in ANT or BIO or GEO or MAR

4 credits

**ANT 447: Readings in Anthropology**

Individual advanced readings on selected topics in anthropology. May be repeated up to a limit of 6 credits.

*Prerequisites:* ANT 102; two other ANT courses at the 200 level or higher; *permission of instructor*

3 credits

**ANT 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* U3 or U4 standing; anthropology major; 3.00 g.p.a.; *permission of instructor*

3 credits, S/U grading

**ANT 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters

relating to the course. In ANT 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* U3 or U4 standing; anthropology major; 3.00 g.p.a.; permission of instructor

3 credits, S/U grading

### **ANT 487: Independent Research in Anthropology**

Independent research projects carried out by upper-division students. May be repeated up to a limit of six credits.

*Prerequisites:* 15 credits in anthropology; permission of instructor

0-6 credits

### **ANT 488: Internship**

Participation in local, state, and national public and private agencies and organizations. Students are required to submit written progress reports and a final written report on their experiences to the faculty sponsor and the department. May be repeated up to a limit of 12 credits.

*Prerequisites:* 15 credits in anthropology; permission of instructor

0-6 credits, S/U grading

### **ANT 495: Senior Honors Project in Anthropology**

First course of a two-semester project for anthropology majors who are candidates for the degree with honors. Arranged in consultation with the department through the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students enrolled in ANT 495 are obliged to complete ANT 496 the following semester. Students receive only one grade upon completion of the sequence.

*Prerequisite:* Admission to the anthropology honors program

3 credits

### **ANT 496: Senior Honors Project in Anthropology**

Second course of a two-semester project for anthropology majors who are candidates for the degree with honors. Arranged in consultation with the department through the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the

close supervision of an appropriate faculty member on a suitable topic selected by the student. Students receive only one grade upon completion of the sequence.

*Prerequisite:* ANT 495; admission to the anthropology honors program

3 credits

## **ARB**

### **Arabic**

#### **ARB 101 - S3: Intensive Elementary Arabic**

An intensive course covering the elementary Arabic program (ARB 111, ARB 112) in one semester. This course is designed for students who have no prior knowledge of the language.

6 credits

#### **ARB 111: Elementary Arabic I**

An introduction to Modern Standard Arabic, stressing speaking, comprehension, reading and writing. Selected texts are read. Practice in the language laboratory supplements class work. No student who has had two or more years of Arabic in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for ARB 111 without written permission from the supervisor of the course.

3 credits

#### **ARB 112 - S3: Elementary Arabic II**

An introduction to Arabic, stressing speaking, comprehension, reading and writing. Selected texts are read. Practice in the language laboratory supplements class work.

*Prerequisite:* ARB 111

3 credits

#### **ARB 211 - S3: Intermediate Arabic I**

Continued study of Arabic at a more advanced level of speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. No student who has four or more years of Arabic in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for ARB 211 without written permission from the supervisor of the course.

*Prerequisite:* ARB 101 or ARB 112

3 credits

#### **ARB 212 - S3: Intermediate Arabic II**

Continued study of Arabic at a more advanced level of speaking, comprehension, reading, writing, and grammar. Selected texts are

read. Practice in the language laboratory supplements class work.

*Prerequisite:* ARB 211

3 credits

## **ARH**

### **Art History**

#### **ARH 101- D: Art in Culture from Prehistoric Times to the Age of the Cathedrals, ca. 1400 A.D.**

A survey of the history of painting, sculpture, and architecture from its beginnings in prehistoric times to the end of the Middle Ages. Works of art are studied both as individual monuments with intrinsic aesthetic appeal and as expressions of the needs, ideals, and aspirations of the particular society in which they were created.

3 credits

#### **ARH 102- D: Art in Culture from the Early Renaissance, ca.1400, to Postmodernism**

A survey of the history of painting, sculpture, and architecture from the Renaissance to the present day. Works of art are studied both as individual monuments with intrinsic aesthetic appeal and as expressions of the needs, ideals, and aspirations of the particular society in which they were created.

3 credits

#### **ARH 201- D: Arts of Africa, Oceania, and the Americas**

An introduction to the arts of Africa, Oceania, and the Americas. Following discussion of basic concepts in studying non-Western art, the course focuses on comparing and contrasting the arts of particular societies in each of these regions from ancient times to the present.

*Advisory Prerequisite:* U2 standing

3 credits

#### **ARH 205- G: Introduction to Architecture**

An introduction to the discipline of architecture through various interpretations of its technological and cultural functions. Focusing on the history of architecture's engagement with engineering, anthropology, sociology, and politics, this course explores changing conceptions of the nature and the task of architecture.

3 credits

#### **ARH 207: Digital Media: History and Theory**

An introduction to historical and theoretical issues in digital media. Following discussion of basic concepts in studying digital media, the course focuses on examining the history of computer technologies, and their theoretical implications and cultural ramifications in the present. This course is offered as ARH 207 and DIA 207.

3 credits

### **ARH 299: Gallery Management Workshop**

Development of practical skills in the business and managerial problems of an art gallery. Assigned readings focus on arts administration, arts conservation, and connoisseurship. May be repeated twice.

*Prerequisite:* ARH 101 or 102

1 credit

### **ARH 300- I: Greek Art and Architecture**

The study of ancient Greek art and architecture from the earliest beginnings in the geometric period through the archaic, classical, and Hellenistic periods.

*Prerequisite:* ARH 101

3 credits

### **ARH 301- I: Roman Art and Architecture**

The study of ancient Roman art and architecture from the Republic through the Constantinian period in Italy and the greater Roman world.

*Prerequisite:* ARH 101

3 credits

### **ARH 302- J: Ancient Egyptian Art**

Survey of art and architecture of ancient Egypt from the development of the first monumental art and architecture (c. 3000 B.C.) through the Early Christian era (c. 300 A.D.) focusing on culturally specific concepts of representation and aesthetics and the status and purposes of ancient Egyptian arts. The role of patronage, the uses of art and architecture in cult, in temples, and in tombs, and the relationship of art and politics are considered, along with the question of the place of Egyptian art within the development of world art and the concept of Egypt as the African origins of Western civilization.

*Prerequisite:* ARH 101

3 credits

### **ARH 305- I: Art and Culture of the Middle Ages**

A broad examination of the art and architecture of the Middle Ages in the context of medieval history and culture. Topics include

relationships to the imperial tradition, monasticism, and feudalism; the interaction and legacy of Roman, Celtic, and Germanic arts; the rise of urban culture and the creative competition between cities.

*Prerequisite:* ARH 101

3 credits

### **ARH 306- I: The Early Renaissance in Italy**

Art in Italy in from the late 13th through the 15th centuries, with special emphasis on Florence and Siena, and such major figures as Masaccio, Donatello, Piero della Francesca, and Botticelli. This course offered as both ARH 306 and HUI 306.

*Prerequisite:* ARH 101

3 credits

### **ARH 307- I: The Age of Michelangelo in Central Italy**

An exploration of the works of Michelangelo, Da Vinci and other major masters, including Raphael, Bramante and Pontormo, who inspired, were influenced by or rejected the work and ideals of Michelangelo. This course is offered as both ARH 307 and HUI 307.

*Prerequisite:* ARH 101

*Advisory prerequisite:* ARH 306

3 credits

### **ARH 310- I: Splendors of Renaissance Art in Venice**

The special qualities of Venetian art, which blends Byzantine, Islamic, and Western traditions, are explored through the works of such major figures as Giovanni Bellini, Giorgione, Titian, Veronese, and Palladio. Course offered as both ARH 310 and HUI 310.

*Prerequisite:* ARH 101 and 102

*Advisory prerequisite:* ARH 307

3 credits

### **ARH 314- I: Northern Baroque Art and Architecture, 1600-1700**

A study structured around the comparison of the art and architecture of urban and court cultures in 17th century Flanders, Netherlands, France, and England. Topics include royal and court portraiture (Rubens, Van Dyck, Le Brun), individual and civic portraiture of the Dutch middle classes (Rembrandt, Hals), genre painting and the marketing of 'low life' imagery (Steen, Brouwer), the production of the domestic sphere in Dutch everyday life scenes (Vermeer, Metsu, Ter Borch), the rise of landscape (Poussin, Lorrain, Hobberma), as well as urban and court spectacle in Antwerp, London, and Versailles.

*Prerequisite:* ARH 102

3 credits

### **ARH 315- G: Art and Architecture of Spain and Colonial Latin America 1500-1700**

This course surveys painting, sculpture, and architecture in Spain and colonial Latin America during the reign of the Habsburg dynasty. We will discuss the arrival of the Renaissance in Spain and the adoption of classical architecture and renaissance modes of painting by Charles V and Philip II, the painted distortions of El Greco, the Spanish tradition of hyper-realistic wooden sculpture, the paintings of Ribera, Zurbaran, Murillo, and Velazquez's work for Philip IV. We will also discuss mission architecture and decoration in early colonial Latin America and the hybrid form created by the fusion of Spanish and Amerindian culture, as well as manuscript and secular painting, finishing up our survey with a discussion of urban cathedrals and palaces in Mexico and Peru.

*Prerequisite:* ARH 102

3 credits

### **ARH 316- I: Baroque Art and Architecture in Italy, 1600-1700**

Examines the visual culture of Counter-Reformation Italy, focusing in depth primarily on the painting, sculpture, and architecture of seventeenth century Rome. We will begin with the challenge to mannerism provided by the Carracci family academy in Bologna, and then discuss Annibale Carracci's subsequent move to Rome and his work for the Farnese family, the emergence of Caravaggio and the Roman market for genre scenes, public and private religious imagery, violence and eroticism in religious art in Naples, as well as architectural and decorative projects by the Papacy and the religious orders. Artists, architects, and sculptors discussed include such figures as Caravaggio, Carracci, Bernini, Borromini, Guido Reni, Artemisia Gentileschi, Salvator Rosa, Pietro da Cortona and Andrea Sacchi. The broad range of a general survey will be balanced with close critical readings of selected objects and artists.

*Prerequisite:* ARH 102

3 credits

### **ARH 317- J: Islamic Art**

Art and architecture in the Islamic world from ca. 600 A.D. to the present, introducing the varied traditions of the arts of the Islamic world, from Spain and Morocco to the Indian subcontinent. Consideration of both religious and secular art and architecture in their historical and cultural contexts with emphasis

on the development of Islamic forms of visual representation.

*Prerequisites:* U3 or U4 standing; one ARH course

3 credits

### **ARH 319- J: Arts of China**

A survey of Chinese art from the Neolithic period to modern-day China. Visual media such as bronze, jade, sculpture, ink painting and pottery as well as their cultural influence on philosophy, literature, religion and politics will be explored. The course will also examine the influence of India and Central Asian on Chinese art and, in turn, China's influence on Korean and Japanese art.

*Prerequisite:* One DEC D course and U3 or U4 standing

3 credits

### **ARH 320- I: Art in the Age of Enlightenment**

A survey of European art from about 1690 to 1790. Although lectures usually focus on a single artist at a time, the course as a whole stresses artistic attitudes as well as a progression of styles. An effort is made to study art in historical and cultural context, especially in the light of the new philosophies of rationalism, empiricism and individualism that developed and led to both industrial and political revolutions. The three schools covered are the Venetian, English, and French, from the late Baroque and the Rococo styles to the rise of landscape and early Romantic art. Major artists treated are Tiepolo, Canaletto, Watteau, Chardin, Boucher, Fragonard, Hogarth, Gainsborough, Greuze and David.

*Prerequisite:* ARH 102

3 credits

### **ARH 322- G: American Art Since 1947**

A survey of painting and sculpture in New York, including abstract expressionism, hard edge painting, pop art, minimal art, earthworks, protest art, and postmodernism.

*Prerequisite:* ARH 102

*Advisory Prerequisite:* ARH 342

3 credits

### **ARH 324- G: Architecture and Design of the 19th and 20th Centuries**

A survey of architecture and design from the end of the 18th century to the present. Subjects covered include the crystallization and evolution of Romantic classicism and Romantic naturalism, historicism, the arts and crafts movement, art nouveau, machine aesthetics, the beaux arts tradition,

functionalism, the international style, art deco, and postmodernism.

*Prerequisite:* ARH 102

3 credits

### **ARH 325- J: Ancient Mesopotamian Art**

Survey of the art and architecture of ancient Mesopotamia from the establishment of the first cities and the development of the first monumental architecture (c. 3300 B.C.) through the Hellenistic conquest. Focus on concepts of representation and aesthetics and their uses in politics, private rituals, and state cults.

*Prerequisite:* ARH 101

3 credits

### **ARH 326- J: Arts of Ancient Mesoamerica**

A survey of the artistic and cultural achievements of the major civilizations of Central America prior to the European conquest. Emphasis is on architectural and sculptural art forms and the ritual, social, and political contexts within which they were created.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* ARH 201

3 credits

### **ARH 328- J: Arts of West Africa**

A study of the arts of West Africa from ancient to contemporary civilizations. Emphasis is primarily on the history of sculptural traditions, especially figurative sculpture and masquerade. These arts are examined in their political, social, and cultural contexts, as objects of ritual and religious practices, and as evidence of aesthetic choices and achievements.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* ARH 201

3 credits

### **ARH 329- G: Arts of the African Diaspora**

A study of the arts of the African Diaspora from the African continent to Brazil, Surinam, the Caribbean, and the United States. Emphasis is on the full range of art forms, including not only sculptural and performance traditions, but also textiles, basketry, and other crafts. Cultural continuities, spiritual belief, and significant changes in context, meaning, style, and technology are examined. This course is offered as both AFH 339 and ARH 329.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* ARH 201

3 credits

### **ARH 330- G: Public Art and Urban Design in New York City**

Explores the history of public arts and urban built environments in New York City, from the mid-nineteenth century to the present day. The city itself will be a key resource, and the course will involve site visits to a number of key monuments, institutions, and other locales. The focus of study will include statues, memorials, plaques, parks, and street furniture, and the people, institutions, and events that produced them. Drawing on perspectives from art history, American Studies, and urban and social history, the course will consider the impact of such developments as war, immigration and urbanization, political reconfigurations and commercial expansion, ethnic, racial, and interpersonal conflict, tourism, and terrorism.

*Prerequisite:* ARH 101, ARH 102, or CCS 101

*Advisory Prerequisites:* ARH 331, ARH 332

3 credits

### **ARH 331- K: American Art to 1870**

Issues of the history of American painting, sculpture, and architecture from the early colonial period to the post-Reconstruction era. The course examines the creative accomplishments of both prominent and lesser-known American artists; and promotes a broader perspective of United States art history by highlighting art's relationship to developments in American history.

*Prerequisite:* ARH 101 or 102

3 credits

### **ARH 332- K: American Art, 1870-1940**

The histories of American painting, sculpture, architecture, and photography from the period spanning Reconstruction and the rise of modern urban commercial culture to the beginning of World War II. The course examines the creative accomplishments of various prominent American artists and promotes a broader perspective of United States art history by highlighting art's relationship to developments in American history.

*Prerequisite:* ARH 101 or 102

*Advisory prerequisite:* ARH 331

3 credits

### **ARH 333- K: Arts for the Public**

The history of efforts to develop forms of artistic work that engage broad audiences of citizens and consumers. Examination of a range of enterprises spanning the century, including monuments, murals, animated cartoons, propaganda, and the Web. Drawing on perspectives from art history, social history, and cultural studies, the course considers

developments throughout the 20th century in the United States such as urbanization, political and business expansion, class and racial conflict, war, and technological innovation, in relation to art work.

*Prerequisite:* ARH 102 or CCS 101

*Advisory prerequisite:* ARH 332 or 342

3 credits

### **ARH 334- G: Performance Art I: The European Avant-Garde**

This course explores the history and theory of avant-garde performance from its inception in the early 20th century through Surrealism. Questions addressed focus on the choices made by artists, and the forces within the culture that encourage the forms they use. Course projects include a performance that reconstructs an event from one of the periods studied and a term paper. This course is offered as both ARH 334 and THR 334.

*Prerequisites:* U3 or U4 standing; one ARH, ARS, MUS, or THR course

*Advisory Prerequisite:* ARS/MUS/THR 208

3 credits

### **ARH 335- G: History of Photography**

A historical survey of the technical, theoretical, and aesthetic development of black-and-white and color still photography and its close interrelationship with the evolution of modern art.

*Prerequisite:* ARH 102 or CCS 101

*Advisory Prerequisite:* ARH 332 or 342

3 credits

### **ARH 336- G: Digital Visual Culture**

An investigation of historical and theoretical issues in digital visual culture. Students will build the critical literacy necessary to interrogate the images, text and sound of contemporary digital culture. Emphasis is on examining the history of information technologies, their theoretical implications, and cultural ramifications.

*Prerequisite:* ARH 102; ARS/MUS/THR 208 or ARS 225 or ARS 205 or CCS 101

3 credits

### **ARH 337- I: Northern Renaissance Art**

Painting and graphic art in the Netherlands and Germany in the 15th and 16th centuries are studied with special emphasis on the major figures of this period, from van Eyck and van der Weyden to Durer, Holbein, and Bruegel.

*Prerequisite:* ARH 101 or 102

3 credits

### **ARH 342- G: Art of the 20th Century**

The major movements and individual artists in 20th-century painting and sculpture, including reference to the broader sociocultural context of art.

*Prerequisite:* ARH 102

3 credits

### **ARH 344- G: Performance Art II: World War II to the Present**

This course explores the history and theory of performance art from World War II to the present, using an international perspective to identify different forms and practices from Happenings to Body Art and the introduction of new technologies. Questions addressed focus on the choices made by artists, and the forces within the culture that encourage the forms they use. Course projects include developing a site specific performance and a term paper. This course is offered as both ARH 344 and THR 344.

*Prerequisites:* U3 or U4 standing; one ARH, ARS, MUS, or THR course

*Advisory Prerequisite:* ARH/THR 334

3 credits

### **ARH 345- G: The Moving Image in 20th century Art**

A survey of the use of cinematic technologies within modern and contemporary art practice, from the historical avant-garde to contemporary multiscreen video installation. Situates the history and theory of this work in relation to the evolution of modern art and media culture.

*Prerequisites:* ARH 102 or CCS 101

*Advisory Prerequisites:* ARH 342

3 credits

### **ARH 346- I: Art and Politics in the Age of Revolution**

A survey of European art from about 1790 to 1850, stressing artistic attitudes as well as a progression of styles. A special effort is made to view art in historical and cultural context. A principal theme is the development of the modern artistic ideology through ideals such as genius, originality, and the sublime, all of which emerge in the context of a series of political revolutions going from 1789 to 1848. Conflict between the aesthetic and the political, the personal and the public, the traditional and the modern will be explored. Major artists treated are: David, Goya, Fuessli, Blake, Runge, Friedrich, Constable, Ingres, Gericault, Delacroix, Turner, Courbet. Not for credit in addition to ARH 341.

*Prerequisite:* ARH 102

*Advisory Prerequisite:* One or more 300-level ARH courses

3 credits

### **ARH 347- I: Avant-Garde Art: Realism, Impressionism, Post-Impressionism**

An examination of the origins of the avant-garde in European painting and its revolutionary developments from Impressionism through Post Impressionism. The course explores the social, political, and cultural roots of the artists who overturned conservative traditions in favor of modern values and thus established the basis and direction for the art of our time. Conflicts between the aesthetic and the political, the personal and the public, the traditional and the modern will be explored. Social relationships, including those of class and gender, are also embedded in works claiming objective naturalism. Major artists treated are Manet, Degas, Monet, Renoir, Pissarro, Seurat, Van Gogh, Gauguin and Cezanne. Not for credit in addition to ARH 341.

*Prerequisite:* ARH 102

*Advisory Prerequisite:* One or more 300-level ARH courses

3 credits

### **ARH 370- I: Masterpieces of Western Art**

In-depth exploration of a select number of major art works central to the Western tradition, e.g., the Parthenon, Chartres Cathedral, the Sistine Chapel. Monuments are analyzed visually, historically, technically, and in terms of their meaning and function for those who commissioned and those who created them. The student develops a critical vocabulary for the analysis, interpretation, and experience of the work of art. Among the issues discussed is the continuing aesthetic and expressive validity or significance of a monument despite changes of context and culture. Not for major credit.

*Prerequisites:* U3 or U4 standing; Completion of D.E.C. categories B and D

3 credits

### **ARH 390- I: Topics in European Art**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Past topics have included titles such as Mythology in Art; European Popular Art; and Italian Renaissance Sculpture. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to Western civilization. Students will be expected to demonstrate knowledge of the development of the distinctive features of the history, institutions, economy, society, and culture of Western civilization, and relate it

to that of other regions in the world. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; additional prerequisites when topic is announced  
3 credits

### **ARH 391- G: Topics in Global Art**

Topics may include titles such as The Art of India or The Experience of Contemporary Art. May be repeated as the topic changes. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated for credit as the topic changes.

*Prerequisites:* U3 or U4 standing; one ARH course  
3 credits

### **ARH 394- J: Topics in Asian Art**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Past topics have included titles such as The Art of India and The Art of the Silk Road. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes. This course is offered as both AAS 394 and ARH 394.

*Prerequisites:* U3 or U4 standing; one ARH course  
3 credits

### **ARH 395- J: Topics in Non-Western Art**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Topics may include such titles as The Art of the Middle East and Balinese Art. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; one ARH course  
3 credits

### **ARH 396- K: Topics in American Art**

Topics in U.S. art, placed within a broad historical context, including social, political, economic, and cultural history and institutions. Topics may include gender issues in art history, American art from colonial to the present.

*Prerequisites:* U3 or U4 standing; one ARH course  
3 credits

### **ARH 400: Topics in Art History and Criticism**

May be repeated as the topic changes.

*Prerequisites:* ARH 101 or 102; one other ARH course, varying with topic  
3 credits

### **ARH 420: History and Methods of Art History**

Seminar designed to engage students with the history and methods of art history. Through close readings of key texts and discussions, the course explores issues raised by aesthetics, iconography, formalism, the social history of art, as well as the impact of semiotics, feminism, psychoanalysis, and post-modernism on the discipline of art history.

*Prerequisites:* U3 or U4 standing; ARH 101 and 102  
*Advisory Prerequisite:* One other ARH course  
3 credits

### **ARH 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites:* Art history/criticism major; preferably U4 standing; sponsorship of an instructor; permission of department  
3 credits, S/U grading

### **ARH 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In ARH 476, students assume greater responsibility in such areas as leading discussions and analyzing results of

tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* ARH 475; permission of instructor and director of undergraduate studies  
3 credits, S/U grading

### **ARH 485: Projects in Art History and Criticism in New York City**

Independent work, under the supervision of a faculty member, investigating work or works from a particular style or period in New York City.

*Prerequisites:* ARH 101 and 102; two other ARH courses; permission of sponsor and department  
0-6 credits

### **ARH 487: Independent Reading and Research in Art**

May be repeated up to a maximum of 12 credits.

*Prerequisite:* At least four courses in art; sponsorship of a faculty member; permission of department  
0-6 credits

### **ARH 488: Internship**

Participation in the work of galleries, museums, arts agencies, and art historical societies. Students are required to submit written progress reports and a final report of their experiences to the faculty coordinator and the department. May be repeated up to a limit of 12 credits, but no more than six credits may count toward the major in art history/criticism and no more than three credits may count toward the major in studio art.

*Prerequisite:* Fifteen credits in the Art Department, of which at least six shall be in art history/criticism; upper-division standing with preference given to U4 students; permission of instructor and department  
0-6 credits, S/U grading

### **ARH 490: Senior Seminar: Topics in Art History, Museum Studies, and Criticism**

An advanced seminar for juniors and seniors that prepares students for continued study or work in the fields of art history, criticism, museum studies and other related areas. Topic will change each year depending on the topic chosen by the instructor.

*Prerequisites:* U3 or U4 standing; ARH 101 and 102; one additional ARH course  
3 credits

**ARH 495: Senior Honors Project in Art History and Criticism**

A one-semester project for art history and criticism majors who are candidates for the degree with departmental honors.

*Prerequisites:* Permission of instructor and department

3 credits

# ARS

## Art, Studio

**ARS 154- D: Foundations of Drawing**

Fundamentals of drawing using various drawing media and types of paper. Perspective, foreshortening, proportion, anatomy, and basic concepts of drawing are studied. The figure, still life, and landscape are explored as subject matter, and color theory is introduced.

3 credits

**ARS 201- D: Photography for Non-Majors**

An introductory non-darkroom course on the fundamentals of camera techniques, photographic history, and terminology as well as the visual language of still and moving imagery. Students must own a 35mm camera with manual capability. Books, photographic materials, and field trip expenses are estimated to cost \$200.

*Advisory Prerequisite:* ARS 154

3 credits

**ARS 205- D: Foundations: Idea and Form**

An introduction to the basic building blocks for artistic practice and aesthetic analysis. Projects are organized around themes such as line, plane, volume, color, composition, typography, pattern, scale, narrative, performance, light, sound, and monument. These projects, as well as readings, presentations, and discussions, examine the importance of a changing cultural, environmental, and social context and its impact on meaning and perception in art and visual culture. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

**ARS 225: Introductory Digital Art**

A survey and hands-on introduction to digital media. Students are introduced to the practical, conceptual, and historical use of computers in the visual arts through lecture, labs, readings, and project critiques. This course serves as

preparation for further study in electronic media. It is also an opportunity for students in the arts to gain basic computer literacy through the exploration of various programs including Photoshop, Illustrator, In Design, Dreamweaver and Flash. Students will develop strategies for effectively communicating with images. Emphasis is on the conceptual and artistic potential of the technology. No prior computer experience is required. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Pre- or Corequisite:* ARS 154 or ARS 205

3 credits

**ARS 255: Introductory Painting**

Introductory painting in oils or acrylics. The various media, tools, and techniques of painting and of preparing surfaces for painting are explored. Continues the work of ARS 154 in the traditional areas of landscape, still life, and figure, as well as in perspective, foreshortening, proportion, anatomy, and color theory. One or two field trips to New York City museums and galleries may be required.

*Prerequisite:* ARS 154

3 credits

**ARS 256: Introductory Sculpture**

An introduction to sculpture. Students will learn basic skills and concepts relevant to 3-D creation, using a variety of materials and techniques. Specific sequentially organized projects in armature building, modeling, casting, and wood construction to develop technical skills, in conjunction with lectures, group critiques and discussions.

*Prerequisite:* ARS 154 or ARS 205

3 credits

**ARS 264: Ceramics**

Investigation of ceramic ware and ceramic sculpture utilizing a wide variety of approaches in earthenware and stoneware clay bodies. The course offers a technical and conceptual foundation for clay construction, low- and high-fire glazing, and multiple finishing techniques using gas and electric firing processes. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 154

3 credits

**ARS 274: Beginning Printmaking**

An introduction to printmaking. Demonstrations and lectures treat printmaking techniques and print shop procedures. Students are introduced to intaglio (etching, drypoint,

engraving), relief (wood block, line block) monoprinting, and if time permits, lithography. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 154

3 credits

**ARS 281: Photography I**

An intensive course exploring the techniques and materials of black-and-white photography, employing traditional developing and printing techniques in the darkroom. Students must provide their own 35mm camera with the capability of full manual operation. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information. Estimated cost of supplies is \$450, in addition to the course fee.

*Prerequisite:* ARS 154

3 credits

**ARS 299: Studio Management Workshop**

Development of practical skills needed to manage and maintain a studio lab or shop in the art department. Students work under the supervision of a faculty member in an area of interest, such as photography, printmaking, electronic media, or sculpture. May be repeated twice.

*Prerequisite:* Permission of instructor

1 credit, S/U grading

**ARS 318: Movie Making: Shoot, Edit, Score**

An investigation of the relationship between music and film and video. Students script, shoot, edit, and create short videos with soundtracks, exploring different aspects of visuals and music. All editing is done digitally. Works may be made for screen, installation, or performance. Also examines historical and contemporary artistic exploration with such media. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225 or CCS 101

3 credits

**ARS 324: Intermediate Digital Art: Design**

This course focuses on the aesthetic, social, political, and ethical issues at stake in the production of design. The course extends beyond two-dimensional graphic design to include critical approaches to the practice and production of architecture, urbanism, environmental design, social life, and fine art.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

### **ARS 325: Theory and Practice of Digital Arts: Print**

An examination of the theories and techniques of computer and electronic media through lecture, labs, readings and project critiques. Digital imaging techniques are combined with layout programs to create image centered works, such as artist's books, individual prints, multiples, and installations. Hybrid combinations of digital and traditional photography and printmaking techniques are explored. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

### **ARS 326: Theory and Practice of Digital Art: Video**

An introduction to the practice, theory, and history of video within art and independent media through labs, lecture, readings, and project critiques. Video production includes planning, shooting and editing video. Emphasis is on creative content, experimentation and critical thinking. Students will work with computer-based editing and compositing tools to create several short assignments and two significant projects using one or more techniques. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

### **ARS 327- H: Theory and Practice of Digital Arts: Web Art, Design, and Culture**

An investigation of the practical, historical, and theoretical issues related to art and design on the Internet. Students write a hypertext research paper, work with images, text, sound, and animation on the web to create web-based artworks in response to course content, and design an information-based site. Emphasis is on examining the history of the Internet, cultural implications of the web, and creative use of web technologies.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

### **ARS 328: Theory and Practice of Digital Arts: Animation**

An investigation of the practice, theory, and history of animation within art and independent media through labs, lecture, readings, and project critiques. Animation

production will cover computer based stop-motion as well as some 2D and 3D computer animation. Emphasis is on creative content, experimentation and critical thinking. Students work with computer based 2D and 3D animation tools to create several short assignments and one significant project using one or more techniques.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

### **ARS 350: Life Drawing and Painting**

Drawing and painting of the human figure. May be repeated once. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 255

3 credits

### **ARS 351: Painting II: Theory and Practice**

Painting and drawing studio; practice and theory stressing exploration of media and crafts, historical styles, and individual development.

*Prerequisite:* ARS 154 and ARS 255

3 credits

### **ARS 352: Painting III: Theory and Practice**

A continuation of ARS 351, stressing the individual development of the student as a maturing artist through critiques of the student's work and discussion of contemporary and historical issues in art. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 351

3 credits

### **ARS 359: Theory and Practice of Conceptual Drawing**

The further study of different processes and methods of generating drawings, encouraging individual expression. Slide presentations, assigned readings, and gallery visits are part of the student's experience. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARH 102 and ARS 255

3 credits

### **ARS 364: Advanced Theory and Practice of Ceramics**

An advanced course in ceramics stressing sophisticated sculptural forms and techniques in earthenware, stoneware, porcelain, and raku

clay bodies. Class work is based on individual projects stressing expression of ideas and image making. Additional techniques of mold making, slip casting, and raku firing enlarge the repertoire of construction and surface finishes. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* ARS 264 and ARH 102

3 credits

### **ARS 365: Theories and Practice of Sculpture: Welding, Construction, and Intermedia**

A range of techniques, materials and ways to approach sculpture will be explored. The class will consist of technical demonstrations in wood constructions, plasma cutting, welding, forming, forging in metal, and related concepts and techniques in intermedia. Through lectures, critiques and discussions, the course will also address the various stages of planning, from conceptualizing the idea, gathering materials, to physical and material considerations.

*Prerequisite:* ARS 256

3 credits

### **ARS 366: Theory and Practice of Sculpture: Modeling, Casting, and Carving**

A historical and philosophical survey of sculpture in expanded fields. Exploration focusing on site as a major component of artwork in both content and form, emphasizing multidimensional work in relation to context, material and intent. The class will consist of technical demonstrations in various materials, lectures, critiques, and discussions. Students will learn creative skills in the design process: site analysis, conceptualization, presentation, and production. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 256

3 credits

### **ARS 374: Theory and Practice of Printmaking: Intaglio Processes**

Further development of the craft of black-and-white intaglio printing, utilizing various methods including dry point, engraving, etching, soft ground, and aquatint, with an emphasis on the history of printmaking. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 274

3 credits

**ARS 375: Theory and Practice of Printmaking: Lithography**

Demonstrations and hands-on work in the basic techniques of direct lithographic printing from limestone, primarily in black and white, with an emphasis on the history of printmaking.

*Prerequisite:* ARS 154

*Advisory prerequisite:* ARS 274

3 credits

**ARS 381: Photography II**

An intermediate course in the theory and practice of photography utilizing various processes: An exploration of black-and-white and color photography as a means of personal visual expression, and an extensive examination of materials and techniques. Students must provide their own cameras and materials. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information. Estimated cost of supplies is \$300 in addition to the course fee.

*Prerequisite:* ARS 281

*Advisory Prerequisite:* ARS 225 and/or ARS 208

3 credits

**ARS 390- G: Topics in Studio Art**

Semester supplements to this Bulletin contain specific descriptions when course is offered. May be repeated as the topic changes. Not for major credit.

*Prerequisite:* ARS 154 or ARS 205

3 credits

**ARS 425: Advanced Digital Arts**

An advanced investigation of the history, contemporary practice, and techniques of digital/electronic media arts through lecture, labs, readings, project critiques, and exhibition. Student directed projects may involve advanced media techniques, such as imaging, video, sound, 2D/3D animation, performance, and interactivity that take form as prints, movies on dvd, sculptures/installations, and websites. May be repeated once.

*Prerequisites:* ARS/MUS/THR 208 or ARS 225; *permission of instructor after interview and review of portfolio*

3 credits

**ARS 452: Advanced Theory and Practice of Painting**

Examination of ideas and techniques of painting through studio, lecture, critique, exhibition, and painting assignments. May be repeated once.

*Prerequisite:* ARS 351 and 352; ARH 342

3 credits

**ARS 465: Advanced Theory and Practice of Sculpture: Welding, Construction, and Inter-media**

An advanced course in the theory, techniques, and methodology's informed by contemporary studio practice and innovation. The class will consist of technical demonstrations, lectures, critiques and discussions. Emphasis is on creative content, and process, critical thinking, and experimentation. Increased ability in the articulation of three-dimensional form and space will be explored. May be repeated once, for a total of 6 credits.

*Prerequisite:* ARS 365

3 credits

**ARS 466: Advanced Theory and Practice of Sculpture: Installation, Site Specific and Public Art**

An advanced investigation of the history, contemporary practice, and techniques of sculpture, installation, and expansions of art in the public realm. Students will explore ideas as research through readings, discussions, and critiques. Emphasis is on the conceptual investigation, and artistic expression through experimentation and production in space/time inquiry. Examinations of ideas through alternative visual processes may be explored. May be repeated once, for a total of 6 credits. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS 365 or ARS 366

3 credits

**ARS 471: Advanced Theory and Practice of Printmaking: Intaglio Processes**

Continued development of intaglio techniques, emphasizing a variety of multi-plate and single-plate color printing processes, and tailored to the individual requirements of advanced students. May be repeated once.

*Prerequisite:* ARS 374

3 credits

**ARS 472: Advanced Theory and Practice of Printmaking: Lithography**

Continued development of lithographic techniques, emphasizing methods of stone and plate lithography and leading to the production of printed single- and multi-colored editions. May be repeated once.

*Prerequisite:* ARS 375

3 credits

**ARS 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites:* Studio art major; preferably U4 standing; sponsorship of an instructor; permission of department

3 credits, S/U grading

**ARS 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students assume greater responsibility in such areas as assisting in demonstrations and critiques, only under direct supervision of the instructor. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisite:* ARS 475; *permission of department*

3 credits, S/U grading

**ARS 481: Photography III**

Advanced photography, stressing the theory and practice of the medium as a tool for individual expression and communication: Emphasis will be on refining production and presentation of prints. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information. Estimated cost of supplies is \$300 in addition to the course fee.

*Prerequisites:* ARS 381; *permission of instructor after interview and review of portfolio*

3 credits

**ARS 482: Photography IV**

Advanced photography, stressing the theory and practice of communicative skills and presentation, aimed at enabling the serious photography student to follow and develop his or her personal objectives. Emphasis will be on the preparation of a portfolio to reflect each student's future goals. Estimated cost of supplies is \$300 in addition to the Lab fee. May be repeated once, for a total of 6 credits.

*Prerequisites:* ARS 481 and *permission of the instructor after interview and review of portfolio*

3 credits

**ARS 487: Advanced Directed Projects in Studio Theory and Practice**

Advanced independent projects for outstanding students under the supervision of a faculty member. May be repeated once for a maximum of six credits.

*Prerequisites:* Advanced status in one of the studio areas; sponsorship of a faculty member; permission of department

0-6 credits

**ARS 488: Internship**

*Prerequisites:* U3 or U4 standing; 15 credits in art department courses; permission of department

0-6 credits, S/U grading

**ARS 491: Special Topics in Studio Theory and Practice**

May be repeated as the topic changes. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Permission of department

3 credits

**ARS 492: Special Topics in Studio Theory and Practice**

May be repeated as the topic changes. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Permission of department

3 credits

**ARS 495: Senior Honors Project in Studio Art**

A one-semester project for studio art majors who are candidates for the degree with departmental honors.

*Prerequisites:* Permission of instructor and department

3 credits

# AST

## Astronomy

**AST 100: Astronomy Today**

Seminar designed to introduce students to the excitement of modern astronomy, focusing on the most recent discoveries, as reported in the media. The course provides sufficient scientific background to enable students to understand the impact of these discoveries.

1 credit

**AST 101- E: Introduction to Astronomy**

Description of planets, stars, galaxies, black holes, pulsars, quasars, supernovae, and white dwarfs. Man's place in the cosmos. Cosmological theories. Students with better science preparation are encouraged to take AST 203. Not for major credit. Not for credit in addition to AST 203

*Prerequisite:* Satisfaction of entry skill in mathematics requirement (Skill 1) or satisfactory completion of D.E.C. C

3 credits

**AST 105- E: Introduction to the Solar System**

A general survey of present knowledge of the planets, satellites, interplanetary medium, comets, asteroids, and outer regions of the sun. Begins with a historical introduction and discussion of the methods of science. Emphasizes current NASA deep-space exploration missions and other modern astronomical methods. Not for major credit. Not for credit in addition to AST 205 or GEO 106.

3 credits

**AST 112: Astronomy Laboratory**

An introduction to observational activities in astronomy. Students make astronomical measurements using simple instruments such as a quadrant, cross-staff, spectrometer, and telescope; analyze measurements; examine how quantities of interest and their errors are derived from the measurements and how they are properly reported. Not for major credit.

*Pre- or Corequisite:* AST 101 or 105 or 248

1 credit

**AST 200: Current Astronomical Research at Stony Brook**

Seminar designed to introduce students to astronomical research currently underway at Stony Brook. Faculty actively engaged in cutting edge research using facilities such as the Hubble space telescope, the CHANDRA X-Ray Observatory, the Keck and Gemini telescopes, or supercomputers give presentations on their own research. Appropriate for students considering undergraduate research in astronomy as well as students interested in current astronomy.

1 credit

**AST 203- E: Astronomy**

A survey of the physical nature of the universe for the student with some background in physics and mathematics. May not be taken for credit in addition to AST 101. Optional

evening observing sessions will be held during the semester.

*Prerequisite:* PHY 125 or 131/133 or 141

4 credits

**AST 205: Introduction to Planetary Sciences**

An introduction to the solar system for the student with a background in mathematics or physical sciences. A survey of the planets, comets, asteroids, and interplanetary medium, based upon the latest scientific discoveries. Not for credit in addition to AST 105 or GEO 106.

*Prerequisite:* PHY 125 or 131/133 or 141

3 credits

**AST 248- H: The Search for Life in the Universe**

A study of the role of science in modern society through investigation of the question: Does life exist elsewhere in the universe? Topics include a review of the astronomical and biological settings; the origin of life on the earth and possibly elsewhere; the evolution of life and the development of intelligence and technology. Also discussed are the ramifications of the development of life and intelligence for the atmosphere and the biosphere.

*Prerequisite:* One D.E.C. category E course

3 credits

**AST 287: Introductory Research in Astronomy**

Independent research under the supervision of a faculty member, at a level appropriate for lower-division students. May be repeated.

*Prerequisites:* Permission of instructor and departmental research coordinator

*Advisory Prerequisites:* U1 or U2 standing; one AST course

0-3 credits

**AST 301- H: Collisions in the Solar System**

A discussion of the evidence that comet and asteroid impacts have played a significant part in the evolution of the Earth, and other planets of the solar system, as well as an assessment of the actual and perceived hazard posed by terrestrial impacts and discussion of what can be done about it. The course follows an interdisciplinary approach and is not for major credit.

*Prerequisites:* A lower-division 3-4 credit AST course; MAT 125 or 131 or 141 or AMS 151; PHY 121/123 or 125 or 131/133 or 141

3 credits

**AST 341: Stars and Radiation**

An introduction to, and development of, a firm physical understanding of the observed properties of stars. Topics include the structure of the interior and atmosphere of stars, the transfer of energy by radiation in plasmas, the evolution of stars, and the end stages of stellar evolution, including white dwarfs, neutron stars, black holes and supernovae, with careful attention to the comparison of the predictions with observations.

*Prerequisites:* AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

3 credits

**AST 345: Undergraduate Research in Astronomy**

Student participation in faculty-directed research projects.

*Prerequisite:* Permission of instructor

0-1 credits

**AST 346: Galaxies**

An introduction to the properties of galaxies, including the Milky Way and others. Examination of the physical processes that govern the stars, dust, and gas in galaxies. Stellar constituents of galaxies, equilibria of collisionless systems, gas dynamics, and radiative processes.

*Prerequisites:* AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

3 credits

**AST 347: Cosmology**

An introduction to physical cosmology. Examination of the physical properties that govern the galaxies and intergalactic matter in the universe. Expansion of the universe and the Friedmann equations, microwave background variation, thermal history of the universe, and nucleosynthesis.

*Prerequisites:* AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

3 credits

**AST 389- H: Science Fiction**

The literary genre called Science Fiction enables us to explore our nature, and that of the universe we inhabit, by postulating worlds, cultures and technologies that do not (yet) exist, but could, and the consequences thereof. This course focuses on the sub-genre called hard science fiction, in which the science/technology is more or less plausible. Students should be prepared to address the genre from both its scientific and literary sides. This course is offered as both AST 389 and EGL 389.

3 credits

**AST 443: Observational Techniques in Optical Astronomy**

An introduction to modern astronomical instrumentation and data handling and to the use of telescopes. Emphasis on techniques and equipment appropriate for wavelengths shorter than one micron. Extensive laboratory and observing exercises are required.

*Prerequisite:* AST 203

4 credits

**AST 447: Senior Tutorial in Astronomy**

Independent readings in advanced topics to be arranged prior to the beginning of the semester. Weekly conferences are held with a faculty member. May be repeated once.

*Prerequisites:* U4 standing; permission of instructor

1-3 credits

**AST 475: Teaching Practicum in Astronomy**

Supervision of laboratory or recitation sections under the close guidance of the course instructor. Includes regular meetings with the instructor for purposes of planning and evaluation; supplementary reading in preparation for laboratory or recitation sessions; and opportunities to make oral presentations, provide individual or innovative instruction, and reinforce previously acquired knowledge.

*Prerequisites:* U4 standing; permission of instructor

3 credits, S/U grading

**AST 487: Senior Research in Astronomy**

Under the supervision of a faculty member, a major in the department may conduct research for academic credit. A research proposal must be prepared by the student and submitted to the department chairperson for approval before the beginning of the semester in which credit is to be given. A written report must be submitted before the end of the semester. May be repeated.

*Prerequisite:* Permission of instructor

0-6 credits, S/U grading

# ATM

## Atmospheric and Oceanic Studies

**ATM 102- E: Weather and Climate**

Introduces the nature and causes of common meteorological phenomena, severe weather occurrences, and climatic patterns. Topics

include formation and movement of air masses and large-scale storms; techniques for weather prediction; weather satellites; hurricanes, tornadoes, and thunderstorms; cloud and precipitation types; the climatic history of the earth; and actual and potential effect of human activities on weather and climate, and of weather and climate on humans. This course is offered as both ATM 102 and EST 102.

3 credits

**ATM 201- E: Introduction to Climate and Climate Change**

An introduction to the earth's climate system as it exists today, how the climate system has changed in the past, and what future climates may look like in the future. Topics include the causes of climate change, the response times of different parts of the climate system, interactions and feedbacks between the atmosphere, oceans, ice, continents, and vegetation, and the role of carbon as it moves within the climate system on different time-scales.

3 credits

**ATM 205- E: Introduction to Atmospheric Sciences**

A study of the nature and causes of atmospheric phenomena, along with basic physical and chemical processes and energetics. Topics include composition and structure of the atmosphere, atmospheric thermodynamics, hydrostatics, solar and terrestrial radiation, cloud and precipitation processes, elementary dynamics, atmospheric wind and pressure patterns, and severe storms.

*Prerequisites:* ENS/PHY 119 or PHY 121/123 or 125 or 131/133 or 141; MAT 125 or 131 or 141 or AMS 151

3 credits

**ATM 237- H: Current Topics in World Climate and Atmosphere**

An exploration of current concerns about the greenhouse effect, acid rain, and global ozone loss, in a format accessible to non-science majors. The social and political steps being taken to limit global atmospheric pollution and climate change are discussed. Not for major credit. This course is offered as both ATM 237 and PHY 237.

*Prerequisites:* One D.E.C. category E course; satisfaction of entry skill in mathematics requirement

3 credits

**ATM 247: Atmospheric Structure and Analysis**

Real-world applications of basic dynamical principles to develop a physical understanding of various weather phenomena. Topics include the hypsometric equation, structure and evolution of extratropical cyclones, fronts, hurricanes, and convective systems, surface and upper air analysis techniques, radar and satellite interpretation, and introduction to operational products and forecasting. Two hours of lecture and one two-and-one-half hour laboratory per week. Laboratories include weather discussions and case study analysis.

*Prerequisite:* ATM 205

3 credits

### **ATM 305-E: Global Atmospheric Change**

An application of chemical principles to the analysis and prediction of climate changes on earth. The course analyzes climates that have occurred in the earth's past and uses this information to infer climate changes that are likely to occur in the near and distant future. Topics covered include atmospheric chemistry, paleoclimates, greenhouse warming, ozone changes, and urban pollution.

*Prerequisites:* MAT 125 or 131 or 141 or AMS 151; CHE 131 or 141

*Advisory Prerequisite:* One of the following: ENS/PHY 119, 132/134, 142, or 127

3 credits

### **ATM 320: Spatial Data Analysis Using Matlab**

Provides a working knowledge of the multivariate analysis methods used in the earth and atmospheric sciences and the Matlab programming tool. Topics include regression, eigenvalue, principal component analysis, and objective mapping.

*Prerequisite:* CSE 130 or ESG 111 or PHY 277; MAT 127 or MAT 132

3 credits

### **ATM 345: Atmospheric Thermodynamics and Dynamics**

A quantitative introduction to the thermodynamical and dynamical processes of Earth's atmosphere. Topics include moist and dry thermodynamical processes, hydrostatic stability, external forces of atmospheric motion, equations of atmospheric motions on a rotating planet, coordinate transformations, and horizontal motions under balanced forces.

*Prerequisites:* ATM 205; MAT 203 or MAT 205 or AMS 261; PHY 126/PHY 127 or PHY 132/PHY 134 or PHY 142; CSE 130 or ESG 111 or PHY 277

3 credits

### **ATM 346: Advanced Atmospheric Dynamics**

Advanced concepts of mid-latitude and tropical atmospheric motions, wave dynamics, and numerical methods. Topics include circulation and vorticity, turbulence and boundary-layer structure, quasi-geostrophic theory, large-scale and buoyancy-driven waves, baroclinic instability and energetics, equatorial wave theory, and barotropic and primitive equation models.

*Prerequisites:* ATM 345; MAT 303 or AMS 361

3 credits

### **ATM 347: Advanced Synoptic Meteorology and Weather Forecasting**

The application of dynamical and physical meteorology to the analysis and prediction of the atmosphere. Topics include application of numerical and statistical models, diagnosis of vertical motion, development of midlatitude synoptic systems, mesoscale phenomena associated with cyclones, convective systems, and radar applications. Laboratories include extensive practice in forecasting and diagnosis of synoptic and convective systems.

*Prerequisites:* ATM 346 and 348

3 credits

### **ATM 348: Atmospheric Physics**

The application of the laws of physics to a variety of atmospheric phenomena and processes. Topics include cloud and precipitation processes with emphasis on the microphysics, atmospheric electricity, solar and terrestrial radiation, photochemical processes, and boundary layer heat and mass transfer.

*Prerequisite:* ATM 345

3 credits

### **ATM 397: Air Pollution and Its Control**

A detailed introduction to the causes, effects, and control of air pollution. The pollutants discussed include carbon monoxide, sulfur oxides, nitrogen oxides, ozone, hydrocarbons, and particulate matter. The emissions of these gases from natural and industrial sources and the principles used for controlling the latter are described. The chemical and physical transformations of the pollutants in the atmosphere are investigated and the phenomena of urban smog and acid rain are discussed.

*Prerequisites:* ENS/PHY 119 or PHY 132/134 or 142, or PHY 126 and 127, or PHY 125 and 127; CHE 131 or 141 or 198; MAT 125 or 131 or 141 or AMS 151; U3 or U4 standing

3 credits

### **ATM 437: Forecasting Practicum**

The course provides students with additional forecasting experience. Students make at least three forecasts per week for either Long Island or a city designated by the National Forecast Contest. Students write a weather discussion for each forecast and verify their forecasts to show their progress during the semester.

*Pre- or Corequisite:* ATM 347

1 credit

### **ATM 447: Senior Tutorial in Atmospheric Sciences**

Independent readings in advanced topics to be arranged prior to the beginning of the semester. Weekly conferences are held with a faculty member. May be repeated once.

*Prerequisite:* Permission of instructor and SoMAS Undergraduate Programs Director

1-3 credits

### **ATM 487: Senior Research in Atmospheric Sciences**

Under the supervision of a faculty member, a student majoring in atmospheric and oceanic sciences may conduct research for academic credit. A research proposal must be prepared by the student and submitted to the MSRC Undergraduate Director for approval before the beginning of the semester in which credit is to be given. A written report must be submitted before the end of the semester. May be repeated once.

*Prerequisite:* Permission of instructor and SoMAS Undergraduate Programs Director

0-6 credits

### **ATM 488: Internship**

Participation in research at off-campus laboratories, including the National Weather Service. Students are required to submit to the department a proposal at the time of registration and a report at the end of the semester. May be repeated up to a limit of 12 credits.

*Prerequisites:* ATM 347; permission of instructor and SoMAS Undergraduate Program Director

0-6 credits, S/U grading

## **BCP**

### **Pharmacology**

#### **BCP 400: Writing in Pharmacology**

See requirements for the major in pharmacology, upper-division writing requirement.

*Prerequisites: Pharmacology major; U3 or U4 standing; permission of instructor*

*S/U grading*

### **BCP 401: Principles of Pharmacology**

Basic principles and mechanisms of drug distribution, absorption, metabolism, and elimination. Principles of chemical carcinogenesis and tumor promotion. Autonomic, smooth-muscle, and CNS pharmacology. Pharmacology of specific drugs of historical interest including alcohol, antibiotics, aspirin, nicotine, and morphine. Review of anticoagulants and thrombolytic agents, antiparasitics, and drugs for the treatment of allergic conditions and gout.

*Prerequisites: BIO 362; CHE 322 and 327; a g.p.a. of 3.00 or higher in these courses and their prerequisites.*

*Corequisite for pharmacology majors: BCP 403*

*4 credits*

### **BCP 402: Advanced Pharmacology**

Advanced concepts of drug metabolism, pharmacokinetics, biochemical, and molecular mechanisms of drug action, and drug resistance in human disease states. Toxicological agents and environmental pollutants. The pharmacology of autotoxins, anti-inflammatories, immunosuppressants, and antiasthmatics. Rational drug design and drug receptor interactions using computer molecular modeling techniques.

*Prerequisites: BCP 401 and 403; minimum of B- in BCP 401*

*Corequisite: BCP 404*

*4 credits*

### **BCP 403: Principles of Pharmacology Laboratory**

The use of molecular modeling software for the understanding of structure activity relationships. In vivo studies to demonstrate the pharmacological mechanism of action of drugs acting on the autonomic, cardiovascular, and renal systems. Pharmacokinetic studies, using HPLC, to determine the rate of absorption, distribution, and excretion of therapeutic agents. Radio- and enzyme-immunoassays for the detection of circulating hormones. Cell culture techniques for drug determination and evaluation.

*Prerequisite: Permission of instructor*

*Corequisite: BCP 401*

*2 credits*

### **BCP 404: Advanced Pharmacology Laboratory**

The use of molecular modeling software for the understanding of structure activity

relationships. In vivo studies to demonstrate the pharmacological mechanism of action of drugs acting on the autonomic, cardiovascular, and renal systems. Pharmacokinetic studies, using HPLC, to determine the rate of absorption, distribution, and excretion of therapeutic agents. Radio- and enzyme-immunoassays for the detection of circulating hormones. Cell culture techniques for drug determination and evaluation. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: BCP 401 and 403; permission of instructor*

*Corequisite: BCP 402*

*2 credits*

### **BCP 406: Pharmacology Colloquium**

Seminars on research in pharmacology and toxicology presented by faculty and distinguished scientists from academic and industrial institutions. Students are expected to develop an understanding of the scientific principles presented in the colloquium. Speakers meet with the students after the seminar to discuss research concepts and to answer questions. One hour Journal Club/ Discussion followed by one hour seminar. May be repeated.

*Prerequisites: BIO 202 and 203; CHE 322; a g.p.a. of 3.00 in these courses and their prerequisites*

*2 credits*

### **BCP 475: Undergraduate Teaching Practicum in Pharmacology**

*Prerequisites: Pharmacology major; U4 standing; permission of department*

*3 credits, S/U grading*

### **BCP 487: Research in Pharmacology**

Completion of an individual student research project under the supervision of a faculty member. Previously acquired laboratory course techniques and new procedures are utilized. Experimental results must be submitted to the department for grade evaluation in the format of a research report. Not for credit in addition to HBH 396, 398, and 399. May be repeated.

*Prerequisites: BIO 202 and 203; CHE 322 and 327; a g.p.a. of 3.00 in these courses and their prerequisites; permission of instructor and department*

*0-6 credits*

### **BCP 488: Internship**

Research participation in off-campus laboratories, the pharmaceutical industry,

and other academic and public agencies. Repeatable up to 12 credits.

*Prerequisites: BIO 361; CHE 322; g.p.a. of 3.00 or higher in these courses and their prerequisites; permission of department*  
*0-6 credits, S/U grading*

## **BIO**

### **Biology**

#### **BIO 101- E: Human Biology**

The major concepts of biology are presented from historical, contemporary, and critical viewpoints. These concepts include the cell, the gene, molecular biology, development, and evolution. The human implications or values associated with each concept are emphasized. Not for Biology major credit.

*3 credits*

#### **BIO 103- E: Introduction to Biotechnology**

Gene therapy, genetic modification, cloning, stem cells, and vaccines are covered in this course. Lectures and four supplemental laboratory activities use modern equipment and techniques to illustrate core concepts which class discussions relate to health, society, and public policy. Not for Biology major credit.

*3 credits*

#### **BIO 104- E: How Science Works**

The course aims at expanding students' knowledge about the methods of the natural sciences and to develop the critical thinking abilities to understand scientific claims presented by the media. Students will learn about scientific discoveries as well as the differences between science and pseudoscience. The course includes lectures and discussions based on textbook material, examination of case studies in science, and discussion of items in the news. Not for Biology major credit.

*3 credits*

#### **BIO 113- E: General Ecology**

A survey of the principles of ecology in the context of finding solutions to local, national, and global environmental problems. Not for Biology major credit.

*3 credits*

#### **BIO 114- E: Dinosaur Paleontology**

A study of paleontology that includes evolution of dinosaurs, their classification system, a study of the important dinosaur

families, dinosaur behavior, ecology, current controversies, hot topics and the KT extinction. Dinosaur paleontology will also cover the excavation of dinosaurs and the colorful history of the 'dinosaur hunters.' This course will emphasize the science and research involved in studying dinosaurs. Using dinosaurs as a vehicle, students will be exposed to the scientific method of inquiry and will leave this course with a better understanding on how to evaluate science in the real world. Not for Biology major credit.

*Advisory prerequisite: Entry level biology*  
3 credits

### **BIO 115- E: Evolution and Society**

The historical development of evolutionary thought, the evolutionary diversification of life, and the mechanisms of evolution are presented. The geological, genetic, and other biological principles necessary to comprehend evolutionary concepts are introduced as background. Current controversies over the evidence for evolution are reviewed. Human evolution, medical and agricultural applications of evolutionary theory, and its implications for the development of human and other social systems are considered. Not for Biology major credit.

*Advisory Prerequisite: One biology course*  
3 credits

### **BIO 201- E: Fundamentals of Biology: Organisms to Ecosystems**

An introduction to the major groups of living organisms. Structure, functions, the ecological roles of organisms in communities and ecosystems, and their evolutionary history are covered. Genetics and demography are discussed in the context of evolution by natural selection. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: Level 4 or higher on the mathematics placement examination or corequisite MAT 123 or higher*  
*Advisory Prerequisite: High School Biology*  
3 credits

### **BIO 202- E: Fundamentals of Biology: Molecular and Cellular Biology**

The fundamentals of cell biology, biochemistry, and genetics. The biochemical and molecular bases of cell structure, energy metabolism, gene regulation, heredity, and development in living organisms from bacteria to man are discussed. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering

for HD/CA courses for the first time will have priority to do so.

*Prerequisite: CHE 129 or 131 or 141*  
*Pre- or Corequisite: MAT 125 or higher or AMS 151*  
3 credits

### **BIO 203- E: Fundamentals of Biology: Cellular and Organ Physiology**

The fundamentals of cell and organ physiology in mammalian and non-mammalian organisms. The structure and function of cell membranes and the physiology of cell to cell signaling, cellular respiration, and homeostasis of organs and organisms are examined with an emphasis on the comparative physiology of vertebrates and invertebrates. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: CHE 129 or 131 or 141*  
*Pre- or Corequisite: MAT 125 or higher or AMS 151*  
3 credits

### **BIO 204: Fundamentals of Scientific Inquiry in the Biological Sciences I**

First course in the foundational laboratory sequence for all biology students, and students in related fields. Students will experience the laboratory process, research process, a wide range of laboratory tools, methods, skills, learn to read and write scientific presentations, and collaborate in formal inquiry. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: CHE 123, CHE 129, CHE 131, or CHE 141*  
*Pre- or Corequisite: BIO 201, BIO 202, or BIO 203*  
2 credits

### **BIO 205: Fundamentals of Scientific Inquiry in the Biological Sciences IIA**

Second course in the foundational laboratory sequence for all biology students, and students in related fields. Students will experience the laboratory process, research process, a wide range of laboratory tools, methods, skills, learn to read and write scientific presentations, and collaborate in formal inquiry. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. Not for credit in addition to BIO 207. This course has an associated fee.

Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: BIO 204*  
*Pre- or Corequisite: BIO 201, BIO 202, or BIO 203*  
2 credits

### **BIO 207: Fundamentals of Scientific Inquiry in the Biological Sciences IIB**

An alternative to BIO 205, this course focuses on a relatively narrow range of current research topics but in greater depth. BIO 207 is the second course in the foundational laboratory sequence for all biology majors and students in related fields. Students will experience the laboratory process, research process, a wide range of laboratory tools, methods, and skills, learn to read and write scientific works, and collaborate in formal inquiry. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. Not for credit in addition to BIO 205. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: BIO 204*  
*Pre- or Corequisite: BIO 201, BIO 202, or BIO 203*  
2 credits

### **BIO 208- H: Cell, Brain, Mind**

An introduction to the human brain and how it is the target of diseases, drugs, and psychological disturbances. The course explores these topics through a knowledge of basic cell neurobiology. The implications of brain science for human behavior in society are also considered. Not for major credit.

*Prerequisite: Any BIO course*  
*Advisory Prerequisite: High school chemistry*  
3 credits

### **BIO 211- C: Statistics and Data Analysis: A Conceptual Approach**

A conceptually-focused introduction to probability and data analysis emphasizing statistical literacy and critical thinking. Topics will include probability, t-tests, chi-squared tests, correlation, regression, and Analysis of Variance, as well as special topics of interest to undergraduate Biology majors such as case-control studies and meta-analysis. This course includes a one-hour recitation in which students will do hands-on activities, discuss papers from the primary literature, and gain experience with data analysis. May not be taken by students with credit for AMS 110, 310, 311, 312 or ECO 320.

*Pre- or Corequisite: MAT 125 or higher or AMS 151*

4 credits

### **BIO 301- H: Sustainability of the Long Island Pine Barrens**

The ecologically diverse Long Island Pine Barrens region provides a habitat for a large number of rare and endangered species, but faces challenges associated with protection of a natural ecosystem that lies in close proximity to an economically vibrant urban area that exerts intense development pressure. In this course we will consider the interaction of the ecological, developmental and economic factors that impact the Pine Barrens and the effectiveness of decision support systems in promoting sustainability of the Pine Barrens. This course is offered as BIO 301, GEO 301, ECO 301, ENV 301, and ESG 301.

*Prerequisites: U3 or U4 status and one of the following: BIO 201, CHE 131, ECO 108, ESG 100, ESG 198, GEO 101, GEO 102*

3 credits

### **BIO 310: Cell Biology**

The cell is studied as the unit of structure, biochemical activity, genetic control, and differentiation. The principles of biochemistry and genetics are applied to an understanding of nutrition, growth, and development.

*Prerequisites: C or higher in BIO 202; C or higher in BIO 203; CHE 321 or CHE 341*

3 credits

### **BIO 311: Techniques in Molecular and Cellular Biology**

Techniques used in recombinant DNA and cell biology research. Topics include DNA manipulation and analysis, protein expression and analysis, and microscopy. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: BIO 202; BIO 205 or BIO 207; CHE 132 or 142; MAT 125 or higher or AMS 151*

3 credits

### **BIO 312: Bioinformatics and Computational Biology**

This course uses computational methods to analyze current problems and solutions in molecular biology research. Students are exposed to algorithms and tools available for both single gene and larger scale genome research. Emphasis is on practical application. Laboratories allow students to apply their knowledge to real life molecular biology problems.

*Prerequisites: BIO 202; BIO 205 or BIO 207; MAT 126 or higher or AMS 161*

3 credits

### **BIO 314: Cancer Biology**

An examination of the biology of cancer. Emphasis is on molecular and cellular events, such as regulation of gene expression, genome maintenance, cell growth and death, differentiation, cell-cell recognition, signaling and homeostasis, that are frequently disrupted in cancer. Recent advances in diagnosis and therapy will also be discussed.

*Prerequisite: BIO 202*

3 credits

### **BIO 315: Microbiology**

The organization, structure, energetics, and reproduction of microorganisms. Interactions of bacteria and viruses are discussed. This course has been designated as a High Demand/ Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites: BIO 202; CHE 132*

3 credits

### **BIO 316: Molecular Immunology**

Structure, function, and organization of the immune response at the molecular and cellular levels. Molecular mechanisms of immunological responses to microorganisms and various disease states are explored.

*Prerequisites: BIO 202; BIO 203*

*Pre- or Corequisite: CHE 322 or CHE 326*

3 credits

### **BIO 317: Principles of Cellular Signaling**

Basic principles of cellular signaling and maintenance of cellular and organismic homeostasis through intra- and intercellular signaling mechanisms. The roles of membrane and nuclear receptors, second-messenger pathways and gene regulation in controlling diverse mammalian systems such as sensory physiology, organic metabolism, growth control, and neuronal development are discussed.

*Prerequisite: C or higher in BIO 202*

*Advisory Prerequisite: BIO 203*

3 credits

### **BIO 319: Landscape Ecology Laboratory**

A computer lab course focusing on spatial concepts, methods, and tools for addressing ecological and environmental problems. The course will be based on fundamental concepts in ecology and environmental

science and extend that knowledge, as well as teaching technical skills, including the use of geographic information systems (GIS) software, image processing, spatially explicit modeling, and spatial statistics. The lab exercises will introduce a variety of spatial approaches addressing problems in environmental protection, ecotoxicology, natural resource management, conservation biology, and wildlife management.

*Pre- or Corequisites: BIO 201; BIO 204*

*Advisory Prerequisites: AMS 110 or BIO 211; BIO 351*

3 credits

### **BIO 320: General Genetics**

Integrates classical and molecular approaches to the transmission and expression of biological information. Topics include: Mendelian and non-Mendelian inheritance; linkage analysis; population genetics; DNA replication, mutation and recombination; gene expression and its regulation; current genetic technology; developmental and cancer genetics, quantitative and complex traits, and relevant ethical issues.

*Prerequisite: BIO 202*

3 credits

### **BIO 321: Introduction to Ecological Genetics and Genomics**

An introduction to the concepts, research questions, and methods involved in modern ecological genetics and genomics. The goal of the course is to provide a broad conceptual framework for students planning to engage in empirical work in conservation, management, ecology, and evolutionary biology. The course will cover basic Mendelian genetics, meiosis, and mating systems, standard population genetics methods for describing variation within and between populations, basic quantitative genetics, methods for molecular marker genotyping, informatic and genomic concepts, and organism-specific methods and case studies (e.g. plant ecological genetics).

*Prerequisites: BIO 201; BIO 202*

*Advisory Prerequisite: BIO 351*

3 credits

### **BIO 325: Animal Development**

An overview of animal embryonic development, emphasizing molecular mechanisms regulating embryonic growth and differentiation. General areas to be discussed include: molecular basis of human birth defects, stem cells, identification of developmental genes, establishing polarity in *Drosophila* and vertebrates, regulation of cell differentiation, morphogenesis and organ development, development of cancer.

*Prerequisite: C or higher in BIO 202*

3 credits

### **BIO 327: Developmental Genetics Laboratory**

Exploration of the fundamental concepts in developmental biology and genetics through a combination of classical and modern molecular genetic approaches. Experiments are conducted using *Xenopus* and *Drosophila*, two important animal models for research in developmental biology and genetics. Students gain hands-on experience with the approaches used to investigate processes that control embryonic development on these two model systems, including the use of modern molecular methods for examining the regulation of gene expression during development. Exposure to the genetic approaches that are available in the *Drosophila* system will include participation in a genetic screen for new mutations. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: BIO 325; BIO 205 or BIO 207*  
*Pre- or Corequisite: BIO 320 or BIO 321*

3 credits

### **BIO 328: Mammalian Physiology**

A continuation of the fundamental principles of cellular and organ physiology introduced in BIO 203. The subject matter includes advanced topics covering the origins of membrane potentials, describing properties of synaptic transmission, identifying the genetics and consequences of channelopathies in cellular and organ cardiac physiology, and advanced treatment of selected topics in endocrine, cardiac, respiratory, renal and nervous system physiology. The focus is on mammals in general and humans more particularly. May not be taken for credit in addition to HBY 350.

*Prerequisite: C or higher in BIO 203*

*Advisory Prerequisite: CHE 132 or CHE 142*

### **BIO 332: Computational Modeling of Physiological Systems**

Introduces students to the fundamental principles underlying computational modeling of complex physiological systems. A major focus of the course will be on the process by which a model of a biological system is developed. Students will be introduced to the mathematical methods required for the modeling of complex systems (including stochastic processes and both temporal and spatial dynamics) as well as to tools for computational simulation. Roughly one half

of the class will focus on models for general cellular physiology, while the remaining half will focus on the development of higher-level models of a particular physiological system (for example, the neurobiological systems underlying learning).

*Prerequisite: MAT 127 and one of the following: BIO 202, BIO 203, CHE 132, PHY 127, PHY 132*

3 credits

### **BIO 334: Principles of Neurobiology**

The ionic basis of nerve potentials, the physiology of synapses, sense organs and effectors, and the integrative action of the nervous system are discussed.

*Prerequisites: C or higher in BIO 203; CHE 129, CHE 131, or CHE 141*

3 credits

### **BIO 335: Neurobiology Laboratory**

A laboratory course in physiology with a focus on neuromuscular function. Topics include acquisition and analysis of electrophysiological data; ion channels, electrical excitability and action potentials; synaptic transmission and muscular contraction; development of physiological functions; central control of movement; sensory function and behavior; cardiac function and regulation; and ethical and political issues of physiological relevance. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: C or higher in BIO 203 and the following: PHY 122/PHY 124 or PHY 127 or PHY 132; BIO 205 or 207*

3 credits

### **BIO 336- H: Conservation Biology**

Society and individual lives are increasingly affected by environmental degradation at different scales. From the decline of local fisheries to global climate change, multiple crises threaten the biodiversity and ecosystems that sustain us humans. This course introduces the scientific foundations of conservation biology, along with examples from real-world conservation. The course reviews the biological concepts that underlie conservation including habitat requirements, population dynamics, biogeography, and population genetics. Analysis of case studies on the effects of human activities on biological diversity and ecosystem services will be used to explore the interdisciplinary nature of the practice of conservation. This course will prepare students for careers in environmental sciences and ecology.

*Prerequisite: C or higher in BIO 201*

*Advisory Prerequisite: BIO 351*

3 credits

### **BIO 337: Neurotransmission and Neuromodulation: Implications for Brain Function**

Exploration of fundamental concepts of neurotransmission and neuromodulation of synaptic transmission. The subject matter includes an overview of the basic principles of neurotransmission and of the neuromodulatory systems in the brain. The involvement of these systems in behavior and neurological disorders is emphasized. We will discuss how specific neurological disorders can be investigated experimentally and how experimental results can contribute to understanding and treating these disorders.

*Prerequisite: C or higher in BIO 203*

3 credits

### **BIO 338: From Synapse to Circuit: Selforganization of the Brain**

Exploration of basic neural and synaptic mechanisms and the operation of representative brain circuits, using both theoretical approaches and experimental evidence. Particular attention is given to Hebb's Rule, its cellular basis, its consequences for circuit selforganization, and its limits. A solid background in a mathematical, physical, or biological science is desirable, but most relevant background material is covered in the course.

*Prerequisite: Instructor permission and BIO 203 or CHE 132 or PHY 122*

*Advisory Prerequisite: BIO 334*

3 credits

### **BIO 339: Molecular Development of the Nervous System**

An introduction to the molecular events that underlie development and plasticity of both the peripheral and central nervous systems, with a focus on neuronal mechanisms. Molecular and genetic approaches to the analysis of neural induction, neuronal differentiation, neuronal death and survival, neurotrophic factors, synapse formation and plasticity are presented.

*Prerequisite: C or higher in BIO 202 or BIO 203*

3 credits

### **BIO 340: Zoology**

Aspects of the natural history, morphology, and evolution of selected marine invertebrates, arthropods, and vertebrates. Three hours of lecture and one three-hour laboratory per week. Not for credit in addition to BIO 343 or BIO 344 if passed with C or higher. This course has an associated fee. Please see

[www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: BIO 201 or MAR 104; BIO 205 or BIO 207*

4 credits

### **BIO 341: Plant Diversity**

An introduction to the study of plants, especially green plants, including the origin and evolution of land plants. Topics include cellular structure and function, photosynthesis and respiration, gross anatomy, taxonomy and the diversity of organisms, plant ecology, agriculture. Three hours of lecture and one three-hour laboratory per week. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: BIO 201; BIO 202; BIO 205 or BIO 207*

4 credits

### **BIO 343: Invertebrate Zoology**

Aspects of the diversity, comparative and functional morphology, natural history, evolution, and water-land transitions of invertebrate animals. Three hours of lecture and one three-and-one-half hour laboratory per week. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: C or higher in BIO 201 or MAR 104; BIO 205 or BIO 207*

4 credits

### **BIO 344: Chordate Zoology**

Introduction to the diversity, natural history, and evolution of chordates, emphasizing the living vertebrates. Three hours of lecture or discussion and one three-hour laboratory per week. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: BIO 201*

4 credits

### **BIO 348: Diversity and Evolution of Reptiles and Amphibians**

The course will survey the diversity and natural history of the major groups of reptiles and amphibians, including snakes, lizards, turtles, crocodilians, frogs, and salamanders. Extinct groups (such as dinosaurs and pterosaurs) will also be covered. Furthermore, the course will showcase how studies of reptiles and amphibians have increased our general understanding of evolution and ecology, and will illustrate how diverse aspects of organismal biology (such as physiology,

ecology, behavior, morphology) evolve and are interconnected.

*Prerequisite: BIO 201*

3 credits

### **BIO 350- H: Darwinian Medicine**

The ecology and evolution of disease, including evolution of human resistance to infection by pathogens, pathogen evolution in response to natural and technological defenses, and the ecological context of disease. Evolutionary phenomena are treated from molecular, organismal, populational, and environmental perspectives.

*Prerequisites: BIO 201 and 202*

3 credits

### **BIO 351- H: Ecology**

An examination of the interactions of living organisms with their physical and biological environments. Special attention is given to population dynamics and the interactions among organisms that determine the structure, function, and evolutionary development of biological communities.

*Prerequisite: C or higher in BIO 201 or permission of instructor*

3 credits

### **BIO 352: Ecology Laboratory**

Stresses the collection, analysis, and interpretation of ecological data, mostly in terrestrial settings. Laboratory and field exercises demonstrate the operation of general ecological principles in specific populations and communities. One lecture, one three-hour field trip or laboratory, and one hour of recitation per week. Three all-day Saturday field trips. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: BIO 205 or BIO 207*

*Pre- or Corequisite: BIO 351 or permission of instructor*

3 credits

### **BIO 353: Marine Ecology**

A survey of biotic responses to ecological challenges in different marine realms. Controls of diversity and trophic structure in the marine ecosystem, historical aspects of marine realms, productivity in the oceans, plankton, soft-bottom communities, intertidal habitats, coral reefs, deep-sea environments, and effects of pollution in the ocean are discussed.

*Prerequisite: C or higher in BIO 201 or MAR 104*

*Advisory Prerequisite: BIO 343*

3 credits

### **BIO 354: Evolution**

A detailed discussion of the mechanisms of evolution, focusing on the ways in which genetic changes in populations lead to adaptation, speciation, and historical patterns of evolutionary change.

*Prerequisites: C or higher in BIO 201; BIO 202*

*Advisory Pre- or Corequisite: BIO 320 or 321*

3 credits

### **BIO 356: Applied Ecology and Conservation Biology Laboratory**

A computer laboratory course introducing students to ecological risk analysis and conservation biology. Laboratories are based on interactive software. Computer simulation techniques for addressing problems in applied ecology are emphasized.

*Prerequisites: BIO 201, BIO 202, or BIO 203; BIO 205 or BIO 207; MAT 126 or higher*

2 credits

### **BIO 358- H: Biology and Human Social and Sexual Behavior**

Major features of human social and sexual behavior are examined from a biological perspective. Insights from ethology, evolutionary biology, and neurobiology are synthesized into a picture of human nature and behavior. Implications of this picture for human sexual and social behavior are considered. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites: U3 or U4 standing; and one of the following: BIO 101, BIO 115, BIO 201, BIO 202, or BIO 203*

3 credits

### **BIO 359: Behavioral Ecology**

A consideration of the patterns of animal behavior in relation to ecological circumstances and evolutionary history. Vertebrate examples are emphasized.

*Prerequisites: BIO 201; BIO 203*

3 credits

### **BIO 361: Biochemistry I**

First course of a two-semester survey of the major chemical constituents of the cell, including carbohydrates, lipids, and proteins. Emphasis is on enzyme structure, enzyme kinetics, reaction mechanisms, and metabolic pathways.

*Prerequisites: C or higher in BIO 202; C or higher in CHE 322 or 326 or permission of instructor*

3 credits

### **BIO 362: Biochemistry II**

Second course of a two-semester Biochemistry survey. BIO 362 is the Molecular Biochemistry section that treats nucleic acid structure, replication, and transcription, both in vivo and in vitro. The machinery and regulation of prokaryotic and eukaryotic protein synthesis is also covered, including amino acid activation; transfer RNA; ribosomes; the genetic code; and peptide chain initiation, elongation, and termination.

*Prerequisites:* C or higher in BIO 361

3 credits

### **BIO 364: Laboratory Techniques in Cancer Biology**

This course will introduce contemporary concepts of cancer initiation, progression, metastasis and therapy. The lectures and recitations will include discussions of appropriate review articles, textbook readings and research articles. In the laboratory, students will be introduced to and recapitulate key techniques used in the selected research articles. This course will require significant work on computers outside of class time (more than 3 hours per week).

*Prerequisites:* C or higher in BIO 205 or BIO 207 *Pre- or Corequisite:* BIO 314, C or higher if used as a prereq.

3 credits

### **BIO 365: Biochemistry Laboratory**

series of laboratory experiments and discussions designed particularly to complement BIO 361 and BIO 362. This laboratory covers such topics as enzyme kinetics, spectrophotometry, technologyprotein purification, the polymerase chain reaction and genotypingmitochondrial evolutionary biology, cellular extraction of DNA, RNA, and proteins, and analytical biochemistry. Four hours of laboratory and discussion per week. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* BIO 205 or BIO 207

*Pre- or Corequisite:* BIO 310 or BIO 361

2 credits

### **BIO 366: Molecular Microbiology Laboratory**

conventional and contemporary Molecular Microbiological techniques. The lectures will cover a variety of microorganisms; Bacteria, Fungi, Viruses, and Protozoans based on textbook readings and current research articles. In the laboratory, students will learn fundamental and applied microbiological

methods, biochemical and DNA profiling of microorganisms, and the molecular basis of physiological processes used for the identification of unknown bacteria. This course will serve as an upper-division elective for BIO majors. The course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 202; BIO 205 or 207; BIO 315 or HBM 320 with a grade of C or better

3 credits

### **BIO 367: Molecular Diversity Laboratory**

Hands-on experience with methods to detect and analyze molecular (DNA, RNA, protein) variation to study ecology, adaptation, and evolutionary history using natural populations of *Drosophila*, plankton, and other locally available species.

*Prerequisites:* C or higher in BIO 201; C or higher in BIO 202; BIO 205 or BIO 207 *Advisory Pre- or Corequisite:* One of the following: BIO 320, BIO 321, BIO 351, or BIO 354

3 credits

### **BIO 371: Restoration of Aquatic Ecosystems**

A field and laboratory course designed to introduce students to field methods in assessing the long-term effects of pollution and restoration of aquatic and marsh systems. Students will work in teams to collaborate on measuring exchange of pollutants between a restored Superfund site and adjacent areas, the long-term effects of ecological restoration, habitat assessment, aquatic community structure in restored and adjacent systems, and long-term evolutionary effects on aquatic pollutants. Other restoration systems will be compared. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 201; BIO 202; BIO 205 or BIO 207

*Advisory Prerequisite:* BIO 353

4 credits

### **BIO 380: Entomology**

A survey of the anatomy, development, classification, biogeography, physiology, ecology, and evolution of the insects. The laboratory stresses a knowledge of insect diversity and morphology. Three hours of lecture and three hours of laboratory per week.

*Prerequisites:* C or higher BIO 201; BIO 202; BIO 205 or BIO 207

4 credits

### **BIO 385- H: Plant Ecology**

Basic ecological principles as applied to the biology of individual plants, plant populations, communities, and ecosystems in relation to their environments. Examples from Long Island pine barrens, tropical rain forests, beaches, deserts, and other plant communities are studied. Examination of the connections between human societies and plant communities, which are rapidly being altered or destroyed worldwide.

*Prerequisite:* C or higher in BIO 201

*Advisory Pre- or Corequisite:* BIO 351

3 credits

### **BIO 386- H: Ecosystem Ecology and the Global Environment**

Ecosystem ecology with an emphasis on biogeochemical cycling in oceans and on land, as well as on biosphere-atmosphere interactions. Topics include earth system processes such as climate and atmospheric composition, the hydrological cycle, cycling of chemicals such as nutrients and metals in the oceans, the soil cycle, and the fate and transport of materials in the atmosphere. Natural and perturbed systems are discussed. This course is offered as both BIO 386 and ENS 311.

*Prerequisites:* C or higher in BIO 201; CHE 129 or CHE 131 or CHE 141

*Advisory Prerequisite:* MAR 104

3 credits

### **BIO 401: Seminar in Biology**

Discussions of a specific area of current interest in biology. The work of each semester covers a different area of biology. Semester Supplements to this Bulletin contain topic description when standard course is offered. May be repeated as the topic changes.

*Prerequisite:* Permission of instructor

2-3 credits

### **BIO 402: Seminar in Biology**

Discussions of a specific area of current interest in biology. The work of each semester covers a different area of biology. Semester Supplements to this Bulletin contain topic description when standard course is offered. May be repeated as the topic changes.

*Prerequisite:* Permission of instructor

2-3 credits

### **BIO 403: Seminar in Biology**

Discussions of a specific area of current interest in biology. The work of each semester covers a different area of biology. Semester Supplements to this Bulletin contain topic description when standard course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*  
2-3 credits

#### **BIO 404: Seminar in Biology**

Discussions of a specific area of current interest in biology. The work of each semester covers a different area of biology. Semester Supplements to this Bulletin contain topic description when standard course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*  
2-3 credits

#### **BIO 405: Seminar in Biology**

Discussions of a specific area of current interest in biology. The work of each semester covers a different area of biology. Semester Supplements to this Bulletin contain topic description when standard course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*  
2-3 credits

#### **BIO 446: Readings in Neurobiology and Physiology**

Tutorial readings in the biological sciences. These courses may be repeated, but not more than two credits may be used toward biology major requirements. Limit of one topic per semester.

*Prerequisites: Written permission of instructor and undergraduate studies committee*  
1-2 credits, S/U grading

#### **BIO 447: Readings in Molecular, Cellular, and Developmental Biology**

Tutorial readings in the biological sciences. These courses may be repeated, but not more than two credits may be used toward biology major requirements. Limit of one topic per semester.

*Prerequisites: Permission of instructor and Department of Biochemistry and Cell Biology*  
1-2 credits, S/U grading

#### **BIO 449: Readings in Ecology and Evolution**

Tutorial readings in the biological sciences. These courses may be repeated, but not more than two credits may be used toward biology major requirements. Limit of one topic per semester.

*Prerequisites: Written permission of instructor and undergraduate studies committee*  
1-2 credits, S/U grading

#### **BIO 475: Undergraduate Teaching Practicum in College Biology I**

Study of the literature, resources, and teaching strategies in a field of biology, coordinated with a supervised clinical experience in instruction. Not for major credit. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: Permission of instructor and undergraduate studies committee*  
0-3 credits, S/U grading

#### **BIO 476: Undergraduate Teaching Practicum in College Biology II**

Study of the literature, resources, and teaching strategies in a field of biology, coordinated with a supervised clinical experience in instruction. Not for major credit. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: BIO 475; permission of instructor and undergraduate studies committee*  
0-3 credits, S/U grading

#### **BIO 484: Research in Biology and Society**

In these courses, the student works under the supervision of a faculty member in developing an individual project that makes use of the knowledge and techniques acquired in previous courses. The student prepares an appropriate report on the project. Any of the courses may be taken for more than two semesters, but no more than four credits of research and internship may be used for biology major requirements. Limit of one topic per semester.

*Prerequisite: Written permission of instructor and undergraduate studies committee. Request for committee approval must be submitted no later than two days prior to the last day of the add/drop period as scheduled in the academic calendar.*  
0-6 credits, S/U grading

#### **BIO 486: Research in Neurobiology and Physiology**

In these courses, the student works under the supervision of a faculty member in developing an individual project that makes use of the knowledge and techniques acquired in previous courses. The student prepares an appropriate report on the project. Any of the courses may be taken for more than two semesters, but no more than four credits of research and internship may be used for biology major requirements. Limit of one topic per semester.

*Prerequisite: Written permission of instructor and undergraduate studies committee. Request for committee approval must be submitted no later than two days prior to the last day of the*

*add/drop period as scheduled in the academic calendar.*

0-6 credits, S/U grading

#### **BIO 487: Research in Molecular, Cellular, and Developmental Biology**

In these courses, the student works under the supervision of a faculty member in developing an individual project that makes use of the knowledge and techniques acquired in previous courses. The student prepares an appropriate report on the project. Any of the courses may be taken for more than two semesters, but no more than four credits of research may be used for biology major requirements. Limit of one topic per semester.

*Prerequisite: Permission of instructor and Department of Biochemistry and Cell Biology*  
0-6 credits, S/U grading

#### **BIO 488: Internship in Biological Sciences**

May be repeated up to a limit of 12 credits. Not for biology major credit.

*Prerequisites: BIO 201, 202, 203; CHE 132; permission of faculty sponsor and biology internship committee*  
0-6 credits, S/U grading

#### **BIO 489: Research in Ecology and Evolution**

In these courses, the student works under the supervision of a faculty member in developing an individual project that makes use of the knowledge and techniques acquired in previous courses. The student prepares an appropriate report on the project. Any of the courses may be taken for more than two semesters, but no more than four credits of research may be used for biology major requirements. Limit of one topic per semester.

*Prerequisite: Written permission of instructor and undergraduate studies committee. Request for committee approval must be submitted no later than two days prior to the last day of the add/drop period as scheduled in the academic calendar.*

0-6 credits, S/U grading

## **BME**

### **Biomedical Engineering**

#### **BME 100: Introduction to Biomedical Engineering**

A rigorous introduction to biomedical engineering that provides the historical and social context of BME though contemporary emerging areas within BME. Specific areas covered in depth include: bioelectricity

and biosensors (action potentials to signal processing), bioimaging (invasive and non-invasive), genetic engineering (with ethical discussions), and biostatistics. Hands-on computational modeling introduces the physiological concept of positive and negative feedback loops in the body. Emphasis is placed on ways engineers view the living system by using design based approaches and computation.

*Prerequisites: BME major or BNG minor or departmental consent*

3 credits

### **BME 120: Programming Fundamentals in Biomedical Engineering**

This course will introduce the theory and fundamentals of computer programming specifically designed for the applications in biomedical engineering. Students will learn the basic computer architecture and the interaction between the computer hardware, operating system and application software. The course focus will be on the programming control logic and style critical to all programming languages including C and MATLAB. Several core and elective courses in biomedical engineering use MATLAB as a key programming language, and therefore MATLAB will be the primary language used to teach the above mentioned programming principles. This course will also serve as the foundation where the students can pursue further advanced programming skills.

*Prerequisite: BME Major*

3 credits

### **BME 212: Biomedical Engineering Research Fundamentals**

Introduction to data collection and analysis in the context of biophysical measurements commonly used by bioengineers. Statistical measures, hypothesis testing, linear regression, and analysis of variance are introduced in an application-oriented manner. Data collection methods using various instruments, A/D boards, and PCs as well as LabVIEW, a powerful data collection computer package. Not for credit in addition to the discontinued BME 309. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: BME major; BME 100*

*Pre- or Corequisite: MEC 260; BIO 202 or 203*

3 credits

### **BME 213: Studies in Nanotechnology**

The emerging field of nanotechnology develops solutions to engineering problems by taking advantage of the unique physical and chemical properties of nanoscale materials.

This interdisciplinary, co-taught course introduces materials and nano-fabrication methods with applications to electronics, biomedical, mechanical and environmental engineering. Guest speakers and a semester project involve ethics, toxicology, economic and business implications of nanotechnology. Basic concepts in research and design methodology and characterization techniques will be demonstrated. Course is cross-listed as BME 213, MEC 213, and EST 213 and is required for the Minor in Nanotechnology Studies (NTS).

3 credits

### **BME 300: Writing in Biomedical Engineering**

See Requirements for the Major in Biomedical Engineering, Upper-Division Writing Requirement.

*Prerequisites: WRT 102; U3 or U4 standing;*

*BME major*

*Corequisite: Any upper division BME course; perm. of instructor or Undergraduate Director*  
*S/U grading*

### **BME 301: Bioelectricity**

Theoretical concepts and experimental approaches used to characterize electric phenomena that arise in live cells and tissues. Topics include excitable membranes and action potential generation, cable theory, equivalent dipoles and volume conductor fields, bioelectric measurements, electrodes and electric stimulation of cells and tissues.

*Prerequisites: BME 212; C or higher in ESE 271; BME 120 (or equivalent)*

3 credits

### **BME 303- H: Biomechanics**

Illuminates the principles of mechanics and dynamics that apply to living organisms, from cells to humans to Sequoia trees. The behavior of organisms is examined to observe how they are constrained by the physical properties of biological materials. Locomotion strategies (or the lack thereof) are investigated for the forces and range of motions required and energy expenditures. Includes the relationship between form and function to illustrate how form dominates behavior. Presents the physiological effects of mechanical stresses on organs, pathologies that develop from abnormal stress, and how biological growth and adaptation arise as a natural response to the mechanics of living.

*Prerequisite: MEC 260, BME 212*

*Pre- or Corequisite: BIO 202 or 203*

3 credits

### **BME 304- H: Genetic Engineering**

An introduction to the realm of molecular bioengineering with a focus on genetic engineering. Includes the structure and function of DNA, the flow of genetic information in a cell, genetic mechanisms, the methodology involved in recombinant DNA technology and its application in society in terms of cloning and genetic modification of plants and animals (transgenics), biotechnology (pharmaceuticals, genomics), bioprocessing (production and process engineering focusing on the production of genetically engineered products.), and gene therapy. Production factors such as time, rate, cost, efficiency, safety, and desired product quality are also covered. Considers societal issues involving ethical and moral considerations, consequences of regulation, as well as risks and benefits of genetic engineering.

*Prerequisites: BME 100; BIO 202 or 203*

3 credits

### **BME 305: Biofluids**

The fundamentals of heat transfer, mass transfer, and fluid mechanics in the context of physiological systems. Techniques for formulating and solving biofluid and mass transfer problems with emphasis on the special features and the different scales encountered in physiological systems, from the organ and the tissue level down to the molecular transport level.

*Prerequisites: AMS 261 (or MAT 203 or MAT 205); AMS 361 (or MAT 303 or MAT 305); BME 212; MEC 260 and MEC 262*

*Pre- or Corequisite: BIO 202 or 203*

3 credits

### **BME 311: Fundamentals of Macro to Molecular Bioimaging**

This course will cover the fundamentals of modern imaging technologies, including techniques and applications within medicine and biomedical research. The course will also introduce concepts in molecular imaging with the emphasis on the relations between imaging technologies and the design of target specific probes as well as unique challenges in the design of probes of each modality: specificity, delivery, and amplification strategies. The course includes visits to clinical sites.

*Prerequisite: BME 212*

3 credits

### **BME 312: LabVIEW Programming in Engineering**

LabVIEW is the leading software development platform that enables engineers and scientists to create and deploy powerful measurement and control applications and prototypes with

minimal time. This course will systematically teach LabVIEW programming with the focus on the data flow model. The highlighted course topics are basic programming logics, graphic user interface design and parallel programming. It will also teach hardware integration using LabVIEW built-in functions for data acquisition, instrument control, measurement analysis and data presentation. Hands-on projects and demonstrations will be implemented throughout the course to enhance the knowledge learned in classroom. At the end of the course, students will be offered the free exam for Certified LabVIEW Associated Developer provided by National Instruments for future career development.

3 credits

### **BME 313: Bioinstrumentation**

Basic concepts of biomedical instrumentation and medical devices with a focus on the virtual instrumentation in biomedical engineering using the latest computer technology. Topics include basic sensors in biomedical engineering, biological signal measurement, conditioning, digitizing, and analysis. Advanced applications of LabVIEW, a graphics programming tool for virtual instrumentation. Helps students develop skills to build virtual instrumentation for laboratory research and prototyping medical devices. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* BME 212

*Pre- or Corequisite:* ESE 271

3 credits

### **BME 353: Introduction to Biomaterials**

This course provides an introduction to materials, including metals, ceramics, polymers, composites, coatings, and adhesives that are used in the human body. It emphasizes the physiochemical properties of materials that are considered important to meet the criteria specified for the implant and device applications (e.g. strength, modulus, fatigue and corrosion resistance, conductivity), and to be compatible with the biological environment (e.g. nontoxic, noncarcinogenic, etc.). Not for credit in addition to BME 504.

*Prerequisites:* BME100 and BME 212

3 credits

### **BME 354: Advanced Biomaterials**

This course is an overview of the applications of biomaterials. Here the emphasis is on the unique challenges in the design, fabrication, and evaluation of biomaterials for a particular application/field. Since biomaterials applications entail their direct

or indirect contact with humans, the various practical aspects associated with biomaterials such as sterilization, packaging, evaluating device failures as well as regulatory guidelines will be covered.

*Prerequisite:* BME 353 or ESM 353

3 credits

### **BME 371: Biological Microfluidics**

This one semester course will outline theory and applications of special fluid handling conditions associated with living systems. Microfluids will be examined with respect to aquaporin channels (single file molecular water movement), intercellular fluid transport mechanisms, microvascular convective fluid movement (2 phase flow), and transvascular fluid movement (3 pore theory) with reference to the similarity of each to flow in fabricated microchannels.

*Prerequisite:* BME 305

3 credits

### **BME 381: Nanofabrication in Biomedical Applications**

Theory and applications of nanofabrication. Reviews aspects of nanomachines in nature with special attention to the role of self-lubrication, intracellular or interstitial viscosity, and protein-guided adhesion. Discusses current nanofabricated machines to perform the same tasks and considers the problems of lubrication, compliance, and adhesion. Self-assembly mechanisms of nanofabrication with emphasis on cutting-edge discovery to overcome current challenges associated with nanofabricated machines.

*Prerequisites:* CHE 132; BME 100

*Pre- or Corequisite:* BIO 202 or 203

3 credits

### **BME 400: Research and Nanotechnology**

This is the capstone course for the minor in Nanotechnology Studies (NTS). Students learn primary aspects of the professional research enterprise through writing a journal-quality manuscript and making professional presentations on their independent research (499) projects in a formal symposium setting. Students will also learn how to construct a grant proposal (a typical NSF graduate fellowship proposal), methods to search for research/fellowship funding, and key factors in being a research mentor.

*Prerequisite:* BME 213; at least one semester of independent research (499) level

3 credits

### **BME 402: Contemporary Biotechnology**

This course will provide an introduction into the realm of modern biotechnology and its applications. This course introduces the historical development of biotechnology and its contemporary applications, including, bioproducts and biofuels, microbial fermentation/bioprocessing, aerobic bioreactors, modeling and simulation, metabolism and enzyme kinetics, metabolic engineering, bioremediation and environmental sustainability and human medicine. Further, societal issues involving ethical and moral implications, perceptions and fears, intellectual property, safety, risks and regulatory issues, as well as economics of biotechnology will be discussed.

*Prerequisite:* BME 304

3 credits

### **BME 404: Essentials of Tissue Engineering**

Topics covered are: developmental biology (nature's tissue engineering), mechanisms of cell-cell and cell-matrix interactions, biomaterial formulation, characterization of biomaterial properties, evaluation of cell interactions with biomaterials, principles of designing an engineered tissue. Considers manufacturing parameters such as time, rate, cost, efficiency, safety and desired product quality as well as regulatory issues. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 202 or 203; CHE 132

*Advisory Prerequisites:* CHE 321 and 322

3 credits

### **BME 420: Computational Biomechanics**

Introduces the concepts of skeletal biology; mechanics of bone, ligament, and tendon; and linear and nonlinear properties of biological tissues. Principles of finite differences method (FDM) and finite elements method (FEM) to solve biological problems. Both FDM and FEM are applied to solve equations and problems in solid and porous media. Requires knowledge of Fortran or C programming.

*Prerequisites:* BME 303; BIO 203

3 credits

### **BME 430: Engineering Approaches to Drug Delivery**

Introduction to the application of engineering principles and biological considerations in designing drug delivery systems for medical uses. The concept of biocompatibility and its implications in formulating controlled release devices are illustrated. Emphasis on the use

of biodegradable materials to design drug delivery systems for site-specific applications.

*Prerequisites:* AMS 161 or MAT 132 or 142 or 171; BIO 202 or 203; BME 304

3 credits

### **BME 440: Biomedical Engineering Design**

Introduction to product development from the perspective of solving biomedical, biotechnological, environmental, and ergonomic problems incorporating appropriate engineering standards and multiple realistic constraints. Teamwork in design, establishing customer needs, writing specifications, and legal and financial issues are covered in the context of design as a decision-based process. A semester-long team design project follows and provides the opportunity to apply concepts covered in class.

*Prerequisites:* BME major; U4 standing; BME 301 and 305

3 credits

### **BME 441: Senior Design Project in Biomedical Engineering**

Formulation of optimal design problems in biomedical and physiological settings. Introduces optimization techniques for engineering design and modeling for compact and rapid optimization of realistic biomedical engineering problems. Necessary conditions for constrained local optimum with special consideration for the multiple realistic constraints in which the product designed should function in terms of the settings (corporate, ex-corporate, biological, etc.), the engineering standards, and the safety considerations involved which are unique to biomedical engineering. Students carry out the detailed design of projects chosen early in the semester. A final design report is required. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* BME 440

3 credits

### **BME 461: Biosystems Analysis**

Fundamentals of the linear time series analyses framework for modeling and mining biological data. Applications range from cardiorespiratory; renal blood pressure, flow, and sequence; to gene expression data. Tools of data analysis include Laplace and Z transforms, convolution, correlation, Fourier transform, transfer function, coherence function, various filtering techniques, and time-invariant and time-varying spectral techniques.

*Prerequisites:* BME 212 and 301

3 credits

### **BME 475: Undergraduate Teaching Practicum**

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision by the faculty instructor. May be used as an open elective and repeated once.

*Prerequisites:* BME major; U4 standing; a minimum g.p.a. of 3.00 in all Stony Brook courses and a grade of B or better in the course in which the student is to assist; or permission of the department

3 credits

### **BME 481: Biosensors**

A comprehensive introduction to the basic features of biosensors. Discusses types of most common biological agents (e.g. chromophores, fluorescence dyes) and the ways in which they can be connected to a variety of transducers to create complete biosensors for biomedical applications. Focus on optical biosensors and systems (e.g. fluorescence spectroscopy, microscopy), and fiberoptically-based biosensing techniques. New technologies such as molecular beacons, Q-dots, bioMEMs, confocal microscopy and multiphoton microscopy, and OCT will be referenced.

*Prerequisites:* BIO 202 or 203; ESE 271

3 credits

### **BME 488: Biomedical Engineering Internship**

Participation in off-campus biomedical engineering practice. Students are required to submit a proposal to the undergraduate program director at the time of registration that includes the location, immediate supervisor, nature of the project, and hours per week for the project. One mid-semester report and one end of semester report are required. May be repeated up to a limit of 12 credits.

*Prerequisites:* BME 212 and permission of undergraduate program director

3-6 credits, S/U grading

### **BME 499: Research in Biomedical Engineering**

An independent research project with faculty supervision.

*Prerequisites:* Permission of instructor

0-3 credits

## **BUS**

### **Business Management**

### **BUS 111: Introduction to Business for Non-Business Majors**

Introduces students to major business topics that influence today's business practices. Explores contributions over the last century from Henry Ford to Bill Gates, showing how the Industrial Revolution became the Information Revolution. Provides knowledge of how business works and a perspective on its evolution into the next millennium. Integrates both introduction to business and management principles into one course. This course may not be taken for credit in addition to BUS 112.

*Prerequisite:* Non Business Majors Only

3 credits

### **BUS 112: Introduction to Business and Environmental Sustainability**

A lecture and applications oriented course that introduces major topics influencing today's business practices relative to environmental sustainability. The evolution of the field over the last century is explored, showing (1) how the Industrial Revolution completely ignored environmental and socially responsible business practices and (2) the somewhat more environmentally friendly atmosphere of the Information Age. The course also examines how businesses work, in view of the global need for sustainable decisions and positioning, and integrates an introduction to business and management principles, public health issues, ethical and socially responsible behavior, and ecological issues. May not be taken for credit in addition to BUS 111.

3 credits

### **BUS 115: Introduction to Business for Business Majors**

Introduces business majors to critical business thinkers who have influenced today's business practices. Allows students to utilize material learned in class to demonstrate their research and writing abilities by tracking specific companies throughout the semester. Written and verbal reports required weekly to show how companies operate in contemporary business environment.

*Prerequisite:* BUS Major; Pre or co-requisite: Completion of D.E.C. Category A or Wrt 102

3 credits

### **BUS 195: Business Honors Seminar I**

The theme is business leaders. Each student will explore the life and business experience of a major business leader, either current or historical. The student reports on various aspects of the person's life, experiences, and contributions. The student will also find three mentors in their desired field of specialization through the Career Center, CoB faculty, or

personal connections and interview them for a better understanding of business leaders and the reality of their specialization in today's work environment. The student will include both their report on their business leader and a report on their three interviews in his or her e-portfolio.

*Prerequisite: Business Honors Program membership and department consent required.*

1 credit

### **BUS 210: Financial Accounting**

Introduction to basic accounting fundamentals. Includes the recording, summarization and adjusting of financial transactions and the basic accounting cycle. Explores the preparation and presentation of the basic financial statements; income statement, retained earnings statement, balance sheet and the statement of cash flows. Includes accounting principles and concepts, asset and liability valuation.

*Prerequisite: Business Major or BUS Minor or ACC Minor or MTD or ECO or ISE Major*  
*Advisory Prerequisites: BUS 110, 111, 112, or 115*

3 credits

### **BUS 214: Managerial Cost Analysis and Applications**

A study of cost concepts, and theories as it relates to cost accumulation systems for product, process and activity based costing, as well as the implementation and evaluation of an accounting system as a source of information for decision making, planning, control, and evaluation of the organization by management. Includes cost-volume-profit analysis, overhead rates, budgeting and variance analysis, statement of cash flows and financial statement ratio analysis.

*Prerequisite: BUS major or ACC minor or ISE Major.*

*Advisory Prerequisite: BUS 210*

3 credits

### **BUS 215: Introduction to Business Statistics**

The application of current statistical methods to problems in the modern business environment. Topics include probability, random variables, sampling techniques, confidence intervals, hypothesis testing, and regression. Students analyze real data sets using standard statistical software, interpret the output, and write extensively about the results.

*Prerequisite: BUS Maj/Min, CME Major, or ISE Major.*

*Advisory Prerequisite: BUS 110, 111, 112 or 115, or MAT 122. Advisory Prerequisite for BUS or ISE Major: BUS 210*

3 credits

### **BUS 220: Introduction to Decision Sciences**

Familiarizes students with a variety of quantitative methods applicable in managing both the service and manufacturing sectors. Basic concepts of quantitative modeling are applied and tested in various examples supporting decision making in business settings. Topics include: optimization via linear, integer, and goal programming; simulation; decision and break-even analysis; and forecasting. (Formerly Management Science)

*Prerequisite: BUS Maj/Min, MTD, ECO, ISE, or CME major; BUS 110, 111, 112, or 115; BUS 215; MAT 122 or higher*

3 credits

### **BUS 294: Principles of Management**

An analysis and application of the basic principles of management. Subjects include management by objectives, supervisory leadership styles, current managerial problems, motivational techniques, organizational problems, communications, planning techniques and management control systems. We will closely examine case studies that focus on real world problems involving major corporations and closely look at the relationships that led to the issues.

*Prerequisites: BUS Major or Minor; BUS 110, BUS 111, BUS 112 or BUS 115; U1 or U2 standing or permission of instructor*

3 credits

### **BUS 295: Business Honors Seminar II**

The theme is innovations. The student will explore the development and impact of a specific innovation. It could be a technological innovation (the MRI), a service innovation (FedEx), a manufacturing innovation (CAD/CAM), etc. The student will also compare and contrast their chosen innovation with one selected by another student in the class. The student's will add the report on the innovation and the comparison with another student's innovation to his or her e-portfolio.

*Prerequisite: Business Honors Program membership and department consent required.*

1 credit

### **BUS 296: Business Honors Seminar III**

The theme is business enterprises. The student will explore the history, operations, marketing, financing, etc., of a significant business enterprise, current or historical. This will include a basic strategic analysis (SWOT, for example). The student will also compare and contrast their chosen business enterprise

with that selected by another student in the class. The student's will add the report on the business enterprise and the comparison with another student's business enterprise to his or her e-portfolio.

*Prerequisite: Business Honors Program membership and department consent required.*

1 credit

### **BUS 300: Writing for Business Management**

In order to meet the upper-division writing requirement for the BUS major, the student must complete a portfolio of written work consisting of three documents: his/her resume; a letter of application for a real job advertised in a newspaper or other medium; and a two-page memorandum describing the results of an analysis or similar issue appropriate to a business organization.

*Prerequisites: BUS major; U3 standing*  
*S/U grading*

### **BUS 301: Corporate Communications**

Examines the role of communications in the corporation using case studies. Topics include: corporate identity, image, reputation, advertising, media relations, employee communications, investor relations, government relations, crisis communications, leadership and corporate responsibility.

*Prerequisite: BUS maj/min.*  
*Advisory Prerequisite: BUS 110, 111, 112, or 115*

3 credits

### **BUS 310: Intermediate Accounting I**

Expands upon the basic financial accounting framework and explores the theoretical and analytical applications of Generally Accepted Accounting Principles (GAAP) in a business environment. Emphasis on asset and liability valuation, external reporting issues dealing with the presentation and interpretation of financial data, and the measurement of operational performance. The student will gain an understanding of financial reporting criteria and the reliance placed upon financial information by management and external users.

*Prerequisite: BUS major or ACC Minor*  
*Advisory Prerequisite: BUS 214*

3 credits

### **BUS 311: Federal Income Taxation I**

Introduces and explores fundamental income taxation concepts for individuals. Basic concepts in federal income taxation are explored, including gross income, exclusions, adjusted gross income, deductions,

exemptions, and credits. Introductory tax concepts including cash and accrual methods, like-kind exchanges, and passive loss rules are covered. Additionally, students will familiarize themselves with the preparation of various individual income tax forms and schedules.

*Prerequisite: BUS major or ACC Minor*  
*Advisory Prerequisite: BUS 214*

3 credits

### **BUS 312: Financial Statement Reporting and Analysis**

A review of corporate annual reports and related footnote disclosures from the perspective of the various users of financial statements including management, investors, and creditors. The analysis and assessment of operational business performance, trends, and decision making through the use of financial statements are discussed. Specific review of the income statement, balance sheet, and statement of cash flows, financial ratios, budgeting forecasts and analysis.

*Prerequisite: BUS major or ACC Minor*  
*Advisory Prerequisite: BUS 214*

3 credits

### **BUS 313: Intermediate Accounting II**

A continuation of BUS 310. Covers valuation, measurement, presentation, and analysis of accounting information and financial statements. Includes study of advanced accounting theory and opinions issued by the Accounting Principles Board and its successor, the Financial Accounting Standards Board. Selected topics include revenue recognition, investments, stockholders equity, changes in capital, pensions, leases, accounting for income taxes, accounting changes, error analysis, and related contemporary financial accounting issues.

*Prerequisite: BUS major or ACC Minor*  
*Advisory Prerequisite: BUS 310*

3 credits

### **BUS 314: Federal Income Taxation II**

Introduces and explores fundamental income taxation concepts for C corporations, S corporations, and partnerships. Further introduces the student to gift and estate taxes, trusts and estates, and the administrative procedures of the Internal Revenue Service. Introductory tax concepts are explored, including corporate organizational structures, corporate organization, dividend issues, liquidation issues, reorganization, partnership organizations, taxation of partnerships, and fiduciary income taxation for estates and gifts. Additionally, students will familiarize themselves with the preparation of various

corporate, partnership and fiduciary income tax forms and schedules.

*Prerequisite: BUS Major or ACC Minor*  
*Advisory Prerequisite: BUS 311*

3 credits

### **BUS 315: Accounting for the Small Business Entrepreneur**

This course is designed to introduce the student to accounting and other financial concept as that the small business entrepreneur needs to know in order to be successful. The course will reinforce accounting concepts already introduced in the Financial Accounting course with an emphasis on the small business. Students will study and utilize QuickBooks and Peachtree accounting software programs. Other business/financial concerns such as bank reconciliations, payroll preparation, payroll and sales tax compliance, maintenance of installment debt, and utilization of sales and purchase discounts will be reviewed.

*Prerequisites: BUS Major; BUS 210*

3 credits

### **BUS 325: Legal Environment of Business**

Explores competing interests of buyers and sellers, creditors and debtors, suppliers and consumers. Studies the Uniform Commercial Code from the initiation of a sales contract through financing of transactions, examines the rights of debtors and creditors in bankruptcy, and introduces basic concepts of law and regulation in the areas of securities, environmental protection, employment, and anti-trust.

*Prerequisite(s): BUS Major or BUS minor or ACC minor*

*Advisory Prerequisite: BUS 110, BUS 111, BUS 112 or BUS 115*

3 credits

### **BUS 330: Principles of Finance**

Focus on understanding how firms meet and manage their financial objectives. Today's financial environment, the fundamental trade-off between risk and return, the time value of money, and valuing future cash flows will be discussed. Explanation of financial tools and techniques which can be used to help firms maximize value by improving decisions relating to capital. Bond and Stock valuations are introduced.

*Prerequisite: BUS major/minor, AMS, MTD, ISE, or ECO major.*

*Advisory Prerequisite: BUS 110, 111, 112, or 115, BUS 210*

3 credits

### **BUS 331: International Finance**

Course will focus on understanding how firms meet and manage their financial objectives. Today's international financial environment, the fundamental trade-off between risk and return, the time value of money, and valuing future cash flows will be discussed. Explanation of financial tools and techniques, such as international capital budgeting, which can be used to help firms maximize value by improving decisions relating to capital.

*Prerequisites: BUS 110 or BUS 111 or BUS 112 or BUS 115; BUS major or BUS minor or AMS or ISE or MTD or ECO major*  
*Advisory Prerequisite: BUS 330*

3 credits

### **BUS 332: Entrepreneurial Finance**

Before going public, companies like Facebook, LinkedIn and Zynga relied on venture capital financing to grow. Similar companies are increasingly choosing private market solutions. A focus on the development of secondary markets that provide an alternative to the traditional IPO. This course teaches the necessary tools for investors and entrepreneurs to build and evaluate these early-stage companies.

*Prerequisites: BUS Major or Minor*  
*Advisory Prerequisite: BUS 330*

3 credits

### **BUS 333: Introduction to the Business of Real Estate**

This foundation course is a multi-dimensional program whose main objective is to provide students with a comprehensive understanding of the real estate profession. The core subjects will include real estate development, legal issues, real estate finance and investment, appraisals, environmental issues, real estate economics and capital markets. Highly qualified guest speakers will be invited for presentations and discussions to provide the student in in depth hands on knowledge and experience in all facets of the real estate profession.

*Prerequisites: BUS Major or Minor*  
*Advisory Prerequisite: BUS 330*

3 credits

### **BUS 334: Consumer Advertising and Promotion**

Stages and processes involved in developing an integrated marketing communications campaign. A range of marketing activities, including a situation analysis of the company, competition, and business environment, communications audit of a brand and its competitors, budgetary considerations, creative strategy and media planning will be covered. Apply learning to a team project that will

walk through various stages of developing an integrated marketing communications campaign.

*Prerequisites: BUS major and U3 or U4 standing.*

*Advisory Prerequisite: BUS 348 or 349*

3 credits

### **BUS 335: Business Advertising and Promotion**

Business to business marketing focus with an emphasis on Integrated Marketing Communications. Covering advertising agency and in-house specific issues. Marketing activities include advertising purchase, public relations, trade show promotion, direct marketing, interactive/Internet marketing, and touching upon relationship building through personal selling. Apply learning to a team project that will emphasize a comprehensive trade specific integrated marketing communications campaign.

*Prerequisites: BUS major and U3 or U4 standing*

*Advisory Prerequisite: BUS 348 or BUS 349*

3 credits

### **BUS 340: Information Systems in Management**

An introductory course in management information systems (MIS). Its objectives are to develop a basic understanding of the concepts and techniques needed in analyzing, designing, and managing these systems, and to explore the applications of computers and information technology to improve the efficiency and effectiveness of individuals, groups, and organizations.

*Prerequisite: BUS Major/Minor, ISE Major, or CME Major; U3 or U4 standing.*

*Advisory Prerequisite: BUS 348, BUS 215, and MAT 122*

3 credits

### **BUS 346: Management and Operations**

Analysis and design of manufacturing and service systems. Topics include quality management, product and service design, process selection and capacity planning, design of work systems, inventory management, aggregate planning, material requirements planning, and just-in-time systems.

*Prerequisites: BUS Major/Minor or ISE Major.*

*Advisory Pre or Co-requisite: BUS 110, 111, 112, or 115*

3 credits

### **BUS 348: Principles of Marketing**

Basic marketing concepts and their applications. Issues include strategy, market segmentation, individual consumer behavior, marketing research, promotion, pricing and international marketing. The emphasis is on analysis of the challenges facing business with respect to all relevant constituencies, including the company in general, managerial colleagues across functional areas, consumers, stockholders, and government. This course may not be taken for credit in addition to BUS 349.

*Prerequisite: BUS Major/Minor or ISE Major. Advisory Pre or Co-requisite: BUS 110, 111, 112, or 115*

3 credits

### **BUS 349: Principles of Marketing and Sustainable Products and Services**

Provides an understanding of marketing principles, including the "4 P's" of marketing: Products, Promotion, Price and Place (distribution channels), as they relate to new environmentally responsible marketing activities and ways of marketing to environmental sustainability industries. Foci include (1) how real world trends will affect marketing planning and decisions as we moved into a "greener" 21st century global community and (2) how to achieve profitability through customer satisfaction and utilizing environmentally sustainable best practices. Students will be required to demonstrate their understanding of the readings and class discussions via their own analyses of how this information relates to specific marketing issues of their choosing. May not be taken for credit in addition to BUS 348.

*Prerequisite: Business Major or Minor Advisory Prerequisites or Corequisite: BUS 110, BUS 111, BUS 112 or BUS 115*

3 credits

### **BUS 351: Human Resource Management**

Major trends in personnel management, including problems and issues faced by organizations and individuals in times of change. Responsibilities of the human resources department and the roles that every manager plays, both as a supervisor and as a client of the human resources department, are studied. Topics include human resources forecasting and planning job design, employee selection, test development and validation, equal employment opportunity laws and judicial rulings, performance appraisal, compensation, benefits, career development, safety, and labor relations.

*Prerequisite: BUS Major/Minor or MTD Major.*

*Advisory Pre or Co-requisite: BUS 110, 111, or 115*

3 credits

### **BUS 353: Entrepreneurship**

The essential qualities of new and growing enterprises are examined. Examples of both successful and failed new ventures are given by entrepreneurs. Students develop a business plan for their own business and present it to venture capitalists for their expert analysis.

*Prerequisites: Limited to Business and Engineering seniors. Prerequisites for BUS majors: BUS 210 and 348. Corequisite for engineering majors: enrollment in relevant senior design crs*

3 credits

### **BUS 354: Understanding Business Agreements**

Provides students with an understanding of legal documents in business and the business transactions behind them. Students review many types of legal documents likely to be encountered in a business career. Includes: agreements between business partners (stockholders and partnership agreements); technology and employment related agreements (confidentiality, employment, and joint development agreements); and commercial transactions (sales, loan, and acquisition agreements).

*Prerequisites: U3 or U4 standing; BUS or CEAS major; BUS 110 or 112*

3 credits

### **BUS 355: Investment Analysis**

The theoretical and empirical study of financial markets. Topics include portfolio selection, asset pricing, market efficiency, evaluation of fixed income securities, options and futures pricing.

*Prerequisite: BUS, AMS, MTD, ISE, or ECO major*

*Advisory Prerequisite: BUS 330 or ECO 389*

3 credits

### **BUS 356: Financial Engineering**

Financial engineering applied to corporations and investments. The financial mathematics of leveraged buyouts, refinancings, mergers and acquisitions. Modeling and investment analysis of stocks, bonds, commodities, foreign futures, options and other derivatives. Stochastic differential equations for options pricing. Quadratic optimization and portfolio performance attribution.

*Prerequisite: BUS, AMS, MTD, ISE, or ECO Major*  
*Advisory Prerequisite: BUS 330 or ECO 389*  
 3 credits

### **BUS 357: Principles of Sales**

Presents the skills to be successful in an extremely competitive business sales environment. Includes customer qualification, prospecting, sales message, sales demonstration, handling objections, closing techniques, and telemarketing and customer service activities.

*Prerequisite: BUS major*  
*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 358: Marketing Research**

Introduces marketing research tools that aid managers in marketing decision-making and how the marketing research process can be used to collect and analyze data and information to solve marketing problems. A strong applied orientation exposes students to marketing research in traditional areas such as market segmentation, product positioning, product design, brand perception, and sales forecasting, as well as emerging areas including customer satisfaction, customer relationship management (CRM), and on-line marketing.

*Prerequisite: BUS major; U3 or U4 standing*  
*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 359: Consumer Behavior**

Examines the basic concepts underlying consumer behavior with the goal of understanding how these concepts can be applied in analyzing and solving marketing problems.

*Prerequisites: BUS major; U3 or U4 standing*  
*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 360: Business Marketing**

Well over half of our economy flows through business-to-business (B2B) transactions but the nature of marketing from business to different organizations receives less attention than consumer marketing. This course examines marketing from business to businesses, government bodies, educational institutions, and non-profit organizations. Frameworks for understanding organizational needs and demands as well as their buying processes are considered. Customer Relationship Management (CRM) for organizational customers is presented and analyzed for implications into a field team approach to both marketing and sales.

*Prerequisite: BUS major*  
*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 361: Retail Management**

This course focuses on the necessary concepts and principles of retailing involved in making retail and wholesale decisions. The course looks at retailing from both a consumer perspective (e.g., why does a consumer shop a particular retail outlet?) and a business-to-business perspective (e.g., how does the retailer decide which supplier to use?) Additionally, the course examines the various methods of retailing (e.g. bricks and mortar, bricks and clicks) and how these methods have evolved and will evolve in the future. The content of the course is useful for students interested in working in the retail industry, as well as for students interested in working for companies that interface with retailers such as manufacturers of consumer products or for students with a general management or entrepreneurial interest.

*Prerequisite: BUS Major*  
*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 362: Principles of International Marketing**

Course incorporates functions of the marketing organization whose responsibility is to direct and lead the total international marketing enterprise. It addresses the 4 P's of marketing and other marketing principles and how they apply to global markets.

*Prerequisite: BUS Major*  
*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 363: Brand Management**

This course teaches students fundamental and leading-edge concepts in brand management. It will address the strategic importance of branding, provide theories and strategies for building, leveraging, and defending strong brands, and discuss current opportunities and challenges facing brand managers. The student will learn how to manage key relationships and functions that surround the brand, e.g., advertising, promotion, public relations, licensing, product and package design. A capable brand manager has exceptional strategic, quantitative, interpersonal, and presentation skills, and must be comfortable with decision-making and leadership. The course will focus on the development and application of these skills in brand management via in-class learning, case discussion, and project work.

*Prerequisites: BUS major*

*Advisory Prerequisite: BUS 348 or BUS 349*  
 3 credits

### **BUS 365: Financial Management**

Show managers how to interface with accounting and finance departments, understand how firms meet their financial objectives utilizing financial decision-making. Explanation of financial tools and techniques, which can be used to help firms maximize value by improving decisions relating to capital budgeting, capital structure, and working capital management. Other related topics including multinational financial management, risk management, mergers and acquisitions.

*Prerequisite: BUS, AMS, ISE, MTD, or ECO Major*  
*Advisory Prerequisite: BUS 330 or ECO 389*  
 3 credits

### **BUS 366: Money and Financial Institutions**

The characteristics of money and financial institutions within the financial system. Organization and operations of the Federal Reserve System, U.S. Banks and the U.S. Treasury. Details on how these financial institutions impact on the financial system. Determination of interest rates. Study of the framework and the management of banking and non-bank financial intermediaries.

*Prerequisites: BUS 110, BUS 112 or BUS 115; BUS 330 or ECO 389; BUS Major or BUS Minor or AMS or ECO or ISE or MTD Major*  
 3 credits

### **BUS 368: Marketing New Sustainable Products**

The development of new sustainable products and services represents one of the key processes firms can exploit to maintain and expand their market position in today's dynamic, global, environmentally sensitive world. New sustainable products and services are critical to successful growth and increased profits in many industries. In this course students learn how to use state-of-the-art management and research methods to identify markets, develop new product and service ideas, measure customer expectations and benefits, design profitable products and services, implement market tests, and track the success of new products and services through the life cycle. This course may not be taken for credit in addition to BUS 369.

*Prerequisites: BUS Major; BUS 210; BUS 348 or BUS 349; BUS 358*  
 3 credits

### **BUS 369: Marketing of New Products**

Techniques for conceptualization, design, development, testing, and launch of new products from marketers perspective. Identification of applicable products feature design/positioning for different target markets shown through use of various quantitative and qualitative techniques. Course is equally applicable for physical goods, services, and digital/information products. Focus on new (radical, discontinuous) products versus product extensions. This course may not be taken for credit in addition to BUS 368.

*Prerequisite: BUS Major*

*Advisory Prerequisite: BUS 348 or BUS 349; BUS 358*

3 credits

### **BUS 370: Lean Practices in Operations**

Global competitive forces are driving the adoption of lean practices in service, retail, and production operations. Using examples from diverse industry leaders such as Wal Mart, Dell, McDonald's, and Toyota, this course examines the application of the Seven Deadly Wastes, Just-in-Time, Value Stream Mapping, and Supply Chain Alliances.

*Prerequisite: BUS major*

*Advisory Prerequisite: BUS 346*

3 credits

### **BUS 371: Supply Chain Management**

Analysis of the activities and mechanics of purchasing and materials management. Emphasizes make vs. buy decisions in the private and public sectors, single vs. multiple sourcing, competitive bidding vs. negotiations, delivery system logistics, purchasing ethics and vendor relations, international purchasing, ISO 9000 and computerized inventory systems. This course may not be taken for credit in addition to BUS 373.

*Prerequisite: BUS major*

*Advisory Prerequisite: BUS 346*

3 credits

### **BUS 372: Quality Management**

The philosophies, tools, and techniques to identify and meet internal and external customer needs. Emphasis on the importance of satisfying the customer's perception of quality as a strategic necessity in Operations Management. Topics include Total Quality Management (TQM), quality control, statistical process control, and Six Sigma.

*Prerequisite: BUS major*

*Advisory Prerequisite: BUS 346*

3 credits

### **BUS 373: Supply Chain and Environmental Management**

The course provides an analysis of the activities and mechanics of purchasing and materials management with emphasis on sustainable practices and their influence on buy-make decisions, including private and public sector and deals with issues of single versus multiple sourcing, competitive bidding versus negotiations, the logistics of delivery systems, purchasing ethics and vendor relations, international purchasing, ISO 9000, ISO 14000 (sustainability standards) and computerized inventory systems, such as radio frequency identification (RFID) and executable internet applications. Sustainability issues include environmental impact in the area of raw material extraction, value-added conversion/treatment, waste management, packaging, distribution, and recycling by the end user/consumer. This course may not be taken for credit in addition to BUS 371.

*Prerequisites: BUS Major; BUS 346*

3 credits

### **BUS 374: Environmental Impact of Business**

This course provides an overview of standards, methods, and strategies for environmental impact assessment and policy implementation. Areas for analysis include energy consumption, raw materials, recycling, transportation, emissions, waste, and product and service materials and manufacturing processes. Legal requirements and regulation are examined for the U.S. and other countries. Case studies involving leading-edge companies are examined. ISO 14000 standards are discussed, as they provide the basis for corporate environmental impact audit and goal setting.

*Prerequisite: BUS Major*

3 credits

### **BUS 380: Honors - Research Methods**

Prepares students for business research and the honors research project. Practical business applications drawn from a variety of functional areas including strategic management, marketing, operations, finance, and human resource management. Industries include high technology, retail, banking, and manufacturing. Research methodologies include survey design, interviewing, observational methods, and experimental design. Research process includes problem finding, literature review, and proposal writing.

*Prerequisites: Admission to the honors program in business management; BUS 110 or BUS 112; BUS 210; BUS 249; and BUS 340*

3 credits

### **BUS 382: Honors - Organizational Behavior Research**

The student writes the Business Honors Program thesis under the supervision of a faculty member thesis advisor and the program director. The thesis advisor will direct and assist the student as he or she develops the thesis topic, formulates the research hypotheses, performs the basic research, writes the thesis, and presents the thesis research. The faculty member will also assist the student in acquiring necessary knowledge in the area of organizational behavior research as required to perform the thesis research. Students are required to present their thesis at the Undergraduate Research and Creativity (URECA) program in April.

*Prerequisite: Business Honors Program membership and department consent required.*

3 credits

### **BUS 383: Social Entrepreneurship**

Students explore the concept of social entrepreneurship, including motivation and skills for advocacy, entrepreneurship, and leadership. Topics include forms of social entrepreneurship (private, public, and not-for-profit), venture capital and fund raising, market analysis, marketing, communications, human resources, and human relations, including negotiation and conflict resolution methods. Students will explore models of corporate social responsibility, university service to the community, and grass-roots ventures spawned by perceived need and the will to make a difference. Students work in teams to develop a strategic business plan for their own venture and present their proposals to the class.

*Prerequisite: BUS Major or BUS Minor*

*Advisory Prerequisite: BUS 210, BUS 348, or BUS 349*

3 credits

### **BUS 384: Honors - Operations Research and Management**

The student writes the Business Honors Program thesis under the supervision of a faculty member thesis advisor and the program director. The thesis advisor will direct and assist the student as he or she develops the thesis topic, formulates the research hypotheses, performs the basic research, writes the thesis, and presents the thesis research. The faculty member will also assist the student in acquiring necessary knowledge in the area of operations research and management as required to perform the thesis research. Students are required to present their thesis at the Undergraduate Research and Creativity (URECA) program in April.

*Prerequisite: Business Honors Program membership and department consent required.*  
3 credits

### **BUS 386: Honors - Business Statistics**

The student writes the Business Honors Program thesis under the supervision of a faculty member thesis advisor and the program director. The thesis advisor will direct and assist the student as he or she develops the thesis topic, formulates the research hypotheses, performs the basic research, writes the thesis, and presents the thesis research. The faculty member will also assist the student in acquiring necessary knowledge in the area of business statistics as required to perform the thesis research. Students are required to present their thesis at the Undergraduate Research and Creativity (URECA) program in April.

*Prerequisite: Business Honors Program membership and department consent required.*  
3 credits

### **BUS 388: Honors - Research in Finance**

The student writes the Business Honors Program thesis under the supervision of a faculty member thesis advisor and the program director. The thesis advisor will direct and assist the student as he or she develops the thesis topic, formulates the research hypotheses, performs the basic research, writes the thesis, and presents the thesis research. The faculty member will also assist the student in acquiring necessary knowledge in the area of finance as required to perform the thesis research. Students are required to present their thesis at the Undergraduate Research and Creativity (URECA) program in April.

*Prerequisite: Business Honors Program membership and department consent required.*  
3 credits

### **BUS 389: Honors Research in Marketing**

The student writes the Business Honors Program thesis under the supervision of a faculty member thesis advisor and the program director. The thesis advisor will direct and assist the student as he or she develops the thesis topic, formulates the research hypotheses, performs the basic research, writes the thesis, and presents the thesis research. The faculty member will also assist the student in acquiring necessary knowledge in the area of marketing as required to perform the thesis research. Students are required to present their thesis at the Undergraduate Research and Creativity (URECA) program in April.

*Prerequisite: Business Honors Program membership and department consent required.*  
3 credits

### **BUS 390: Special Topics in Business Management**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites: BUS major; U3 or U4 standing*  
3 credits

### **BUS 391: Management of Sports Organizations**

Introduction of fundamental issues pertinent to any business - planning organization, staffing, and controlling. It discusses areas the sports manager is likely to encounter while conducting business, such as federal legislation influencing the sport business, employment related issues, funding and budgeting, risk management, site selection and customer service.

*Prerequisites: BUS Major/Minor and U3 or U4 standing.*  
3 credits

### **BUS 393: Principles of Project Management**

Anything we do in both our personal and professional lives that delivers something unique within a finite time frame is a project. Applying project management tools and techniques improves the likelihood of success. Beyond schedules and budgets, project managers must demonstrate high emotional intelligence to lead teams, effectively solve problems, and understand the nuances of culture and contracts. In this "get-out-of-your-chair" classroom exercise laden course, students will experience project management concepts. Class discussions will focus on the "real world" application of these concepts. Students will also gain hands-on experience with Microsoft Project.

*Prerequisites: BUS Major or Minor*  
*Pre or Co-requisite: BUS 346*  
3 credits

### **BUS 400: External Auditing**

The course is designed to introduce and explore basic auditing principles, concepts and applications within the context of the audit of an annual financial statement. This course will review the audit process and cover the following: planning (identification of the risks of material misstatement); application of procedures (reducing audit risk below an acceptable level); assessment (based upon documented audit evidence); and, reporting (in accordance with generally accepted auditing

standards) This course will also examine professional ethical standards and their relevance to the audit process. Other topics will include analysis and testing of internal control, substantive testing, and accounting research.

*Prerequisites: BUS Major; BUS 310*  
3 credits

### **BUS 440: International Management**

Increasing internationalization of markets is forcing firms to develop global strategies that protect profits and enhance value chains. Various aspects of international business including currency exchange, tariffs, BOP, economic parameters, regional labor practices and international channels of distribution will be discussed. Concepts of cross-border wealth creation and various theories of trade will be reviewed as well as international Product Life Cycle. Socio-cultural components will be discussed with emphasis on management choices. Other topics such as location, topography and climate will be reviewed.

*Prerequisite: BUS Major or Minor or ECO or MTD Major; U4 standing*  
3 credits

### **BUS 441: Business Strategy**

Capstone course that builds on tools and concepts introduced in more specialized business courses and on students' general business knowledge. Includes: methods for analysis of forces driving competition; identification of strengths, weaknesses, opportunities, and threats faced by individual corporations; and practical strategies for enabling new or existing firms to compete successfully within an industry. Case studies and in-class situations challenge students to develop skills in handling multidimensional business problems.

*Prerequisite: BUS or ECO or MTD or CME Major; U4 standing*  
3 credits

### **BUS 447: Business Ethics**

An introduction to traditional ethical theories and their application to business. A basis for understanding how ethical issues in business arise, and some strategies to control or resolve them, are derived from an examination of the work of philosophers and other writers relating to business ethics. Recent business case studies enable students to develop their own perspectives.

*Prerequisites: BUS Major or Minor, or ECO, ISE, or MTD Major; U4 standing.*  
3 credits

### **BUS 448: Marketing Strategy**

A capstone course for students in the Marketing Specialization in which students apply a wide range of marketing principles to address problems different companies face in areas such as channel distribution, pricing, new product development, communication, promotions, strategic marketing alliances, positioning, and target marketing.

*Prerequisite:* BUS Major; U4 Standing; BUS 358; and BUS 334, BUS 357, BUS 359, BUS 360, BUS 369, or BUS 488

3 credits

### **BUS 468: Risk Arbitrage**

This course is designed as a practical approach to analyzing, predicting, and investing in the success or failure of mergers and acquisitions (including all change of control transactions). The course will apply basic financial principles and analytical techniques to solve real world problems facing M&A and Investment Professionals.

*Prerequisites:* BUS Major, BUS 330, and department consent

3 credits

### **BUS 475: Undergraduate Teaching Practicum I**

The continuation on a more advanced level of training in the techniques of organization and management in the teaching of business management courses. Students are expected to assume greater responsibility in such areas as leading discussions, analyzing results of tests that have already been graded, and observing teaching. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* Grade of A or A- in the course in which the student is to assist and permission of undergraduate program director

3 credits, S/U grading

### **BUS 476: Undergraduate Teaching Practicum II**

The continuation on a more advanced level of training in the techniques of organization and management in the teaching of business management courses. Students are expected to assume greater responsibility in such areas as leading discussions, analyzing results of tests that have already been graded, and observing teaching. Students may not serve as teaching assistants in the same course twice.

*Prerequisite:* BUS 475 and permission of undergraduate program director

3 credits, S/U grading

### **BUS 487: Independent Research**

Provides the opportunity for students to undertake a special independent project

entailing advanced readings, reports, and discussion, or research on a topic of their own choosing with the guidance of a faculty member. May be repeated.

*Prerequisites:* Permission of instructor and undergraduate program director

0-3 credits

### **BUS 488: Internship**

Participation in local, state, national, or international private enterprises, public agencies, or nonprofit institutions.

*Prerequisites:* BUS major; U4 standing; permission of undergraduate program director

3 credits, S/U grading

### **BUS 489: Business Honors Research I**

Students apply business research concepts and techniques mastered in honors business management courses by creating and developing a business research project under faculty supervision. This work culminates in a publishable draft for inclusion in a department journal. Research projects are presented at one of several campus research fairs. A grade will be awarded upon completion of BUS 489, and then after completion of BUS 490.

*Prerequisite:* Permission of department

3 credits

### **BUS 490: Business Honors Research II**

Students apply business research concepts and techniques mastered in honors business management courses by creating and developing a business research project under faculty supervision. This work culminates in a publishable draft for inclusion in a department journal. Research projects are presented at one of several campus research fairs. A final grade for both BUS 489 and 490 is assigned upon completion of BUS 490.

*Prerequisite:* Permission of department

3 credits

## **CAR**

### **Career Development**

#### **CAR 110: Career Development and Decision Making**

Introduces students to theories of career decision-making, and the relationship between major choice, academic planning, and career options. Examines two steps in the career decisions process: self-assessment (skills, interests, values, and personality traits) and career exploration.

*Prerequisites:* Satisfaction of the writing competency skill (D.E.C. A, first course); U1 or U2 standing

2 credits

### **CAR 210: Career Planning**

Focuses on a systematic approach to the career planning process, including goal setting, professional communication, job market trends, and career research strategies. Analyzes the value of extracurricular service, and leadership experiences, and how to convey this value through written and oral presentation. Examines components of successful transition to the workplace.

*Prerequisites:* Completion of D.E.C. category A; U3 or U4 standing

1 credit

## **CCS**

### **Cinema and Cultural Studies**

#### **CCS 101- B: Introduction to Cinema & Cultural Studies**

An examination of mediated images and how they characterize and shape our everyday lives. Students learn how to recognize, read, and analyze visual media (which may include: film, television, advertising, photography, music videos, art, graphic design, machinima, and web-based images) within the social, cultural, and political contexts of cinema and cultural studies.

3 credits

#### **CCS 201: Writing About Cinema & Cultural Studies**

The course teaches research methodology, develops critical thinking, and hones argumentative writing skills. A range of cultural artifacts, issues, and approaches are considered along with the ways that various discourses appropriate or critique them. Students gain extensive training in the methods essential to the use of resources and to critical writing.

*Prerequisite:* Completion of D.E.C. category A

3 credits

#### **CCS 202- D: Film Genres**

An introduction to the study of film through the examination of multiple genres. Special attention is given to how film deals with issues of race and gender.

3 credits

#### **CCS 204- D: The Stony Brook Film Festival: Films and Contexts**

We will attend the Stony Brook Film Festival as active participants. Students will be introduced to the history of film festivals and examine issues of film distribution and acquisition and how they relate to both the mainstream and independent film traditions. At the Stony Brook Film Festival, students will see the films, interact with both the organizers and the filmmakers, and engage in lively discussion about the films and the filmmaking process. Students will gain basic cinematic terminology, analytical tools used to interpret cinematic art and a basic understanding of the cinema industry.

3 credits

**CCS 205- D: Cinema History: Late 19th Century to WWII**

An introductory study of cinema history from the 19th century to World War II. Emphasis is placed on cinema history within the contexts of: exhibition, audience, regulation, technology, film form, style, and movements, industry, distribution, and select national contributions.

3 credits

**CCS 206- D: Cinema History: Post-War-Present**

An introductory study of cinema history from the post-War period to the present. Emphasis is placed on cinema history within the contexts of: exhibition, audience, regulation, technology, film form, style, and movements, industry, distribution, and select national contributions.

3 credits

**CCS 301- G: Theorizing Cinema & Cultural Studies**

Recent trends in critical theory applied to the study of film, television, literature, popular music, and other types of "cultural production." In-depth analyses of specific literary, visual, and musical texts are situated within structures of power among communities, nations, and individuals. Exploration of how identities of locality, gender, ethnicity, race, and class are negotiated through cultural forms.

*Prerequisite: CCS 101 or CCS 201*

3 credits

**CCS 311- G: Gender and Genre in Film**

Examination of the notion of genre as a category of analysis and its often conflictive relationship to gender in the context of specific genres (the western, film noir, the horror film) and film story. Attention is paid to a particular genre's appeal to men and/or women as well

as its relationship to larger social, cultural, and political issues. May be repeated as the topic changes.

*Prerequisite: Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117, EGL 204, WST 291, WST 305*

3 credits

**CCS 312- I: Cinema and the Ancient World**

A reading of Classical Texts alongside their representation in the cinema. Readings will include classical literature, contemporary treatments of the classics, and film theory. We will pay special attention to how filmmakers are much more attentive to ideas from the present than from the past when they construct their films around ancient texts.

*Prerequisite: Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117*

3 credits

**CCS 313- H: Television Studies**

This course maps the social, cultural, and technological changes that the medium/media of television has experienced from its early ties to radio models of broadcast to the changes in reception wrought by the iPod.

*Prerequisite: Completion of DEC category B; CCS 101 or ARH 207/DIA 207*

3 credits

**CCS 324- K & 4: Jazz and American Culture**

An exploration of African American jazz and its importance and representation in American history and culture. We will consider novels, poems, stories, paintings, and photographs with jazz content as well as films by both Hollywood and documentary filmmakers. Special emphasis will be given to the myths that have dominated representations of jazz artists as well as the ways in which jazz artists have inspired artists and writers. This course is offered as both CCS 324 and MUS 324.

*Prerequisite: MUS 308 or one course in CCS, CLT, or HUM*

3 credits

**CCS 325- F: Culture in Context**

Theoretical and methodological examination of culture within specific contexts, settings, or time-periods. Emphasis may include historical, social, economic, political, ecological or

material contexts. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

3 credits

**CCS 326- G: Social and Cultural Theory**

In-depth exploration of social and cultural theories from a multi-disciplinary perspective. Emphasis will include application of major theoretical paradigms upon social and cultural practices, histories, and phenomena. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

3 credits

**CCS 327- G: Topics in Histories of Culture**

An examination of culture within diverse historical contexts. Emphasis is placed on the role of culture within the writing, documentation, and evidencing of history. Attention may be focused on a particular era, group, institution, type of object, or event. May be repeated as the topic changes, to a maximum of 6 credits.

*Prerequisite: U3 or U4 standing*

3 credits

**CCS 390- J: Topics in Latin American Cinema**

This course studies a variety of aspects connected with the production, distribution, and reception of cinema in Latin America. Course includes a representative sample of films produced in every one of the major Latin American film producing nations (Argentina, Brazil, Mexico, and Cuba). It will also review a short selection of minor Latin American cinematographies and of indigenous film productions. All films will always be studied within the social, political and artistic context in which these works are produced. Readings include works by Latin American film directors and theorists that have contributed to the study of the films in the region and of film as a world art form. Repeatable as the topic changes, for a maximum of 6 credits.

*Prerequisite: Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117*

3 credits

**CCS 391- J: Topics in Contemporary African Cinema and Cultural Studies**

This course will examine African traditions of graphic writing in their theoretical, literary, and cinematographic application. The

emphasis will be placed on the visual arts and their political significance in contemporary African debates, and of particular interest will be the production of contemporary artists, the strategies they use, and their impact in both global and local discussions. The artifacts will additionally serve as tools to investigate the modalities of a contemporary African self-understanding through the lenses of images and graphic design. Repeatable as the topic changes, for a maximum of 6 credits.

*Prerequisite:* Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117

3 credits

### **CCS 392- K: Topics in American Cinema and Cultural Studies**

The history of cinema as art has been directly linked to the evolution and increment of multicultural societies. This course studies the ways in which film has either included or excluded representations of multiculturalism in the United States, and how films have discussed and participated in the different debates about cultural, ethnic, racial, sexual, gender and class difference within the United States. The course studies theoretical concepts such as difference, ethnicity, migration, incorporation and cultural contact zones. Repeatable as the topic changes, for a maximum of 6 credits.

*Prerequisite:* Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117

3 credits

### **CCS 393- I: Topics in European Cinema and Cultural Studies**

A comparative study of European cinema in a historical, cultural, and political context. The course will concentrate on those films and movements that achieved a major impact in their country of origin as well as received international critical attention. Repeatable as the topic changes, for a maximum of 6 credits.

*Prerequisite:* Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117

3 credits

### **CCS 394- J: Topics in Asian Cinema and Cultural Studies**

This course is an overview of the history of Asian cinemas, with an emphasis on the

geopolitical study of China, Hong Kong, India, Japan, and Taiwan. By focusing on issues relating to nationhood, cultural production, gender relations, and the impact of colonialism and globalization, the course will explore the commonalities, and/or particularities between the various cinemas, based on a set of overlapping themes and cultural aesthetics. Repeatable as the topic changes, for a maximum of 6 credits.

*Prerequisite:* Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117

3 credits

### **CCS 395- H: Digital Cultural Studies**

This course critically examines how digital media and technology assist in the redesign of our political, economic, social, and cultural worlds. Special attention is paid to theories of digital media and historical developments of new technologies, as well as cultural practices with emergent technology.

*Prerequisite:* Completion of DEC category B; CCS 101 or ARH 207/DIA 207

3 credits

### **CCS 396- H: Video and Computer Game History**

The course examines video/computer games as historical artifacts while studying the processes of writing/documenting the history of videogames. Students will engage with histories of gaming companies and platforms, game designer memoirs, fiction, criticism, game analysis, theoretical writing, descriptive historical accounts, preservation practices, and ephemeral forms of historic documentation. Students will also have hands-on access to various console games from the 1970s to the present. This course is offered as both CCS 396 and DIA 396.

*Prerequisite:* CCS 101 or ARH 207/DIA 207; Satisfaction of DEC B or DEC D

3 credits

### **CCS 397- H: Video and Computer Game Culture**

The course critically examines videogames within cultural, social, and political contexts. It will showcase the interaction between technology and culture and society by examining videogames in terms of play and game play, racial and gendered representation, racism and sexism, games in a global context of online play, power-relations between gamers, violence and moral panics, and military propaganda. This course is offered as both CCS 397 and DIA 397.

*Prerequisite:* CCS 101 or ARH 207/DIA 207; Satisfaction of DEC B or DEC D

3 credits

### **CCS 401: Senior Seminar in Cinema & Cultural Studies**

Intensive study in a specific area of cinema and cultural studies. Possible topics include a film genre, a focused theoretical perspective, and the life and work of an important director or artist. May be repeated as the topic changes.

*Prerequisite:* CCS major and U4 standing; CCS 301

3 credits

### **CCS 475: Undergraduate Teaching Practicum**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites:* U3 or U4 standing; permission of instructor and department

3 credits, S/U grading

### **CCS 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* CCS 475; permission of instructor and chairperson

3 credits, S/U grading

### **CCS 487: Independent Research in Cinema and Cultural Studies**

Intensive readings and research on a special topic undertaken with close faculty supervision. May be repeated.

*Prerequisites:* Permission of instructor and department

0-6 credits

### **CCS 488: Internship**

May be repeated up to a maximum of 6 credits, but only 3 credits may be applied toward the cinema and cultural studies major.

*Prerequisite:* Permission of program advisor

0-6 credits, S/U grading

### **CCS 495: Senior Honors Project in Cinema and Cultural Studies**

A one-semester project for cinema and cultural studies majors who are candidates for the degree with departmental honors. The project involves completion of an honors thesis or project under the close supervision of an appropriate faculty member and the written and oral presentation of the thesis or presentation of the project to the program faculty colloquium.

*Prerequisites:* Permission of instructor and undergraduate program director

3 credits

## **CDT**

### **Consortium for Digital Arts Culture and Technology**

#### **CDT 208: Introduction to Media Technology**

A survey and hands-on introduction to digital media. Students are introduced to the practical, conceptual, and historical use of computers and related imaging tools in the visual arts through lecture, labs, readings, and project critiques. This course serves as preparation for further study in electronic media and as an opportunity for students in the arts to gain basic computer literacy. Students will develop strategies for combining images and text. Students will then distribute these works on the web. Emphasis is on the conceptual and artistic potential of the technology. No prior computer experience is required. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Pre- or Corequisite:* One ARS, CCS, CSE, ISE, MUS, or THR course

3 credits

#### **CDT 317: Interactive Media, Performance, and Installation**

An investigation of the relationship between music and film and video. Students script, shoot, edit, and create short videos with soundtracks, exploring different aspects of visuals and music. All editing is done digitally. Works may be made for screen, installation, or performance. Also examines historical and contemporary artistic exploration with such media. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One ARS, CCS, CSE, ISE, MUS, or THR course  
*Advisory Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

### **CDT 318: Movie Making: Shoot, Edit, Score**

An investigation of the relationship between music and film and video. Students script, shoot, edit, and create short videos with soundtracks, exploring different aspects of visuals and music. All editing is done digitally. Works may be made for screen, installation, or performance. Also examines historical and contemporary artistic exploration with such media. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* ARS/MUS/THR 208 or ARS 225 or CCS 101

3 credits

#### **CDT 341: Sound Design**

An investigation into the scientific, formal and artistic qualities of sound developed for students who may or may not have had formal musical training. Students will write reviews of sound pieces, create film or game soundtracks, and create sound-based art-works in response to course content, and write a paper on acoustic or psycho-acoustic phenomena. Emphasis is on studio production techniques, history of sound art and basic acoustics. Students will work on Apple computers in the SINC site and LTA. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One ARS, CCS, CSE, ISE, MUS, or THR course  
*Advisory Prerequisite:* ARS/MUS/THR 208 or ARS 225

3 credits

## **CEF**

### **School of Professional Development**

#### **CEF 347: Introduction to Special Education**

An overview that will provide core knowledge of special education practices and legislation. Students will refine their knowledge of the values, issues, practices, and policies that guide the field of special education. Students will develop and improve skills in topics of special education, education efficacy, instructional issues, early intervention, transitions, family, and community concerns. As of Fall 2011, this course meets the NYS special education requirement for all pre-service candidates for teacher certification.

3 credits

## **CHE**

### **Chemistry**

#### **CHE 115- E: Chemistry, Life, and Environment**

This survey course introduces chemical principles by emphasizing the role chemistry plays in everyday life, the natural environment, the built environment, energy production, and in processes leading to environmental degradation. In addition, the role of chemistry in the development of alternative energy sources, remediation technologies, and eco-friendly products is discussed. This course for non-science majors introduces chemical principles using mostly qualitative approaches rather than quantitative approaches. Interactive tools and interactive visualization tools are extensively used to illustrate concepts, reactions, and processes. This course is offered as both CHE 115 and ENV 115.

3 credits

#### **CHE 125: Learning Strategies Essential for Success in Chemistry**

Focuses on developing techniques, strategies, and advanced learning skills that are essential for success in college-level chemistry. Real world contexts, issues, and problems are explored from a chemistry perspective. Provides a bridge from high school to college courses and from CHE 131 to CHE 132. A grade of C or higher in CHE 125 satisfies the prerequisite for entry into CHE 132, provided CHE 129 or CHE 131 have been completed with a passing grade (D or higher).

3 credits, ABC/U grading

#### **CHE 129- E: General Chemistry IA**

A broad introduction to the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. Basic concepts, problem solving, and factual material are emphasized. This course provides the necessary foundation for students who wish to pursue further coursework in chemistry. CHE 129 is inappropriate for students who satisfy the prerequisites for CHE 131 or 152. Three lecture hours, one 80-minute workshop, and one problem-solving session per week. The content and grading match that of CHE 131 (see course description for CHE 131), but the math prerequisites differ, and students attend a CHE 130 problem-solving session per week. The problem-solving session provides a structured environment for developing quantitative reasoning and problem-solving skills. CHE 129 may not be taken for credit in addition to CHE 123/124,

CHE 131 or 152. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Mandatory co requisites: MAT 123 and CHE 130*

*4 credits*

### **CHE 130: Problem Solving in General Chemistry**

This course provides a structured environment for completing CHE 129 homework assignments and helping students develop the quantitative reasoning and problem solving skills needed in General Chemistry. Satisfactory/Unsatisfactory grading only. Grading is based on attendance and participation. Required for students taking CHE 129 along with MAT 123.

*Mandatory corequisites: CHE 129 and MAT 123*

*1 credit, S/U grading*

### **CHE 131- E: General Chemistry IB**

A broad introduction to the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. The principal topics covered are stoichiometry, the states of matter, chemical equilibrium and introductory thermodynamics, electrochemistry, chemical kinetics, electron structure and chemical bonding, and chemical periodicity. The sequence emphasizes basic concepts, problem solving, and factual material. It provides the necessary foundation for students who wish to pursue further coursework in chemistry. This sequence is inappropriate for students who have completed an AP course or more than one year of chemistry in high school; such students should take CHE 152. Three lecture hours and one 80-minute workshop per week. May not be taken for credit in addition to CHE 129 or CHE 152. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Corequisite: MAT 125 or higher*

*4 credits*

### **CHE 132- E: General Chemistry II**

A continuation of either CHE 129 or 131, introducing the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. The principal topics covered are stoichiometry, the states of matter, chemical equilibrium and introductory thermodynamics,

electrochemistry, chemical kinetics, electron structure and chemical bonding, and chemical periodicity. The sequence emphasizes basic concepts, problem solving, and factual material. It provides the necessary foundation for students who wish to pursue further coursework in chemistry. This sequence is inappropriate for students who have completed two or more years of chemistry in high school; such students should take CHE 141, 142. Three lecture hours and one 80-minute workshop per week. May not be taken for credit in addition to CHE 152. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in CHE 129 or CHE 131; or C or higher in CHE 125 and D or higher in CHE 129 or CHE 131. Pre- or Corequisite: MAT 125 for those who took CHE 129 or 130; MAT 126 or higher for all others*  
*4 credits*

### **CHE 133: General Chemistry Laboratory I**

Designed to familiarize students with (1) some chemical and physical properties of substances, (2) techniques of quantitative chemistry, and (3) scientific methodology. Four hours of laboratory and discussion per week. CHE 133 may not be taken for credit in addition to CHE 143, and CHE 134 may not be taken for credit in addition to CHE 144. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Pre- or Corequisite: CHE 129 or 131*

*1 credit*

### **CHE 134: General Chemistry Laboratory II**

Designed to familiarize students with (1) some chemical and physical properties of substances, (2) techniques of quantitative chemistry, and (3) scientific methodology. Four hours of laboratory and discussion per week. CHE 133 may not be taken for credit in addition to CHE 143, and CHE 134 may not be taken for credit in addition to CHE 144. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: CHE 133*

*Pre- or Corequisite: CHE 132*

*1 credit*

### **CHE 143: Molecular Science Laboratory I**

Laboratory program similar in content to CHE 133, 134 but conducted at a more intensive and stimulating level. Four hours of laboratory and discussion per week. CHE 143 may not be taken for credit in addition to CHE 133, and CHE 144 may not be taken for credit in addition to CHE 134. Priority given to students in the University's honors programs. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Corequisite: CHE 152*

*1 credit*

### **CHE 144: Molecular Science Laboratory II**

Laboratory program similar in content to CHE 133, 134 but conducted at a more intensive and stimulating level. Four hours of laboratory and discussion per week. CHE 143 may not be taken for credit in addition to CHE 133, and CHE 144 may not be taken for credit in addition to CHE 134. Priority given to students in the University's honors programs. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: CHE 143*

*Corequisite: CHE 331*

*1 credit*

### **CHE 152- E: Molecular Science I**

Topics include atomic and molecular structure, chemical bonding, thermodynamics, equilibrium and aqueous chemistry, electrochemistry, kinetics and basics of organic chemistry. This is the initial course in a three semester sequence. Students with a strong background prior to entering the University can take the 152-331-332 sequence, which covers the same material as 131-132-321-322. Recommended for students who took advanced placement chemistry in high school or equivalent or students who have performed well on the summer chemistry placement exam. Three lecture hours and one 80-minute workshop per week. May not be taken for credit in addition to CHE 129, 131, 132, 141, or 142.

*Prerequisite: Advanced Placement Chemistry score of 4 or 5 or satisfactory performance on the summer chemistry placement exam; co-registration in MAT 131 (preferred), MAT 125, AMS 151 or a higher calculus course*

*4 credits*

**CHE 301: Physical Chemistry I**

The quantitative study of microscopic and macroscopic chemical systems, covering introductory quantum theory of atoms and molecules (energy levels and states), statistical thermodynamics, and fundamental thermodynamics with application to chemical reactions and simple systems. May not be taken for credit by students who have completed CHE 312.

*Prerequisite:* CHE 132 or 142; MAT 132 or 142 or 127 or 171 or AMS 161 *Pre- or Corequisite:* PHY 121/123 or 125 or 131/133 or 141

4 credits

**CHE 302: Physical Chemistry II**

Applications of thermodynamics to chemical equilibria, electrochemistry, and ideal solutions. Applications of quantum theory to chemical bonding, molecular structure, and spectroscopy.

*Prerequisites:* CHE 301; MAT 211 or 203 or 205 or AMS 161  
*Pre- or Corequisite:* PHY 122/124 or 132/134 or 142 or PHY 126/127

4 credits

**CHE 303: Solution Chemistry Laboratory**

Quantitative techniques of solution chemistry. Measurement: accuracy and precision, analysis, computation, and reporting. Spectrophotometry. Solution equilibria and kinetics. Use of computers is introduced. Six hours of laboratory and discussion. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CHE 134 or 144  
*Corequisite:* CHE 301

2 credits

**CHE 304: Chemical Instrumentation Laboratory**

Electrochemical and thermochemical measurements. Electronics in chemical instrumentation. Vacuum techniques. Electrical and magnetic properties of materials. Data-handling methods. Six hours of laboratory and discussion. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CHE 303. *Corequisites:* CHE 302 and 385  
*Advisory Prereq:* Knowledge of computer programming

2 credits

**CHE 310- H: Chemistry in Technology and the Environment**

Use of chemical principles in understanding processes that occur in the modern technological world and in the natural environment. Certain ecological problems of a chemical nature are analyzed. Methods of controlling these problems are discussed. Not for credit in addition to ENV 320.

*Prerequisite:* CHE 132 or CHE 152  
3 credits

**CHE 312: Physical Chemistry for the Life Sciences**

A one-semester treatment of fundamental concepts of physical chemistry, intended primarily for students of the biological sciences desiring an introduction to physical chemistry. Topics include equations of state; classical thermodynamics and its application to chemical equilibrium in reaction systems, multiphase systems, and electrochemical cells; kinetic theory of gases; transport properties; chemical kinetics. May not be taken for credit by students who have completed CHE 301. Not for major credit.

*Prerequisite:* CHE 132 or 142; MAT 132 or 142 or 127 or 171 or AMS 161 *Pre- or Corequisite:* PHY 121/123 or 125 or 131/133 or 141

3 credits

**CHE 321: Organic Chemistry I**

An introduction to the structure, reactivity, and properties of organic compounds is presented using modern views of chemical bonding. These fundamental ideas are applied to topics ranging from synthetic chemistry to complex functional structures such as lipid bilayers. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* C or higher in CHE 132  
4 credits

**CHE 322: Organic Chemistry IIA**

Discussion of the structure, reactivity, and properties of organic compounds introduced in CHE 321 is continued. The chemistry of substances important in biology, medicine, and technology is emphasized. CHE 322 may not be taken for credit in addition to CHE 326. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* C or higher in CHE 321  
4 credits

**CHE 326: Organic Chemistry IIB**

Similar to CHE 322 but providing a more fundamental view of organic compounds, reaction mechanisms, and synthesis, based somewhat more explicitly on thermodynamics and kinetics. Especially for those who may major in chemistry, biochemistry, or another physical science. CHE 326 may not be taken for credit in addition to CHE 322. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* C or higher in CHE 321  
4 credits

**CHE 327: Organic Chemistry Laboratory**

Techniques of isolating and handling organic substances, including biological materials. A one-semester course that provides a basic organic laboratory experience. It is recommended that students take CHE 327 at the same time as or immediately following CHE 322 or 332. Four laboratory hours and one lecture hour per week. Not for credit in addition to CHE 383. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CHE 133 or 143; CHE 134 or 144 *Pre- or Corequisite:* CHE 321 or CHE 331

2 credits

**CHE 331: Molecular Science II**

Topics include the structural, mechanistic and synthetic aspects of organic chemistry, transition metal chemistry, catalysis, supramolecular chemistry, and polymer chemistry. This is the second course in a three semester sequence. Students with a strong background prior to entering the University can take the 152-331-332 sequence, which covers the same material as 131-132-321-322. Three lecture hours and one 80-minute workshop per week. May not be taken for credit in addition to CHE 321.

*Prerequisite:* C or higher in CHE 152  
4 credits

**CHE 332: Molecular Science III**

Topics include advanced structural, mechanistic and synthetic aspects of organic chemistry, the organic chemistry of biological pathways and biosynthesis. This is the final course in a three semester sequence. Students with a strong background prior to entering the University can take the 152-331-332 sequence, which covers the same material as 131-132-321-322. Three lecture hours and one

80-minute workshop per week. May not be taken for credit in addition to CHE 322.

*Prerequisite:* C or higher in CHE 331

4 credits

### **CHE 341: Organic Chemistry Honors Seminar I**

Advanced topics in organic chemistry within the scope but beyond the reach of CHE 321 (Organic Chemistry I) will be discussed along with an introduction to contemporary research topics. Permission to enroll will be granted to students who have demonstrated excellence in their General Chemistry courses.

*Prerequisites:* CHE 132 or 142; permission of instructor

*Corequisite:* CHE 321

1 credit

### **CHE 342: Organic Chemistry Honors Seminar II**

Advanced topics in organic chemistry within the scope but beyond the reach of CHE 322 and CHE 326 (Organic Chemistry II) will be discussed along with topics in contemporary research. Permission to enroll will be granted to students who have demonstrated excellence in CHE 321.

*Prerequisites:* CHE 321; permission of instructor

*Corequisite:* CHE 322 or 326

1 credit

### **CHE 345: Structure and Reactivity in Organic Chemistry**

Electronic and stereochemical theories relating to organic structure and reactions. Topics such as bonding, strain, aromaticity, MO theory, molecular rearrangements, pericyclic reactions, and photochemistry are covered.

*Prerequisite:* CHE 322, CHE 326, or CHE 332

*Pre- or Corequisite:* CHE 301 or 312

3 credits

### **CHE 346: Biomolecular Structure and Reactivity**

The reactivity and physiological function of biological macromolecules and their monomeric constituents are described at the chemical level. The course reflects the most recent advances at the interface of organic chemistry and biochemistry. Specific topics include catalysis, biomimicry, protein and DNA modification, binding and target recognition, and correlation between three-dimensional structure and reactivity.

*Pre- or Corequisites:* CHE 322, CHE 326, or CHE 332; CHE 301 or CHE 312

3 credits

### **CHE 348: Reaction Mechanisms in Organic Chemistry**

Important classes of mechanisms of reactions useful in synthesis are explored. The kinetics and thermodynamics of these reactions are analyzed using modern structural theories. Examples of reaction types are substitutions, rearrangements, additions, eliminations, and selected organometallic reactions.

*Prerequisite:* CHE 322, CHE 326, or CHE 332

3 credits

### **CHE 351: Quantum Chemistry**

Concepts of quantum theory, Schrodinger wave mechanics, and related mathematical techniques illustrated by application to systems of chemical bonding, spectroscopy, molecular structure, and molecular collision phenomena.

*Prerequisites:* CHE 302; MAT 203 or 205

3 credits

### **CHE 353: Chemical Thermodynamics**

A rigorous development of thermodynamics and its application to systems of interest to chemists, including electrochemical cells, gases, polymers, and homogeneous and heterogeneous equilibrium. An introduction to statistical mechanics is included.

*Prerequisites:* CHE 302; CHE 321

3 credits

### **CHE 357: Molecular Structure and Spectroscopy Laboratory**

Optical and magnetic resonance spectroscopy are used to investigate the structural, dynamic, and quantum mechanical properties of some basic chemical systems. Emphasis is on the quantitative measurement of molecular parameters and transformations. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* CHE 304 and 383

2 credits

### **CHE 358: Scientific Computing**

The basic methods of numerical analysis and the design of computer programs that use them are discussed within the framework of solving a variety of exciting problems chosen from many areas of science. The presentation makes extensive use of powerful scientific computational environments, such as Mathematica, and Matlab, but guidance to other scientific high-level computer languages is also provided. No previous knowledge of scientific programming is assumed. Extensive use of personal or SINC-site computers outside the classroom is required

*Prerequisite:* MAT 127 or MAT 132 or MAT 142 or MAT 171 or AMS 161

2 credits

### **CHE 361: Nuclear Chemistry**

Properties of radioactive substances and their use in the study of chemical problems, nuclear stability and structure, nuclear reactions, radioactive decay, interactions of radiation with matter, nuclear medicine, isotope applications, and environmental control. Offered in summer only.

*Prerequisites:* Four semesters of chemistry; PHY 126 and 127, or 132/134 or 142 or 171; AMS 161 or MAT 127 or 132 or 142; permission of department through application by January 30; permission of instructor

*Corequisite:* CHE 362

3 credits

### **CHE 362: Nuclear Chemistry Laboratory**

Detection and measurement of radiation, electronic instrumentation, radiation safety, and application of radioactivity to chemical problems. Offered in summer only.

*Corequisite:* CHE 361

3 credits

### **CHE 375: Inorganic Chemistry I**

A survey of inorganic chemistry covering various classes of inorganic compounds and reactions with emphasis on the structural aspects. Wherever possible, the subject is treated on the basis of modern concepts of chemical bonding. Thermodynamic and kinetic aspects of inorganic reactions are included.

*Prerequisite:* CHE 322, CHE 326, or CHE 332

3 credits

### **CHE 376: Inorganic Chemistry II**

The chemistry of the elements with an emphasis on the transition metals. Reaction mechanisms, synthesis, and structure are covered. Specific areas of concern include coordination chemistry, organometallic chemistry, bioinorganic chemistry, and selected topics from solid-state and non-transition metal chemistry.

*Prerequisite:* CHE 375

3 credits

### **CHE 378: Materials Chemistry**

Our high-technology world is driven forward by advances in materials chemistry. This class will discuss some of the materials that underpin these technologies, as well as some of the novel classes of materials that are being developed for future applications. The course will cover the synthesis, structures,

and properties of advanced materials, focusing on a range of topics with current societal importance (e.g. energy, computers, nanoscience, etc.). Specific topics may include batteries, fuel cells, catalysts, metals, semiconductors, superconductors, magnetism, and polymers.

*Prerequisite:* CHE 375 or ESG 332

3 credits

### **CHE 383: Introductory Synthetic and Spectroscopic Laboratory Techniques**

Fundamental laboratory techniques including methods of separation, purification, synthesis, and analysis. Emphasis is on organic with an introduction to inorganic problems. For students who require substantial laboratory skills, such as those planning careers in research. Not for credit in addition to CHE 327. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CHE 134 or 144

*Corequisite:* CHE 321 or CHE 331

2 credits

### **CHE 384: Intermediate Synthetic and Spectroscopic Laboratory Techniques**

Application of fundamental laboratory techniques to organic and inorganic problems including multistep syntheses and structural and mechanistic determinations. Lectures cover material pertaining to the experimental work, with an emphasis on spectroscopy. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CHE 383

*Corequisites:* CHE 322, CHE 326, or CHE 332; CHE 385

3 credits

### **CHE 385: Tools of Chemistry**

A seminar course covering topics common to all areas of chemistry: scientific ethics, chemical literature and information retrieval, scientific writing, and oral presentation. Should be taken concurrently with the student's second 300-level chemistry laboratory course. Satisfactory completion of the course fulfills the Chemistry department's upper division writing requirement. A through C/Unsatisfactory grading only.

*Corequisite:* CHE 304 or 384

1 credit, ABC/U grading

### **CHE 386: Professional Skills**

Development and refinement of the professional skills used by scientists. The exploration of more sophisticated presentation

skills used in oral and poster presentations. The incorporation of collaborative problem solving that mimics real world situations, including simple proposal writing. An exposure to professional societies and meetings. An exploration of career options and employment resources. Tips for resume preparation, and interviews will be presented. Recommended for upper division undergraduates and Masters students.

*Prerequisite:* CHE 385 or permission of instructor

2 credits, S/U grading

### **CHE 461: Selected Topics in Chemistry**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* Varying with topic

1-3 credits

### **CHE 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students may participate only in courses in which they have excelled.

*Prerequisite:* Permission of department

3 credits, S/U grading

### **CHE 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may participate only in courses in which they have excelled. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisite:* Permission of department

3 credits, S/U grading

### **CHE 477: Undergraduate Teaching Practicum III**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students may participate only in courses in which they have excelled. May be repeated.

*Prerequisites:* CHE 476; permission of instructor and department

*S/U grading*

### **CHE 487: Research in Chemistry**

Students pursue research or tutorial study in specialized areas of chemistry. May be repeated.

*Prerequisites:* Permission of instructor and department

0-6 credits

### **CHE 488: Internship**

Research participation in off-campus laboratories. Students are required to submit to the department a proposal at the time of registration and a research report at the end of the semester. May be repeated up to a limit of 12 credits.

*Prerequisites:* CHE 384; permission of instructor and department

0-6 credits, S/U grading

### **CHE 495: Senior Research**

First course of a two-semester research program to be carried out under the supervision of a staff member. The results of this work are to be submitted to the department in the form of a senior research report. The student is given an oral examination in May by a faculty committee consisting of the student's supervisor and three other faculty members. Students receive only one grade upon completion of the sequence CHE 495-496.

*Prerequisite:* U4 standing; permission of instructor and department

3 credits

### **CHE 496: Senior Research**

Second course of a two-semester research program to be carried out under the supervision of a staff member. The results of this work are to be submitted to the department in the form of a senior research report. The student is given an oral examination in May by a faculty committee consisting of the student's supervisor and three other faculty members. Students receive only one grade upon completion of the sequence CHE 495-496.

*Prerequisite:* U4 standing; permission of instructor and department

3 credits

## **CHI**

### **Chinese Language**

#### **CHI 101 - S3: Intensive Elementary Chinese**

An intensive, 6-credit, elementary-level Chinese language course that provides foundational knowledge and skills including pronunciation, basic everyday conversational proficiency, principles of character formation, basic grammatical rules, and basic cultural norms and preferences that govern language use. Drawing upon a communicative approach, this course situates oral and written language in real-life contexts and promotes learner-centered, interactive classroom activities. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Chinese in high school (or who has otherwise acquired an equivalent proficiency) may not take CHI 101 without written permission from the supervisor of the course. May not be taken for credit after any other course in Chinese.

6 credits

### **CHI 111: Elementary Chinese I**

An introduction to spoken and written Chinese Mandarin, with equal attention to speaking, reading, and writing. Laboratory practice supplements class work. No student who has had two or more years of Chinese in high school or who has otherwise acquired an equivalent proficiency will be permitted to enroll in CHI 111 without written permission from the supervisor of the course.

4 credits

### **CHI 112 - S3: Elementary Chinese II**

An introduction to spoken and written Chinese Mandarin, with equal attention to speaking, reading, and writing. Laboratory practice supplements class work.

*Prerequisite:* CHI 111

4 credits

### **CHI 201 - S3: Intensive Intermediate Chinese**

An intensive, 6-credit, intermediate-level course on spoken and written Mandarin Chinese. Drawing upon a communicative approach, this course situates oral and written language in real-life contexts and promotes learner-centered, interactive classroom activities. May not be taken for credit in addition to CHI 211 or CHI 212.

*Prerequisite:* CHI 101, CHI 112, or placement test

6 credits

### **CHI 210 - S3: Elementary Chinese for Chinese Speakers**

An elementary level Chinese language course for students who have had some exposure to the Chinese cultural norms and conventions

and who already can communicate in Chinese orally on topics of daily routines, although with grammatical mistakes and non-standard pronunciation, but cannot read or write. The course focuses on reading and writing skills and expands the depth and scope of exposure to the Chinese culture.

4 credits

### **CHI 211 - S3: Intermediate Chinese I**

An intermediate course in Chinese Mandarin to develop audiolingual skills and reading and writing ability. Selected texts serve as the basis for practice in reading comprehension and composition. Intensive exercises in character writing are required to develop writing technique.

*Prerequisite:* CHI 112 or CHI 210 or proficiency in Chinese

3 credits

### **CHI 212 - S3: Intermediate Chinese II**

An intermediate course in Chinese Mandarin to develop audiolingual skills and reading and writing ability. Selected texts serve as the basis for practice in reading comprehension and composition. Intensive exercises in character writing are required to develop writing technique.

*Prerequisite:* CHI 211

3 credits

### **CHI 301 - S3: Advanced Chinese I**

The first part of an advanced course designed for the third-year students of Chinese as a foreign or heritage language to strengthen their ability to understand, speak, read, and write Chinese beyond the intermediate level. Students learn to read and comprehend a variety of texts from Chinese newspaper/magazine articles, TV/films, and literary works and to write creatively and professionally in Chinese using sophisticated vocabulary and advanced Chinese characters. Students will also be trained to comprehend authentic spoken Mandarin Chinese, using a variety of audio-visual materials and to communicate in Mandarin Chinese, applying appropriate socio-cultural norms. This course is not intended for students who already speak Chinese natively.

*Prerequisite:* CHI 212 or CHI 201 or proficiency in Chinese

3 credits

### **CHI 302 - S3: Advanced Chinese II**

The second part of an advanced course designed for the third-year students of Chinese as a foreign or heritage language to strengthen their ability to understand, speak, read, and write Chinese beyond the intermediate level.

Students learn to read and comprehend a variety of texts from Chinese newspaper/magazine articles, TV/films, and literary works and to write creatively and professionally in Chinese using sophisticated vocabulary and advanced Chinese characters. Students will also be trained to comprehend authentic spoken Mandarin Chinese, using a variety of audio-visual materials and to communicate in Mandarin Chinese, applying appropriate socio-cultural norms. This course is not intended for students who already speak Chinese natively.

*Prerequisite:* CHI 301 or placement test

3 credits

### **CHI 410 - S3: Business Chinese**

A course designed for students who wish to expand their Chinese communication skills in a business context and understand socio-economic situations as well as socio-cultural values in China. Upon completing this course, students will be able to hold conversations with correct business vocabulary and with culturally appropriate manners, read authentic materials related to business and economics in China, and write business correspondence in proper styles and formats.

*Prerequisite:* CHI 312 or equivalent

3 credits

### **CHI 411- J & 3: Readings in Journalistic Chinese**

Narrative readings in Chinese selected from Chinese newspapers and magazines, including news reports and narrations on life styles, people, and landscapes. Students are expected to improve their skills in the analysis and writing of narrative readings. This course is designed for students who already have advanced level proficiency in Chinese, who can read and write everyday vernacular Chinese, but who have not been exposed to more formal language and literary forms. Not for credit in addition to the discontinued CHI 311.

*Prerequisite:* CHI 302 or placement test

3 credits

### **CHI 412- J & 3: Readings in Classical Chinese**

Introduction to writings in Chinese that appeared before the May 4th Movement (circa 1920), which marked the beginning of modern Chinese. The course introduces students to readings in classical Chinese and to acquaint students with cultures and customs of traditional China. This course is designed for students who already have advanced level proficiency in Chinese, who can read and write everyday vernacular Chinese, but who have not been exposed to more formal language and

literary forms. Not for credit in addition to the discontinued CHI 312.

*Prerequisite:* CHI 302 or placement test  
3 credits

### **CHI 421- J & 3: Chinese Poetry and Short Stories**

Selected masterpieces of poetry and short stories written during the first half of the 20th century. Students are expected to improve their skills in literature appreciation and to model their own writings after works read in class. This course is designed for students who already have advanced level proficiency in the Chinese language in all its forms including reading and writing. Not for credit in addition to the discontinued CHI 395 or CHI 321.

*Prerequisite:* Advanced level proficiency in Chinese  
3 credits

### **CHI 422- J & 3: Chinese Lyric Prose and Plays**

Selected masterpieces of lyric prose and drama written during the first half of the 20th century. Students are expected to improve their skills in literature appreciation and to model their own writings after works read in class. This course is designed for students who already have advanced level proficiency in the Chinese language in all its forms including reading and writing. Not for credit in addition to the discontinued CHI 396 or CHI 322.

*Prerequisite:* Advanced level proficiency in Chinese  
3 credits

### **CHI 426 - S3: Structure of Mandarin Chinese**

Mandarin Chinese is only one of a very few contemporary languages whose history is documented in an unbroken tradition extending back to the second millennium BC. At the same time, it has more speakers than any other language spoken in the modern world. This course, which is taught in English, provides an introduction to the phonology, morphology, syntax, semantics, and writing system of the Mandarin Chinese language. It is designed to familiarize students with some fundamental knowledge of the structure of spoken and written Mandarin Chinese. Specifically, it aims to enable the students to acquire an understanding of basic methods used by linguists to observe and gather Mandarin Chinese data, to delineate structural properties with regard to the sound, tone, word, grammar, and discourse of the language, and to develop a basic typological comparison between Mandarin Chinese and English. Not for credit in addition to AAS 350.

*Prerequisite:* CHI 302 or permission by instructor  
3 credits

### **CHI 447 - S3: Directed Readings in Chinese**

Individually supervised readings in selected topics in Chinese language and literature or, alternatively, for the purpose of developing Chinese vocabulary in a secondary field, in selected topics in the humanities, social sciences, or natural sciences. May be repeated.

*Prerequisite:* Permission of department  
1-6 credits

### **CHI 475: Undergraduate Teaching Practicum I**

Each student conducts a weekly recitation section that supplements a lecture course. The student receives regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion and helping students with practice sessions.

*Prerequisites:* Interview; permission of instructor  
3 credits, S/U grading

### **CHI 476: Undergraduate Teaching Practicum II**

Each student conducts a weekly recitation section that supplements a lecture course. The student receives regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion and helping students with practice sessions.

3 credits, S/U grading

### **CHI 487: Independent Research**

An individual research project in Chinese, such as translation, analysis of documents or literature, etc., in consultation with the instructor. Students are expected to meet at regular intervals and to present the completed project at the end of the semester. May be repeated.

*Prerequisites:* Interview; permission of instructor  
0-3 credits

## **CIV**

### **Civil Engineering**

#### **CIV 210: Land Surveying**

Introduces the general mathematical and physical concepts related to engineering surveying. Covers plane surveying, geodesy,

geodetics, measurement techniques and instruments, leveling, error theory, survey adjustments, coordinate systems and datums. Practical measurement techniques and instruments, and survey staking. Introduces photogrammetry and remote sensing, geographic information systems (GIS).

*Prerequisites:* PHY 127 or 132; MAT 127 or 132 or 142 or AMS 161; CIV major  
1 credit

#### **CIV 300: Technical Communication**

Aims to ensure proficiency in the types of communication necessary for success in the engineering professions. Provides students with the ability to apply their knowledge of correct written and spoken English to the diverse modes of communication encountered and used by engineers in the professional workplace. Combined with laboratory courses to create practical application of writing skills to civil engineering laboratory reports.

*Prerequisites:* WRT 102 and CIV major  
*Corequisite:* CIV 340  
1 credit, S/U grading

#### **CIV 305: Transportation Systems Analysis I**

Focused on highway transportation planning and traffic analysis. Topics include transportation planning, performance analysis of highway and road design, highway segments, highway and airport pavement design, geometric design, sight elevations and alignment, highway traffic operations, queuing theory and modeling, traffic analysis and control, travel demand models, ethics, sustainability, and environmental considerations during transportation planning.

*Prerequisites:* AMS 361 or MAT 303; CIV major  
3 credits

#### **CIV 306: Transportation Systems Analysis II**

Focus is on high-speed ground transportation, urban transit and advanced modeling. Transportation and systems modeling. Planning, modeling and design of high-speed transit systems. Urban travel demand modeling. Transportation network modeling, uncongested and congested network models, planning and design issues of urban transit design. Highway asset management. Environmental transportation models, sustainability. Transportation system comparisons and evaluation, benefit and revenue cost analysis, and multi-criteria analysis.

*Prerequisite:* CIV 305

3 credits

### **CIV 310: Structural Engineering**

Mechanics of materials related to engineering structures. Theory and analysis of structures, structural form and modeling. Load paths. Determinate and indeterminate structure analysis. Structural analysis using virtual work. Stiffness and flexibility methods. Influence lines. Design of structures with different materials: concrete, steel-concrete composites, timber and masonry structures. Structural systems. Structural reliability and serviceability.

*Prerequisites: MEC 363; CIV major*

3 credits

### **CIV 312: Design of Civil Engineering Structures**

The application of the principles of structural engineering to the design of steel, concrete, masonry and timber structures. Design of cold formed steel structures. Design of composite structures. Design of hydraulic structures. Design with concrete and pre-stressed concrete. Design of beams, columns, and structural members for various loadings. Connections. Structural systems. Code requirements for various loading applications. Load paths and loads from earthquake and wind forces. Analysis of frames and wood engineering.

*Prerequisite: CIV 310*

3 credits

### **CIV 320: Water Supply and Waste Management**

Water and wastewater planning. Physical water and wastewater treatment processes. Chemical water and wastewater treatment processes. Settling. Mass, material and energy balances. Filtration and disinfection, membrane and absorption processes. Biological wastewater treatment processes. Air pollution and incinerators. Solid waste/landfills. Modeling applications. Economics and financial calculations. Environmental laws and regulations. Life cycle assessment and sustainability.

*Prerequisites: MEC 364; CME 304; CIV major*

3 credits

### **CIV 330: Soil Mechanics**

Soil relationships and classification, consolidation and settlement analysis. Soil compaction. Stress distribution, slope stability, and retaining structures. Foundation engineering introduction. Site improvements. Geo-synthetics, geotechnical earthquake engineering, geo-environment. In-situ

subsurface characterization, in-situ testing and field instrumentation. Ground water modeling seepage forces, flow nets, and computer applications.

*Prerequisite: CIV 310*

3 credits

### **CIV 340: Civil Engineering Materials Laboratory**

Laboratory experiments that illustrate the basic analysis and behavior of civil engineering materials and structures. Mechanical loading and analysis of steel, wood, and concrete; quality control tests and field testing; testing of concrete structures. Lab report writing, measurement analysis, and error propagation theory.

*Prerequisite: MEC 363*

*Corequisite: CIV 310*

2 credits

### **CIV 341: Geotechnical Engineering Laboratory**

Laboratory experiments that illustrate the basic analysis and behavior of soils, including liquid and plastic limits, grain size, compaction, permeability, consolidation, compression and shear strength. Lab report writing, measurement and error analysis.

*Prerequisite: MEC 363*

*Corequisite: CIV 330*

2 credits

### **CIV 342: Water Resources and Environmental Engineering Laboratory**

Laboratory experiments that illustrate the fundamentals of hydraulics with application to water resources and physical, chemical, and biological treatment techniques for purification of water. Lab report writing, measurement and error analysis.

*Prerequisite: MEC 364*

*Corequisites: CIV 320; CIV 420*

1 credit

### **CIV 410: Principles of Foundation Engineering**

Strength, deformation and stress distributions in soils. Drained and undrained soil strength, soil exploration and sampling, in-situ subsurface characterization, in-situ testing and field instrumentation. Soil-structure interactions. Bearing capacity, footings and mats. Settlement and consolidation. Single piles and pile groups, load transfer to soils, pile driving, and pile load tests. Lateral loading of piles. Auger cast piles. Drilled shafts. Modeling and computer applications.

*Prerequisites: CIV 312 and CIV 330*

3 credits

### **CIV 420: Hydraulics**

Fundamentals of hydraulics. Open channel hydraulics, sediment transportation in open channels. Coastal engineering hydraulics. Simulation in hydraulics. Water resources planning and management, storm sewers and flood detention. River flood waves. Storm analysis, intensity, and frequency. Stochastic hydraulics and risk assessments. Eco-hydraulics. Modeling and computer applications.

*Prerequisites: MEC 364 and CIV major*

3 credits

### **CIV 440: Senior Design I**

Students will participate in structured engineering projects under supervision. They will be assigned to carry out significant professional responsibilities and whatever additional assignments are determined by their advisors. Assignments will cover in-situ data management and testing, specific limits, engineering judgments and reporting.

*Prerequisites: CIV 305 and 312 and 320 and 330 and 340*

3 credits

### **CIV 441: Senior Design II**

Students will participate in structured engineering projects under supervision. They will be assigned to carry out significant professional responsibilities and whatever additional assignments are determined by their advisors. Assignments will design of civil engineering structures, design of special structures, comprehensive and realistic design project using the systems approach, design choices and their effect upon the environment, design constraints including constructability, minimization of environmental impact, and cost-effectiveness, managerial and professional aspects of design practice.

*Prerequisite: CIV 440*

3 credits

## **CLL**

### **Classics of Literature**

#### **CLL 215- I: Classical Mythology**

An introduction to ancient Greek religion, literature, and art. Special emphasis will be given to the presentation of myth in Classical Greek literature as well as to the influence of classical mythology on later literature, art, and philosophy. Not for credit in addition to CLS 215.

*Advisory Prerequisite: One course in literature*  
3 credits

**CLL 315- I: Gender and Sexuality in Ancient Greek Literature**

This course offers a comparative overview of the ways in which the roles of men and women were depicted in the literature and thought of ancient Greece. Major issues will include: the shift from matriarchal to patriarchal pantheons, sanctioned and unsanctioned homoeroticism, the sorceress and the hysteric as dominant tropes in the mythology of the period, and the role of women in the polis, among others. This course is offered as both CLL 315 and WST 315.

*Prerequisite: Completion of DEC G*

3 credits

**CLS****Classics****CLS 113- B: Greek and Latin Literature in Translation**

Historical and analytical study of the development of classical Greek and Latin literature. Extensive readings in translation include works illustrating epic, lyric, drama, history, satire, and criticism.

3 credits

**CLS 225- I: The Classical Tradition**

The literature of Greece and Rome has had a profound impact on the West in terms of Philosophy, Literature, Political Theory, and Art. The course will explore the writings of Greece and Rome and show how they affected Western literature and thought. Authors will include Homer and Hesiod, and Greek tragedians Thucydides, Virgil, and Ovid.

3 credits

**CLS 447: Directed Readings in Classics**

Intensive study of a particular author, period, or genre of Greek and Latin literature in translation under close faculty supervision. May be repeated.

*Prerequisite: Permission of instructor*

1-6 credits

**CLS 475: Undergraduate Teaching Practicum**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

3 credits, S/U grading

**CLT****Comparative Literature****CLT 220- J: Literature Beyond European Traditions**

A survey of the major themes and forms of non-Western literature, such as Asian, Indian, and African. May be repeated as topic changes.

*Advisory Prerequisite: Completion of D.E.C. category A*

3 credits

**CLT 235- K: American Pluralism in Film and Literature**

A thorough examination of issues central to American history for nearly two centuries. How "others"--the Irish, Italians, African Americans, Latinos, and people from cultures outside Western Europe--have been portrayed in American literature and film. Readings include slave narratives from the 17th and 18th centuries and literary texts from the 19th and 20th centuries; films from the last 100 years are included. Particular emphasis on the historical period from the Civil War to the present.

*Advisory Prerequisites: Completion of D.E.C. categories I and J*

3 credits

**CLT 266- G: The 20th-Century Novel**

Major works and developments in the modern and contemporary novel. This course is offered as both CLT 266 and EGL 266.

3 credits

**CLT 301- G: Theory of Literature**

An introduction to the different modes of analyzing literature by periods, ideas, traditions, genres, and aesthetic theories. Stress is placed on classical theory and on developments in the 20th century.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in comparative literature*

3 credits

**CLT 330- G: Literary Genres**

Historical, cultural, and analytical study of an important literary genre such as poetry, drama, epic, prose fiction, and autobiography. May be repeated as topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory prerequisite: Two courses in literature*

3 credits

**CLT 334- G: Other Literary Genres**

Historical and analytical study of such literary genres as satire, fable, romance, epistle, saga, allegory, etc. Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in literature*

3 credits

**CLT 335- G: Interdisciplinary Study of Film**

An inquiry into the aesthetics, history, and theory of film as it relates principally to literature but also to disciplines such as art, music, psychology, and cultural history. May be repeated as the topic changes.

*Prerequisite: Completion of D.E.C. category B and one course from the following: CCS 101, CCS 201, CCS 204, CLL 215, CLT 235, HUF 211, HUG 221, HUI 231, HUM 201, HUM 202, HUR 241, THR 117*

3 credits

**CLT 361- G: Literature and Society**

An inquiry, interdisciplinary in nature, into the relationship between the events and materials of political and social history and their effect on the form and content of the literature of a period. Also subsumed under the rubric Literature and Society is the topic Literature and Psychology. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in literature*

3 credits

**CLT 362- G: Literature and Ideas**

An inquiry into the primary writings and significant documents in the history of ideas and their effect on the form and content of the literature of a period. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in literature*

3 credits

**CLT 363- G: Literature and the Arts**

An inquiry into the aesthetic milieu (including the plastic arts, theatre, and music) and its relationship to the form and content of the literature of a period. Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites:* Two courses in literature

3 credits

### **CLT 371- G: Literature and Justice (III)**

This course focuses on the theme of justice in literature and investigates the relation of literature to the law and to philosophical accounts of justice. Readings include literary texts centered on questions of justice, fairness, and moral agency, as well as theoretical works that analyze the role of literature in legal education and judicial decision-making. This course is offered as both CLT 371 and PHI 371.

*Prerequisite:* Completion of DEC B; U3 or U4 status

3 credits

### **CLT 391- J: African Comparative Literature**

Intensive study of multiple African traditions through their history, culture, and literature. The course will insist particularly on novels that address the shifting boundaries of the African continent, both in terms of ideology and of geo-political reality. As such, Ancient Egyptian texts will be confronted with literary productions from Classical Romance culture, and with slave narratives, to address the way through which literature is influenced by the general politics of mobility.

*Prerequisite:* Completion of D.E.C. B and one lower-division course from one of the following subject designators: CLT, CCS, EGL, or HUM

3 credits

### **CLT 392- K: Multicultural Comparative Literature**

This course will examine the various strategies deployed by U.S. writers to incorporate languages and dialects other than English and non-W.A.S.P. cultural experience into their literary work. In their different ways, these authors celebrate the intellectual diversity of the U.S. and resist the temptations of monolingual culture.

*Prerequisite:* Completion of D.E.C. B and one lower-division course from one of the following subject designators: CLT, CCS, EGL, or HUM

3 credits

### **CLT 393- I: European Comparative Literature**

European literature developed through constant interaction across frontiers rather than through discrete national histories. Poetry, fiction, and drama in every nation were heavily influenced by those of other nations,

which they helped shape in their turn. The course examines this reciprocal impact on different genres in different countries across the centuries.

*Prerequisite:* Completion of D.E.C. B and one lower-division course from one of the following subject designators: CLT, CCS, EGL, or HUM

3 credits

### **CLT 394- J: Asian Comparative Literature**

This course is an overview of the development of Asian literature and thoughts, spanning across the early 20th century to the present. By covering short stories, novels, and poems from Asian traditions, such as China, Taiwan, Japan, and Korea, the course will examine how modernity, coloniality, and war contribute to the shaping of national, and cultural identities. A comparative study of narratives from the various traditions will be engaged to explore the influence and implications of social categories such as gender, class, race, and ethnicity.

*Prerequisite:* Completion of D.E.C. B and one lower-division course from one of the following subject designators: CLT, CCS, EGL, or HUM

3 credits

### **CLT 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites:* U4 standing; permission of instructor and chairperson

3 credits, S/U grading

### **CLT 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* CLT 475; permission of instructor and chairperson

3 credits, S/U grading

### **CLT 487: Independent Reading and Research**

Intensive reading and research on a special topic undertaken with close faculty supervision. May be repeated.

*Prerequisites:* Permission of instructor and department

0-6 credits, S/U grading

### **CLT 495: Comparative Literature Honors Project**

A one-semester project for comparative literature majors who are candidates for the degree with departmental honors. The project involves independent study under close supervision of an appropriate faculty member, and the written and oral presentation to the department faculty colloquium of an honors thesis.

*Prerequisites:* Permission of instructor and department

3 credits

## **CME**

### **Chemical and Molecular Engineering**

#### **CME 101: Introduction to Chemical and Molecular Engineering**

Integrates students into the community of the College of Engineering and Applied Sciences and the major in Chemical and Molecular Engineering with a focus on personal and institutional expectations. Emphasizes the interdisciplinary role of the chemical engineering profession in the 21st century. Includes consideration of professional teamwork and the balance of professional growth with issues of societal impact.

2 credits

#### **CME 199: Introduction to Undergraduate Research**

An introduction to independent research and basic research skills. Students perform an independent research project in chemical and molecular engineering under the supervision of a faculty member. May be repeated for a maximum of 3 credits.

*Prerequisite:* Permission of instructor

0-3 credits

#### **CME 201- H: Sustainable Energy - Evaluating the Options**

Assessment of current and future energy delivery systems; extraction, conversion, and end-use will be discussed with the emphasis on meeting 21st Century regional and global energy needs in a sustainable manner. Different renewable and conventional

energy technologies will be examined and analyzed and their attributes (both positive and negative) described within a framework that takes into account the technical, economic, social, political and environmental objectives associated with a sustainable energy policy. Case studies of specific applications of sustainable energy to societal needs will be analyzed and discussed.

3 credits

**CME 233: Ethics and Business Practices for Engineers**

Critical business concepts as they relate to engineering practices. Survey of general business environment and business functions, with an emphasis on ethics and law, economics, finance, and marketing. Project management of cost, risk and alternatives.

*Prerequisite:* U2 standing or greater

3 credits

**CME 300: Writing in Chemical and Molecular Engineering**

See "Requirements for the Major in Chemical and Molecular Engineering, Upper-Division Writing Requirement."

*Prerequisites:* CME major; U3 or U4 standing; WRT 102

*Corequisite:* CME 310

S/U grading

**CME 304: Chemical Engineering Thermodynamics I**

First and second laws of thermodynamics, PVT behavior of pure substances, equations of state for gases and liquids, phase equilibria, mass and energy balances for closed and open systems, reversibility and equilibrium, application of thermodynamics to flow processes, heat effects during chemical reactions and combustion.

*Prerequisites:* PHY 132 and CHE 132 and AMS 161

3 credits

**CME 310: Chemical Engineering Laboratory I: Unit Operation and Fundamentals**

Introduces general safety in a chemical engineering laboratory handling high pressure equipment. Selection and identification of unit components. Batch and continuous units. Reactor types: stirred, bubble column, and slurry-phase reactors. Precise measurements of pressure and temperature variables. Mass balance in a chemical reaction. Simulated distillation. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* CME 314 and CHE 384 and CHE 326

*Corequisite:* CME 300

2 credits

**CME 312: Material and Energy Balance**

Introduces analysis of chemical processes using the laws of conservation and energy as they apply to non-reacting and reacting systems. Integration of the concepts of equilibrium in physicochemical systems, and utilization of basic principles of thermodynamics. Numerical methods used in the design and optimization of chemical engineering processes. Solution of complex chemical engineering problems.

*Prerequisites:* ESG 111; CHE 132 and 134; AMS 261 or MAT 203; B- or higher in CME 304; CME Major

3 credits

**CME 314: Chemical Engineering Thermodynamics II**

Equilibrium and the Phase Rule; VLE model and K-value correlations; chemical potential and phase equilibria for ideal and non-ideal solutions; heat effects and property changes on mixing; application of equilibria to chemical reactions; Gibbs-Duhem and chemical potential for reacting systems; liquid/liquid, liquid/solid, solid/vapor, and liquid/vapor equilibria; adsorption and osmotic equilibria, steady state flow and irreversible processes. Steam power plants, internal combustion and jet engines, refrigeration cycle and vapor compression, liquefaction processes.

*Prerequisite:* B- or higher in CME 304; CME Major

4 credits

**CME 315: Numerical Methods for Chemical Engineering Analysis**

Critical analysis of experimental data development of engineering models by integrating a variety of computer-based programs: (1) Executing numerical calculus and solving numerical equations using a mathematical program (Mathematica); (2) Process using a simulation for typical chemical engineering processes (unit operation, distillation, etc.) using a simulation program (Lab-view).

*Corequisites:* AMS 361 or MAT 303

*Prerequisite:* CME Major

3 credits

**CME 318: Chemical Engineering Fluid Mechanics**

Introduces fluid mechanics. Dynamics of fluids in motion; laminar and turbulent flow, Bernoulli's equation, friction in conduits; flow

through fixed and fluidized beds. Study of pump and compressor performance and fluid metering devices. Includes introduction to microfluids.

*Prerequisites:* AMS 261 (or MAT 203 or 205); PHY 131 (or 125 or 141); CME Major or ESG Major

3 credits

**CME 320: Chemical Engineering Lab II: Chemical and Molecular Engineering**

Introduction and operation of a continuous unit, handling of air-sensitive/water-sensitive materials, sonolysis and thermal techniques for materials synthesis, preparation of polymer nano-composites and nanosized materials. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CME 310; CME Major

2 credits

**CME 322: Chemical Engineering Heat and Mass Transfer**

Heat transfer by conduction, principles of heat flow in fluids with and without phase change, heat transfer by radiation, heat-exchange equipment. Principles and theory of diffusion, mass transfer between phases, distillation, leaching and extraction, fixed-bed membrane separation, crystallization.

*Prerequisite:* B- or higher in CME 304; CME 318; CME Major

3 credits

**CME 323: Reaction Engineering and Chemical Kinetics**

Introduction to chemical reaction engineering and reactor design. Fundamentals of chemical kinetics for homogeneous and heterogeneous reactions, both catalyzed and uncatalyzed. Steady-state approximation. Methods of kinetic data collection, analysis and interpretation. Transport effects in solid and slurry-phase reactions. Batch and flow reactors including operations under non-ideal and non-isothermal conditions. Reactor design including bioreactors.

*Prerequisites:* CME major; U3 standing; CME 312 and 314

3 credits

**CME 330: Principles of Engineering for Chemical Engineers**

This course focuses on the basic principles required for functioning in an engineering environment. Includes equilibrium and dynamics of rigid bodies, analysis of simple structures, conservation of energy, vectorial kinematics, collisions, general circuit analysis,

fundamentals of AC power, CAD programs, introduction to market analysis, and discussion on ethics in engineering management.

*Prerequisites:* U3 or U4 Standing, CME Major  
2 credits

### **CME 355: Chemical Process Safety**

Fundamentals of chemical process safety: Industrial hygiene, toxicology, hazard identification, risk assessment, loss prevention, accident investigation.

*Prerequisites:* PHY 132; PHY 134; CHE 322 or CHE 326; CHE 327 or CHE 384

3 credits

### **CME 360: Nanomaterials and Applications**

Fundamentals of nanomaterials physics, chemistry and structure, nanostructure characterization and practical applications.

*Prerequisite:* CME 304

3 credits

### **CME 369: Polymer Engineering**

An introductory survey of the physics, chemistry and engineering processes of polymers. Topics covered included classification of polymers, structures of polymers, morphology of polymers, thermodynamics of polymers, phase separation and phase transition of polymers, crystallization of polymers. Case studies of commercial polymer production and processing.

*Prerequisites:* B- or better in CME 304 or ESG 302; AMS 261 or MAT 203 or MAT 205

3 credits

### **CME 371: Biomedical Polymers**

This course focuses on the clinical performance of polymers and discusses the chemical, physical, mechanical and biological questions raised by the unique use of these materials within the human body. The chemistry and properties of key biomedical polymers will be studied and their biomedical applications will be discussed. The biomaterial's response to the various components of its biological environment will be addressed, followed by the response of the host to the presence of the implanted polymer. Special attention will be given to the interaction of the system with two fundamental phenomena: the Foreign Body Response and the Coagulation Cascade. Applications of bio-polymers to tissue engineering and the relevance of nanoscale phenomena are discussed.

*Prerequisite:* CHE 321; CME 481; CME Major or permission of the instructor.

3 credits

### **CME 372: Colloids, Micelles and Emulsion Science**

This course addresses the fundamental science and chemistry of micro-emulsion and colloid formation, three-component phase diagrams, nanoscale structure and characterization techniques. Specific case studies and issues related to scale-up in food, cosmetics, and biomedical industries are presented.

*Prerequisite:* CHE 132/134

3 credits

### **CME 401: Separation Technologies**

Fundamentals of separations. Introduction to standard classical and advanced separation methods and their relative merits and limitations. Distillation, crystallization, filtration, centrifugation, absorption and stripping methods. Includes fundamentals of chromatography.

*Prerequisites:* CME major; U3 or U4 standing; CME 323

3 credits

### **CME 410: Chemical Engineering Laboratory III: Instrumentation, Material Design and Characterization**

Students research a topic and together with the course instructor and undergraduate program director, select an advisor and thesis committee. The student, with the advisor, drafts a course of preliminary experiments and the student presents a written thesis proposal, with an oral defense, to his/her committee. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CME 320

2 credits

### **CME 420: Chemical Engineering Laboratory IV: Senior Thesis**

Directed laboratory research. At the end of the junior year, in consultation with an advisor, the CME student will write a 1-2 page abstract describing proposed research. This abstract must be approved by the Undergraduate Program Committee (UPC). Through work accomplished in CME 420, the student will expand the research proposal into a senior thesis written in the format of a paper in a scientific journal. The student will defend his/her thesis in front of the UPC prior to the end of the senior year. After the defense, three copies of the finished thesis must be presented to the student's advisor at least 21 days before the date of graduation. The advisor then submits the thesis for final approval to the other UPC members. This

course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* CME 410

2 credits

### **CME 427: Molecular Modeling for Chemical Engineers**

Molecular modeling techniques and simulation of complex chemical processes. Use of Monte Carlo methods and Molecular Dynamics methods. Emphasis on the simulation and modeling of biopolymeric systems.

*Prerequisites:* PHY 132; ESG 111; AMS 261 or MAT 203; AMS 361 or MAT 303; B- or higher in CME 304; CME Major

3 credits

### **CME 440: Process Engineering and Design I**

Fundamentals of process control and its role in process design. Process synthesis and reactor design parameters. Process flow sheet, P&ID symbols. Incorporation of environmental and safety aspects into process design. Design project selection with multiple realistic constraints. Team assignments, final project title and industrial mentor assignments. Introduction to CHEMCAD. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* CME Major; U4 Standing; CME 320 and CME 315

3 credits

### **CME 441: Process Engineering and Design II**

Review of engineering design principles; engineering economics, economic evaluation, capital cost estimation; process optimization; profitability analysis for efficient and accurate process design. HAZOP analysis. Application of CHEMCAD in a commercial process. Final process flowsheet design preparation incorporating engineering standards. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* CME 401 and 440

3 credits

### **CME 470: Polymer Synthesis: Theory and Practice, Fundamentals, Methods, Experiments**

This course teaches general methods and processes for the synthesis, modification, and characterization of macromolecules. This includes general techniques for purification, preparation and storage of monomers; general

synthetic methods such as bulk, solution, and heterogeneous polymerization; addition and condensation polymerization; methods of separation and analysis of polymers.

*Prerequisites:* PHY 132, PHY 134, CHE 322  
3 credits

### **CME 475: Undergraduate Teaching Practicum**

May be used as an open elective and repeated once. Students must have U4 standing as an undergraduate major within the college, a minimum gpa of 3.0 in all courses and a grade of 'B' or better in the course in which the student is to assist; permission of the department is required. May be repeated only once. May not be counted toward specialization requirements.

*Prerequisites:* U4 standing, 3.0 gpa, grade of B or better in course which assisting  
3 credits

### **CME 480: Cellular Biology for Chemical Engineers**

The course is intended to describe and introduce cellular and biological concepts and principles for chemical engineers. The course will provide details on the cellular processes, structures and regulations of the cellular homeostasis as response to internal and external changes and stimuli.

*Prerequisite:* CME Major; U3 or U4 standing; or permission of the Undergraduate Program Director  
3 credits

### **CME 481: Advanced Cell Biology for Chemical Engineers**

This course is intended to provide advanced topics in cellular behavior as a result of varying environmental cues. The course will focus on subjects associated with biological research related to various artificial materials and their influence on the cells and their interaction with the materials.

*Prerequisite:* CME 480  
3 credits

### **CME 488: Industrial Internship in Chemical Engineering**

Research project in an industrial setting under joint supervision of an industrial mentor and chemical engineering faculty. Project to cover some or all of the following chemical engineering principles of product synthesis: experiment design, data collection, data analysis, process simulations, and report writing related to an actual production facility. May be repeated up to a maximum

of 12 credits. May not be counted toward specialization requirements.

*Prerequisites:* B average in CME courses; permission of supervising faculty member  
0-12 credits

### **CME 490: Preparation for the Chemical Engineering/Fundamentals of Engineering Examination**

Preparatory class that provides an overview of professional licensure testing procedures for the Fundamentals of Engineering Examination and includes the section specific to Chemical Engineering. This class reviews subject areas on the general section of the test as well as the profession-specific section dealing with chemical engineering.

*Prerequisite:* CME Major  
1 credit, S/U grading

### **CME 499: Research in Chemical Engineering**

Independent research project under the supervision of a chemical engineering or interdisciplinary faculty member. Project to cover some or all of the following chemical engineering principles: experiment design, data collection, data analysis, process simulations, and report writing. May be repeated but a maximum of 3 allowable total credits. May not be used for specialization requirements.

*Prerequisites:* B average in CME courses; permission of supervising faculty member  
0-3 credits

## **CSE Computer Science**

### **CSE 102: Introduction to Web Design and Programming**

An introduction to the design of Web pages, specifically the development of browser and device independent HTML, with an emphasis on the XHTML standards. Includes the use of style sheets (CSS) and tools for page layout and verification. HTML is presented as a mark-up language, exploring the rules of HTML elements and attributes. Students learn the separation of page viewing information from the HTML through CSS style sheets as well as the use of block layout without using HTML tables. Addresses HTML display properties including text, color, image, and graphic elements as well as approaches to HTML validation and techniques.

*Advisory Prerequisite:* CSE 101 or basic computer skills  
3 credits

### **CSE 110: Introduction to Computer Science**

An introduction to fundamentals of computer science. Topics covered include algorithmic design, problem-solving techniques for computer programming, fundamentals of digital logic and computer organization, the role of the operating system, introductory programming methodology including variables, assignment statements, control statements and subroutines (methods), programming paradigms, the compilation process, theoretical limits of computation, social and ethical issues. Intended for students who have not taken any college-level computer science course containing programming assignments in a high-level programming language.

*Prerequisite:* Level 3 or higher on the mathematics placement examination  
3 credits

### **CSE 114: Computer Science I**

An introduction to procedural and object-oriented programming methodology. Topics include program structure, conditional and iterative programming, procedures, arrays and records, object classes, encapsulation, information hiding, inheritance, polymorphism, file I/O, and exceptions. Includes required laboratory. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* Level 4 or higher on the math placement exam  
*Advisory Prerequisite:* CSE 110  
4 credits

### **CSE 130: Introduction to Programming in C**

Introduces programming concepts using the C language. Variables, data types, and expressions. Conditional and iterative statements, functions, and structures. Pointers, arrays, and strings. Scope of variables and program organization. Includes programming projects of an interdisciplinary nature. Suitable as an introductory programming course for non-CSE majors.

*Prerequisite:* Level 3 or higher on the mathematics placement examination  
3 credits

### **CSE 150: Foundations of Computer Science: Honors**

Introduction to the logical and mathematical foundations of computer science for computer science honors students. Topics include functions, relations, and sets; recursion and

functional programming; basic logic; and mathematical induction and other proof techniques.

*Prerequisites:* One MAT course that satisfies DEC category C or score of level 4 on the math placement exam; admission to the Computer Science Honors Program or the Honors College or WISE or permission of the instructor

4 credits

### **CSE 160: Computer Science A: Honors**

First part of a two-semester sequence, CSE 160 and CSE 260. Emphasizes a higher-level, object-oriented approach to the construction of software. Focus on software engineering issues such as programming style, modularity, and code reusability. Includes the way in which software tools can be used to aid the program development process. First considers the construction of small programs, continues by treating the design and implementation of program modules, and culminates in an introduction to object-oriented design techniques suitable for larger programs.

*Prerequisite:* Computer Science Honors Program or Honors College or WISE program or permission of instructor

4 credits

### **CSE 214: Computer Science II**

An extension of programming methodology to data storage and manipulation on complex data sets. Topics include: programming and applications of data structures; stacks, queues, lists, binary trees, heaps, priority queues, balanced trees and graphs. Recursive programming is heavily utilized. Fundamental sorting and searching algorithms are examined along with informal efficiency comparisons.

*Prerequisite:* C or higher in CSE 114

3 credits

### **CSE 215: Foundations of Computer Science**

Introduction to the logical and mathematical foundations of computer science. Topics include functions, relations, and sets; recursion and functional programming; elementary logic; and mathematical induction and other proof techniques.

*Prerequisite:* AMS 151 or MAT 125 or MAT 131

3 credits

### **CSE 219: Computer Science III**

Development of the basic concepts and techniques learned in CSE 114 Computer Science I and CSE 214 Computer Science II into practical programming skills that include

a systematic approach to program design, coding, testing, and debugging. Application of these skills to the construction of robust programs of 1000 to 2000 lines of source code. Use of programming environments and tools to aid in the software development process.

*Prerequisite:* C or higher in CSE 214 and CSE major or ECE major or permission of instructor

3 credits

### **CSE 220: Systems-Level Programming**

Introduces systems-level programming concepts using the C language and assembly language and explores the relation of respective programs in these languages. Topics include internal data representation, basic instructions and control structures, arithmetic operations, pointers, function calls and parameter passing, memory allocation, logical and shift operations, linking and loading.

*Prerequisites:* CSE 160 or 114 and CSE major or permission of instructor.

3 credits

### **CSE 230: Intermediate Programming in C and C++**

Intermediate programming concepts using the C language in a UNIX environment. Files, systems calls, stream I/O, the C preprocessor, bitwise operations, the use of makefiles, advanced formatting of input and output, conversions. Introduction to object-oriented programming using C++; classes, objects, inheritance, aggregation, and overloading. Suitable for all majors.

*Prerequisite:* CSE 130 or CSE 220 or ESE 124 or ESG 111 or BME 120 or MEC 102

3 credits

### **CSE 260: Computer Science B: Honors**

Second part of a two-semester sequence, CSE 160 and CSE 260. Further development of the object-oriented design strategies presented in CSE 160. Continues with introductions to event-driven programming, graphical user interfaces, and design patterns. Includes an extended design and programming project.

*Prerequisite:* CSE 160

4 credits

### **CSE 300: Technical Communications**

Principles of professional technical communications for Computer Science and Information Systems majors. Topics include writing business communications, user manuals, press releases, literature reviews, and research abstracts. Persuasive oral communications and effective presentation techniques, to address a range of audiences,

will also be covered. This course satisfies the upper-division writing requirement for CSE and ISE majors.

*Prerequisites:* WRT 102, CSE or ISE major, U3 or U4 standing

3 credits

### **CSE 301- H: History of Computing**

A study of the history of computational devices from the early ages through the end of the 20th century. Topics include needs for computation in ancient times, development of computational models and devices through the 1800's and early 1900's, World War II and the development of the first modern computer, and early uses in business. Creation of programming languages and the microchip. Societal changes in computer usage due to the microcomputer, emergence of the Internet, the World Wide Web, and mobile computing. Legal and social impacts of modern computing. Cannot be used as a technical elective for the CSE major or minor. This course is offered as both CSE 301 and ISE 301.

*Prerequisite:* U2 standing or higher  
*Advisory Prerequisite:* one course in computing

3 credits

### **CSE 303: Introduction to the Theory of Computation**

An introduction to the abstract notions encountered in machine computation. Topics include finite automata, regular expressions, and formal languages, with emphasis on regular and context-free grammars. Questions relating to what can and cannot be done by machines are covered by considering various models of computation, including Turing machines, recursive functions, and universal machines.

*Prerequisites:* CSE 214 and CSE 213 or 215 and CSE major or permission of instructor.

3 credits

### **CSE 304: Compiler Design**

Topics studied include formal description of programming languages, lexical analysis, syntax analysis, symbol tables and memory allocation, code generation, and interpreters. Students undertake a semester project that includes the design and implementation of a compiler for a language chosen by the instructor.

*Prerequisites:* CSE 219 or CSE 260; CSE 220  
*Advisory Prerequisites:* CSE 303 or CSE 350

3 credits

### **CSE 305: Principles of Database Systems**

The design of database management systems to obtain consistency, integrity, and availability of data. Conceptual models and schemas of data: relational, hierarchical, and network. Students undertake a semester project that includes the design and implementation of a database system.

*Prerequisites:* CSE 219 or CSE 260; CSE 220; CSE major or permission of instructor

3 credits

### **CSE 306: Operating Systems**

Students are introduced to the structure of modern operating systems. Topics include virtual memory, resource allocation strategies, concurrency, and protection. The design and implementation of a simple operating system are performed.

*Prerequisites:* CSE 219 or CSE 260; CSE 220 or ESE 380 and CSE Major or ECE major or permission of instructor.

3 credits

### **CSE 307: Principles of Programming Languages**

Presents examples of important programming languages and paradigms such as LISP, ALGOL, ADA, ML, Prolog, and C++.

Students write sample programs in some of the languages studied. The languages are used to illustrate programming language constructs such as binding, binding times, data types and implementation, operations (assignment data-type creation, pattern matching), data control, storage management, parameter passing, and operating environment. The suitability of these various languages for particular programming tasks is also covered.

*Prerequisites:* CSE 219 or CSE 260; CSE 220; CSE major or permission of instructor.

3 credits

### **CSE 308: Software Engineering**

Introduces the basic concepts and modern tools and techniques of software engineering. Emphasizes the development of reliable and maintainable software via system requirements and specifications, software design methodologies including object-oriented design, implementation, integration, and testing; software project management; life-cycle documentation; software maintenance; and consideration of human factor issues.

*Prerequisites:* CSE 219 or CSE 260 and CSE major or permission of instructor.

*Advisory Prerequisite:* CSE 305

3 credits

### **CSE 310: Computer Networks**

Overview of computer networks and the Internet. Concept of end systems, access networks, clients and servers. Connection-oriented and connectionless services. Circuit switching and packet switching. Description of Internet protocol layers, including application layer, transport layer, network layer and link layer. Architecture of the current Internet and the World-Wide Web. TCP/IP protocol stack. Internet routing and addressing. Local area network protocols, Ethernet hubs and switches. Wireless LANs. Multimedia networking. May not be taken by students with credit for CSE/ESE 346.

*Prerequisites:* CSE 214 or 260; CSE 220; CSE major or permission of instructor.

*Advisory Pre- or Corequisite:* AMS 310

3 credits

### **CSE 311: Systems Administration**

This course covers practical techniques to manage information systems, also known as IT Systems Administration. Students will learn how to install computers for assorted hardware and software platforms (Windows, Unix/Linux, OS-X). Install networking equipment and configure it. Install server software on several systems (e.g. web, database, mail) and configure it. Secure the network, hosts, and services, and apply system patches. Set up redundant computing services, virtual machines/services, and hardware so that services can survive some hardware/software failures. Evaluate the performance, reliability, and security of the overall system.

*Prerequisites:* CSE 214 or CSE 230 or CSE 260 or ISE 208

3 credits

### **CSE 312: Legal, Social, and Ethical Issues in Information Systems**

This course deals with the impact of computers on us as individuals and on our society. Rapid changes in computing technology and in our use of that technology have changed the way we work, play, and interact with other people. These changes have created a flood of new social and legal issues that demand critical examination. For example, technologies such as Gmail, Facebook, MySpace, along with music sharing sites and wikis create new social, ethical, and legal issues. This course is offered as both CSE 312 and ISE 312.

*Prerequisites:* U3 or U4 standing, one D.E.C. E course

3 credits

### **CSE 320: Computer Organization and Architecture**

Explores the physical structure and organization of a computer, the internal

representation of information, and performance evaluation methodology. Introduces instruction set architectures and implementation techniques for computer arithmetic, control path design, pipeline control, memory hierarchy, storage devices, and I/O.

*Prerequisite:* CSE 220 and CSE major or permission of instructor.

3 credits

### **CSE 323: Human-Computer Interaction**

A survey course designed to introduce students to Human-Computer Interaction and prepare them for further study in the specialized topics of their choice. Students will have the opportunity to delve deeper in the course through a course project, and through a two-three week special topic selected at the instructor's discretion. Course is cross-listed as CSE 323, EST 323 and ISE 323.

*Prerequisites:* CSE 214 or CSE 230 or CSE 260 or ISE 208

3 credits

### **CSE 325: Computers and Sculpture**

This multidisciplinary class surveys how computer science and computer technology are used in sculpture. Case studies with slides, videos, and software demonstrations illustrate a range of approaches of sculptors incorporating computers in their creative process. Various state-of-the art fabrication technologies are studied (with site visits if available on campus). Mathematical foundations are emphasized so students can recognize them when analyzing sculpture and choose the right tool when designing. In the weekly laboratory, these ideas are reinforced with projects using a range of available software and inexpensive construction materials, e.g., paper, cardboard, and foamcore.

*Prerequisite:* CSE 110 or permission of instructor

3 credits

### **CSE 327: Fundamentals of Computer Vision**

Introduces fundamental concepts, algorithms, and techniques in visual information processing. Covers image formation, binary image processing, image features, model fitting, optics, illumination, texture, motion, segmentation, and object recognition.

*Prerequisites:* CSE 214 or CSE 230 or CSE 260; AMS 210 or MAT 211

3 credits

### **CSE 328: Fundamentals of Computer Graphics**

An introduction to computer graphics including graphics application programming; data structures for graphics; representing and specifying color; fundamental hardware and software concepts for calligraphic and raster displays; two-dimensional, geometric transformations; introduction to three-dimensional graphics; graphics standards; and input devices, interaction handling, and user-computer interface.

*Prerequisites:* CSE 219 or CSE 260; CSE 220; permission of instructor

3 credits

### **CSE 332: Introduction to Visualization**

Visualization of scientific, engineering, medical, and business data sets. Mechanisms to acquire sampled, computed, or synthetic data and methods to transform symbolic into the visual. Topics include classic visualization process; visual perception; volume and surface visualization; methods for visualizing sampled, simulated, and geometric objects; and visualization systems. Emphasis on applications and case studies. This course is offered as both CSE 332 and ISE 332.

*Prerequisites:* CSE 219 or CSE 260; MAT 211 or AMS 210

3 credits

### **CSE 333: User Interface Development**

Survey of user interface systems, including topics such as command language, windowing, multiple input/output devices, architecture of user interface management systems, and tool kits for designing user interfaces. Additional topics may include human factors, standards, or visual languages. Students participate in a project involving the design and implementation of a user interface system. This course is offered as both CSE 333 and ISE 333.

*Prerequisite:* CSE 219 or CSE 260

*Advisory prerequisite:* PSY 103

3 credits

### **CSE 334: Introduction to Multimedia Systems**

Survey of technologies available for user interfaces. Discussion of hypertext; voice, music, and video together with tools and models for capturing, editing, presenting, and combining them. Capabilities and characteristics of a range of peripheral devices including devices based on posture, gesture, head movement, and touch. Case studies of academic and commercial multimedia systems including virtual reality systems. Students participate in laboratory exercises and build a multimedia project. This course is offered as both CSE 334 and ISE 334.

*Prerequisite:* U2, U3 or U4 standing

3 credits

### **CSE 336: Internet Programming**

Introduces the design and development of software for Internet commerce. Topics include extended markup language, servlets, cookies, sessions, Internet media types, Web protocols, digital signatures, certificates, encryption, and the wireless Internet.

*Prerequisite:* CSE 219 or CSE 260

3 credits

### **CSE 346: Computer Communications**

Basic principles of computer communications. Introduction to performance evaluation of protocols. Protocols covered include those for local, metropolitan, and wide area networks. Introduction to routing, high speed packet switching, circuit switching, and optical data transport. Other topics include TCP/IP, Internet, web server design, network security, and grid computing. Not for credit in addition to CSE/ISE 310. This course is offered as both CSE 346 and ESE 346.

*Pre- or corequisite for ESE and ECE majors:* ESE 306

*Pre- or corequisite for CSE majors:* AMS 310 or 311

3 credits

### **CSE 350: Theory of Computation: Honors**

Introduces the abstract notions of machine computation for honors students. Includes finite automata, regular expressions, and formal languages, with emphasis on regular and context-free grammars. Explores what can and cannot be computed by considering various models of computation including Turing machines, recursive functions, and universal machines.

*Prerequisites:* CSE 150; AMS 210 or MAT 211; CSE Honors Program or Honors College or WISE or permission of instructor

4 credits

### **CSE 352: Artificial Intelligence**

Topics covered include critique of artificial intelligence research; state-space problem representations and search algorithms; game-playing programs; theorem-proving programs; programs for the study and simulation of cognitive processes and pattern recognition. Further topics in current research as time permits.

*Prerequisites:* CSE 219 or CSE 260

3 credits

### **CSE 353: Machine Learning**

Covers fundamental concepts for intelligent systems that autonomously learn to perform a task and improve with experience, including problem formulations (e.g., selecting input features and outputs) and learning frameworks (e.g., supervised vs. unsupervised), standard models, methods, computational tools, algorithms and modern techniques, as well as methodologies to evaluate learning ability and to automatically select optimal models. Applications to areas such as computer vision (e.g., character and digit recognition), natural-language processing (e.g., spam filtering) and robotics (e.g., navigating complex environments) will motivate the coursework and material.

*Prerequisites:* CSE 219 or CSE 260 or permission of instructor

*Pre- or Co-requisite:* AMS 310 or AMS 311 or AMS 312

3 credits

### **CSE 355: Computational Geometry**

The design and analysis of efficient algorithms to solve geometric problems that arise in computer graphics, robotics, geographical information systems, manufacturing, and optimization. Topics include convex hulls, triangulation, Voronoi diagrams, visibility, intersection, robot motion planning, and arrangements. This course is offered as both AMS 345 and CSE 355.

*Prerequisites:* AMS 301; programming knowledge of C or C++ or Java

3 credits

### **CSE 364: Advanced Multimedia Techniques**

Digital media production techniques for high-bandwidth applications such as electronic magazine illustration, broadcast television, and motion picture special effects. Students explore techniques such as 3D modeling and character animation, video compositing, and high-resolution image processing in a state-of-the-art multimedia computing laboratory. High-capacity multimedia storage, high-speed networks, and new technologies such as DVD, HDTV, and broadband will be reviewed. This course is offered as both CSE 364 and ISE 364.

*Prerequisites:* CSE/ISE 334 and permission of the instructor

3 credits

### **CSE 366: Introduction to Virtual Reality**

An introduction to the practical issues in the design and implementation of virtual environments. Topics covered include the fundamentals of systems requirements, transformations, user-interaction models,

human vision models, tracking systems, input/output devices and techniques, and augmented reality. The topics covered are explained through the use of real-life applications of virtual-reality systems in engineering, science, and medicine.

*Prerequisites:* CSE 328, CSE/ISE 332, 333

3 credits

### **CSE 370: Wireless and Mobile Networking**

The fundamentals of wireless communication. Link, network and transport layer protocols for wireless and mobile networking. Cellular networks. Wireless LANs. Wireless multihop networks. Mobile applications.

*Prerequisite:* CSE 310 or 346

3 credits

### **CSE 371: Logic**

A survey of the logical foundations of mathematics: development of propositional calculus and quantification theory, the notions of a proof and of a model, the completeness theorem, Goedel's incompleteness theorem. This course is offered as both CSE 371 and MAT 371.

*Prerequisite:* CSE 150 or CSE 215 or MAT 200

3 credits

### **CSE 373: Analysis of Algorithms**

Mathematical analysis of a variety of computer algorithms including searching, sorting, matrix multiplication, fast Fourier transform, and graph algorithms. Time and space complexity. Upper-bound, lower-bound, and average-case analysis. Introduction to NP completeness. Some machine computation is required for the implementation and comparison of algorithms. This course is offered as CSE 373 and MAT 373.

*Prerequisites:* MAT 211 or AMS 210; CSE 214 or CSE 260

3 credits

### **CSE 376: Advanced Systems Programming in UNIX/C**

Focuses on several aspects of producing commercial-grade system software: reliability, portability, security, and survivability. Uses Unix and C, heavily used in industry when developing systems and embedded systems code. Emphasizes techniques and tools to produce reliable, secure, and highly portable code. Requires substantial programming as well as a course project.

*Prerequisite:* CSE 219 or 260; CSE 220 or 230 or ESE 224

3 credits

### **CSE 377: Introduction to Medical Imaging**

An introduction to the mathematical, physical, and computational principles underlying modern medical imaging systems. Covers fundamentals of X-ray computer tomography, ultrasonic imaging, nuclear imaging, and magnetic resonance imaging (MRI), as well as more general concepts required for these, such as linear systems theory and the Fourier transform. Popular techniques for the visualization, segmentation, and analysis of medical image data are discussed, as well as applications of medical imaging, such as image-guided intervention. The course is appropriate for computer science, biomedical engineering, and electrical engineering majors.

*Prerequisites:* AMS 161 or MAT 127 or 132 or 142; AMS 210 or MAT 211

3 credits

### **CSE 378: Introduction to Robotics**

Introduces basic concepts in robotics including coordinate transformation, kinematics, dynamics, Laplace transforms, equations of motion, feedback and feedforward control, and trajectory planning. Covers simple and complex sensors (such as cameras), hybrid and behavior based control and path planning. Concepts are illustrated through laboratories using the LEGO Robot Kit.

*Prerequisites:* AMS 161 or MAT 127 or 132 or 142; AMS 210 or MAT 211 or MEC 262

3 credits

### **CSE 380: Computer Game Programming**

An introduction to the fundamental concepts of computer game programming. Students design and develop original games for PCs applying proven game design and software engineering principles.

*Prerequisite:* CSE 214 or CSE 230 or CSE 260

3 credits

### **CSE 381: Advanced Game Programming**

This course explores the concepts and technologies behind making 3D, networked games. This will include the examination of game engine creation as well as the use of middleware to build graphically sophisticated game systems.

*Prerequisites:* CSE 328 or CSE 380

3 credits

### **CSE 390: Special Topics in Computer Science**

A lecture or seminar course on a current topic in computer science. Semester supplements to

this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy CSE major requirements.

*Prerequisite:* CSE Major

3 credits

### **CSE 391: Special Topics in Computer Science**

A lecture or seminar course on a current topic in computer science. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy CSE major requirements.

*Prerequisite:* CSE Major

3 credits

### **CSE 392: Special Topics in Computer Science**

A lecture or seminar course on a current topic in computer science. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy CSE major requirements.

*Prerequisite:* CSE Major

3 credits

### **CSE 393: Special Topics in Computer Science**

A lecture or seminar course on a current topic in computer science. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy CSE major requirements.

*Prerequisite:* CSE Major

3 credits

### **CSE 394: Special Topics in Computer Science**

A lecture or seminar course on a current topic in computer science. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy CSE major requirements.

*Prerequisite:* CSE Major

3 credits

### **CSE 408: Network Security**

Principles and practices of computer network security. Cryptography, authentication protocols, digital signatures, IP/E-commerce security, VPNs, firewalls, and network intrusion detection.

*Prerequisite:* CSE/ISE 310 or CSE/ESE 346

3 credits

**CSE 409: Computer System Security**

Principles and practices of computer system security. Operating system security, authentication and access control, capabilities, information flow, program security, database security, cryptographic key management, auditing, assurance, vulnerability analysis and intrusion detection.

*Prerequisite:* CSE 306 or 376, or ESE 333

3 credits

**CSE 475: Undergraduate Teaching Practicum**

Students assist faculty in teaching by conducting a recitation or laboratory section that supplements a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

*Prerequisites:* U4 standing as an undergraduate major within the college; a minimum g.p.a. of 3.00 in all Stony Brook courses and the grade of B or better in the course in which the student is to assist; or permission of department

3 credits

**CSE 487: Research in Computer Science**

An independent research project with faculty supervision. Only three credits of research electives (AMS 487, CSE 487, BME 499, ESE 499, ESM 499, ISE 487, and MEC 499) may be counted toward technical elective requirements. May not be taken for more than six credits.

*Prerequisites:* Permission of instructor and department

0-6 credits

**CSE 488: Internship in Computer Science**

Participation in local, state, national, or international private enterprise, public agencies, or nonprofit institutions. Students are required to submit a written proposal, progress reports, and a final report on their experience to the client and to the department. May be repeated up to a limit of 12 credits but can only be used once as a technical elective to satisfy CSE major requirements.

*Prerequisites:* CSE major, U3 or U4 standing; permission of department

3 credits, S/U grading

**CSE 495: Senior Honors Research Project I**

A two-semester research project carried out under the supervision of a computer science faculty member. Students who enroll in CSE

495 must complete CSE 496 in the subsequent semester and receive only one grade upon completion of the sequence.

*Prerequisite:* Admission to the Computer Science Honors Program

3 credits

**CSE 496: Senior Honors Research Project II**

A two-semester research project carried out under the supervision of a computer science faculty member. Students must submit a written project report and make a presentation to the department at the year-end Honors Project Colloquium.

*Prerequisite:* CSE 495

3 credits

## CSK

### Career Skills and Leadership

**CSK 101: Advocacy and Change**

This course examines methods of successful advocacy and ways to identify and overcome resistance to change. Students review theories and effective behaviors for advocating for causes, explaining viewpoints, managing conflict, and achieving consensus. Videos, cases, and exercises provide students with experience in formulating a clear message, eliciting support, and seeking compromise with local and global examples of sustainability. Students consider effective ways of using the media, forming partnerships and alliances, introducing change, and unfreezing seemingly intransigent perspectives.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

**CSK 102: Working in Teams**

This course recognizes that considerable work is accomplished in groups (committees, boards, design and development teams, task forces, project management teams, quality improvement teams, coalitions, and community groups) with members representing diverse perspectives and disciplines. Students consider how to form and lead groups that have members with the requisite talent, time, and task understanding. Participating in group exercises, students learn ways to promote cooperation and collaboration, value diverse perspectives and cultures, and facilitate group process.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

**CSK 103: Behavioral Decision Making**

Students consider topics in behavioral decision making such as risk assessment and risk aversion (prospect theory) as they affect a variety of decisions. Psychological and social theories that demonstrate rational and seemingly irrational processes are applied to individual and group decisions. Game theory elements and examples are reviewed. Using cases and exercises, students apply behavioral decision making processes to scientific and political decisions, for instance, in the adoption of new technology, recognizing environmental and social impact and the interface of public and private institutions.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

**CSK 104: Negotiation and Conflict Resolution**

Using seminal texts, case examples, and exercises, students practice negotiation and conflict management skills. They learn how to develop negotiation alternatives, identify areas of mutual interest and options for mutual gain, and determine a best alternative to a negotiated agreement. Students work in groups to practice ways of raising and resolving differing degrees of conflict in one-on-one and group situations. Cases and discussion address cognitive and emotional issues and practical ways to face hot topics in sustainability and community engagement. Students resolve commons problems and dilemmas as they represent varying interests and practice different roles.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

**CSK 105: Leadership**

Developing effective leadership skills is critical for career success. This course guides students in assessing their leadership strengths and weaknesses and establishing goals for leadership development. Students learn transactional and transformational leadership tactics, ways to show consideration of others' interests and feelings, and the importance of valuing differences. Students practice transformational leadership methods for building and sustaining followers' commitment and involvement. Participating in group exercises, they practice establishing goals, giving feedback, and rewarding others.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

**CSK 106: Communication Methods and Strategies**

Students study and practice effective communication strategies to inform and influence others. They consider the use of multi-media, including print, radio, television, Web, pod-casting, and how to use combinations of media for recording and distribution of information and perspectives. They study examples of propaganda, marketing, and journalism. They develop a communication strategy to address a sustainability issue.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

### CSK 107: Assessment

This course recognizes the importance of assessing needs, tracking implementation processes, and evaluating program outcomes. Students learn basics of research design and data collection methods, such as writing and conducting surveys and interviews. Sources of archival data and data mining techniques are considered. The concepts of reliability, validity, statistical significance, and probability are reviewed, and analytic methods are described. Effective presentation methods are demonstrated for communicating and using the results. Students design an evaluation strategy, apply simple descriptive statistics, and present the results.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

### CSK 108: Entrepreneurship

Entrepreneurs create sustainable organizations to accomplish their goals, for instance, to bring about environmental and social change. "Intrepreneurs" foster innovation within organizations. In this course, students assess their entrepreneurial skills, including envisioning, leading, communicating, organizing, implementing, and assessing change. They study examples of successful and unsuccessful entrepreneurs. Working alone or in groups, they write a business plan for a new enterprise. They consider needs, develop a market assessment, and locate available resources. They apply SWOT analysis (identification of internal strengths and weaknesses and external opportunities, and threats), formulate SMART goals (specific, measurable, actionable, realistic, and time bound objectives), and consider ways to ensure the long term viability of their enterprise.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

### CSK 109: Forecasting and Planning

Sustainability requires understanding current conditions and predicting possible future directions. This course provides an overview of trend and pattern analysis. Students read fiction and nonfiction authors who have envisioned the future. They learn how to comb for data and identify trends from the media, the internet, academic publications, and subject matter experts in a wide range of fields. They consider the impact of technological change on life patterns, such as the workplace, home, and community of the future.

*Prerequisite:* SUS, EHM, COS, EHI, EDP major

1 credit

### CSK 302: Technical Writing and Communication

A course devoted to the presentation of technical information to different audiences. Styles of writing to be covered will include grant proposals, reports, and journal articles; principles of oral presentation will include elements of design and graphics.

*Prerequisite:* WRT 102; SUS, EHM, COS, EHI, EDP major or permission of the instructor

3 credits

## CWL

### Creative Writing and Literature

#### CWL 190- B: Introduction to Contemporary Literature

Seminar surveying recent works in a genre or topic, to introduce students to poetry, creative nonfiction, fiction or a combination of selections focusing on a particular theme. Participants will develop skills of interpretation and analysis through reading and writing about contemporary literature.

*Prerequisite:* Completion of D.E.C. A

3 credits

#### CWL 202- D: Introduction to Creative Writing: Writing Everything

Creative writing workshop in multiple genres, from fiction to poetry to scriptwriting, intended to introduce students to the basic tools and terminology of the fine art of creative writing. Participants also read contemporary works, give a public reading, and attend Writers Speak, the Wednesday reading series.

3 credits

#### CWL 300- G: Forms of Creative Nonfiction

Study of the genre through readings, discussion and regular submission of original

work. Course explores methods for expressing the human condition made available through creative nonfiction, with examples from the tradition and exploration of the nature of fact, memory, subjectivity and perspective. Areas of study include Personal Essay, Memoir, Blogs and Alternate Forms, the Journal, Historical Inquiry and Social Commentary. Course may be repeated as the topic changes.

*Prerequisite:* CWL 202

3 credits

#### CWL 305- G: Forms of Fiction

Study of the genre through readings, discussion and regular submission of original work. Course explores methods for expressing the human condition made available through fiction, with examples from the tradition that illustrate point of view, character development, dialogue, plot, setting, theme, motif, and other elements. Areas of study include Short Story, Novella, The Popular Novel, Graphic Novels and Writing Funny. Course may be repeated as the topic changes.

*Prerequisite:* CWL 202

3 credits

#### CWL 310- G: Forms of Poetry

Study of the genre through readings, discussion and regular submission of original work. Course explores methods for expressing the human condition made available through poetry, with examples from the tradition of such tools as metaphor and image, sound, line, form, and juxtaposition. Areas of study include Powers of Poetry, Bright Containers: Form & Meter, and Methods & Madness, a study of the philosophical vs. visionary strains in poetry. Course may be repeated as the topic changes.

*Prerequisite:* CWL 202

3 credits

#### CWL 315- G: Forms of Scriptwriting

Study of the genre through readings, screenings, discussion and regular submission of original writing for film or theater. Course explores methods for expressing the human condition made available through these collaborative media. Areas of study include Fundamentals of Dramatic Action, Visual Storytelling, Message Movies, Writing the One Act, and Extreme Events. Course may be repeated as the topic changes.

*Prerequisite:* CWL 202

3 credits

#### CWL 320- G: Forms of Interdisciplinary Arts

Regular submission, discussion, and analysis of students' work in conjunction with active

engagement with the world beyond the page in order to explore methods for expressing the human condition not available through study in a single genre. Areas of interdisciplinary involvement include writing across genres (Writing Nature); production of the written word (Poetry Bookmaking, Performing & Production); and partnering to write (Endangered Languages: Poetry & the Oral Tradition, Documentary Screenwriting in a Sustainable World, and Testimony in Creative Nonfiction). Students may repeat this course as the genre and topic in the humanities change.

*Prerequisite:* CWL 202

3 credits

### **CWL 325- H: Forms of Science Writing**

Regular submission, discussion and analysis of students' work in one or more areas of science writing in order to examine the impact of science and literature on one another. Areas of study include Introduction to Science Writing, Environmental Writing and the Media, and Elegance & Complexity: Researched Writing and Writing the Interview. Course may be repeated as the topic changes.

*Prerequisite:* 1 D.E.C. E and 1 D.E.C. F; CWL 202

3 credits

### **CWL 330- I: Topics in European Literature for Writers**

A lecture for writers concentrating on one area of European literature, to be announced in the course schedule. The course may examine a historical trend in Western literature from multiple viewpoints, the rise of a specific genre, a social issue expressed in literature, or an issue in literary theory, as, for example, The Russian Novel; Classic Plots; Ibsen, Shaw and the Introduction of Feminism to Great Britain; Political Comedy on the Modern European Stage; and Reading Nature. The emphasis will be on scholarly analysis, but with engagement of student writers. Students may repeat this course as the topic changes.

*Prerequisite:* completion of D.E.C. B

*Advisory Prerequisite:* CWL 190

3 credits

### **CWL 335- K: Topics in American Literature for Writers**

A seminar for writers concentrating on one area of American literature, to be announced in the course schedule. The course may examine a contemporary or historical trend in American literature, the rise of a specific genre, a social issue expressed in literature, an issue in literary theory, or any other exploration of American pluralism as, for example, Ethics and the Crime Novel; Varieties of

American Humor; Southern Renaissance; and Contemporary Poetry Wars. The emphasis will be on scholarly analysis, but with engagement of student writers. Students may repeat this course as the topic changes.

*Prerequisite:* completion of D.E.C. B

*Advisory Prerequisite:* CWL 190

3 credits

### **CWL 340- J: Topics in World Literature for Writers**

A literature course for writers concentrating on one area, to be announced in the course schedule, of non-Western culture. Topics could include a contemporary or historical trend, a social issue, or any other topic of expression that illuminates national, regional or cultural difference, as, for example, Contemporary Poetry from the Middle East, Asia and Beyond; Contemporary World Fiction for Writers; Reading Nature in Japanese Poetry; Varieties of the Short Story; and Asian Theatre and Drama. The emphasis will be on scholarly analysis, but with engagement of student writers. Students may repeat this course as topic changes.

*Prerequisite:* completion of D.E.C. B

*Advisory Prerequisite:* CWL 190

3 credits

### **CWL 450: Senior Project**

A weekly seminar in planning and executing an independent, interdisciplinary creative writing project, the culmination of the minor, to be taken while writing the manuscript. The nature of the manuscript is up to the individual, though the concept must be approved by the program director before the student can enroll in this course. Projects could incorporate a theme or insight from the writer's major area of study or from any discipline beyond creative writing that engages the writer. Weekly class meetings give structure to the independent writing process, helping minors to plan, research and locate the resources they need. In the second half of the course, guest speakers with expertise in the areas students are encountering will be brought in.

*Prerequisite:* permission of the Director of the Creative Writing minor

3 credits

## **DAN**

### **Dance**

#### **DAN 101: Movement & Somatic Learning**

Introduction to the human body and its potential for creative experiences focused on

the existential whole. Theory and practice are woven together throughout the course. Content includes sensory attunement, augmented rest, somaesthetics, intrinsic motivation, creativity, visualization of motor imagery, and reprogramming of neuromuscular patterns.

3 credits

#### **DAN 102- D: Intro to World Dance Cultures**

An introduction to the properties and elements of dance in order to understand and appreciate it in a variety of contexts. Dance is considered as art, recreation, social interaction, and entertainment through investigation of societal attitudes, cultural norms, and creative styles of individuals. Formerly offered as THR 102. Not for credit in addition to THR 102.

3 credits

#### **DAN 164- D: Tap Technique and History**

The fundamentals, technique, and history of tap dance. Basic technique, time step, and combinations are covered. The historical component traces the development of tap from its roots in the music of jazz to present-day expressions. Various traditional styles, individual artists, and current trends are discussed. Formerly offered as THR 164. Not for credit in addition to THR 164.

3 credits

#### **DAN 165- D: Contemporary Dance I**

The fundamentals, technique, and history of modern dance. Basic principles of alignment, centering, placement, and modern technique are introduced. The historical component includes various styles within the field of modern dance, individual artists who have contributed to the field, and the place of modern dance in society and culture at large. Formerly offered as THR 165. Not for credit in addition to THR 165. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

#### **DAN 166- D: Ballet Technique I**

The fundamentals, technique, and history of ballet. The course covers the development of body alignment through stretching and strengthening exercises; simple barre exercises, center floor combinations, and movement phrases to music. The historical component includes the development of ballet from the 15th century to the present day. Various styles, companies, techniques, and individual artists are discussed. Formerly

offered as THR 166. Not for credit in addition to THR 166. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

### **DAN 167- D: Jazz Dance Technique I**

The fundamentals, technique, and history of jazz dance. Basic principles of alignment, centering, placement, and jazz technique are covered. The historical component includes various styles within the field of jazz dance, individual artists who have contributed to the field, and the place of jazz dance in society and culture at large. Formerly offered as THR 167. Not for credit in addition to THR 167. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

### **DAN 168- D: World Dance I**

An introduction to dance traditions around the globe. Cultural values, religious beliefs, and social systems are investigated for their influence on the dance. Formerly offered as THR 168. Not for credit in addition to THR 168. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

### **DAN 203: Laban Movement Analysis**

Investigates the fundamentals of movement through theories, principles and techniques represented in the written and embodied work of Laban, Bartenieff, Dell, and Hackney. Approaches from Body Mind Centering, Feldenkrais, Human Development, and Somatic Therapy/Education will also be incorporated. Students will study the interrelated processes of awareness, biological function and interaction with the environment through interplay of theory and practice. The goal is to perceive, describe and make meaning of human movement in order to decode and develop physical language.

*Prerequisite:* DAN 101, DAN 165, DAN 166, DAN 167 or DAN 168

3 credits

### **DAN 264- D: Movement Awareness and Analysis**

A course covering the fundamentals of movement, linking theory and techniques from the disciplines of dance and theatre. Using anatomical principles to understand effective use of the skeletal and muscular systems, students are guided, through an interplay of theory and practical work, toward

efficient posture and movement habits and test the presence, action, and performance necessary for effective communication and the development of a physical language.

3 credits

### **DAN 353: Special Topics in Dance Performance**

A concentration in one aspect of dance. May be repeated as the topic changes. Formerly offered as THR 353.

*Prerequisite:* One of the following: DAN 165, DAN 166, DAN 167, DAN 168

3 credits

### **DAN 365: Contemporary Dance II**

Further development of modern dance training, devoted to improvement of style, technique, and physical and mental focus. Formerly offered as THR 365. Not for credit in addition to THR 365. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One of the following: DAN 165, DAN 166, DAN 167, DAN 168

3 credits

### **DAN 366: Ballet Technique II**

Further development of ballet training, devoted to improving style, technique, physical and mental focus. Formerly offered as THR 366. Not for credit in addition to THR 366. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One of the following: DAN 165, DAN 166, DAN 167, DAN 168

3 credits

### **DAN 367: Jazz Dance Technique II**

Further development of jazz dance training, devoted to improvement of style, technique, and physical and mental focus. Formerly offered as THR 367. Not for credit in addition to THR 367.

*Prerequisite:* One of the following: DAN 165, DAN 166, DAN 167, DAN 168

3 credits

### **DAN 368: Dance Improvisation**

The practice of dance and movement investigation through discipline, spontaneity, and awareness. Skills in improvisation will be developed through creative projects and experiments in dance. Formerly offered as THR 368. Not for credit in addition to THR 368. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One of the following: DAN 165, DAN 166, DAN 167, DAN 168, DAN 264

3 credits

### **DAN 369- J: World Dance II**

The fundamentals, technique, and history of a specific non-Western dance style. Lectures cover the origins of the dance form, the people who perform the dance, and the place of the dance in society and culture. Studio training includes the physicality of the dance. May be repeated as the topic changes. Formerly offered as THR 369. Not for credit in addition to THR 369.

*Prerequisite:* One of the following: DAN 165, DAN 166, DAN 167, DAN 168

3 credits

### **DAN 400: Performance Dance Ensemble**

Concentrated development of dance technique and performance skills through rehearsal and presentation of choreography. May be repeated once. Formerly offered as THR 400. Not for credit in addition to THR 400.

*Prerequisites:* Audition; permission of instructor

3 credits

### **DAN 465: Contemporary Dance III**

Advanced study in modern dance techniques, combining dance training, compositional skills, and performance technique. Formerly offered as THR 465. Not for credit in addition to THR 465. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One of the following: DAN 365, DAN 366, DAN 367, DAN 369

3 credits

### **DAN 467: Jazz Dance Technique III**

Advanced study of jazz techniques, combining dance training, compositional skills, and performance techniques. Formerly offered as THR 467. Not for credit in addition to THR 467. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* One of the following: DAN 365, DAN 366, DAN 367, DAN 369

3 credits

### **DAN 468: Choreography**

Training in the craft of choreography, the creation of dance, using applied dance techniques, improvisational tools, perceptual skills, and investigations. Students create studies and original dance compositions and critique the various developmental stages in

order to modify and expand their creations. The theory presented contains basic aesthetic concepts that contribute to the structure and form of dance. Formerly offered as THR 468. Not for credit in addition to THR 468.

*Prerequisite:* DAN 465 or 467 (or the former THR 465 or 467)

3 credits

### **DAN 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Not for major credit. Not for credit in addition to THR 475.

*Prerequisites:* Dance minor; U3 or U4 standing; permission of instructor and department

3 credits, S/U grading

### **DAN 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served. Not for major credit. Not for credit in addition to THR 476.

*Prerequisites:* DAN 475; permission of instructor and department

3 credits, S/U grading

### **DAN 487: Independent Research**

Designing and developing a research project selected by the student in consultation with a faculty member. May be repeated.

*Prerequisite:* Permission of department

0-6 credits

### **DAN 488: Internship**

Participation in a professional organization that creates and presents public performances, creates and presents, to the public, works in the media arts, or concerns itself with the management or funding of arts organizations. Students are required to submit written progress reports to their department sponsors and a final written report to the department faculty. Supplementary reading may be

assigned. May be repeated up to a limit of 12 credits. Not for credit in addition to THR 488.

*Prerequisite:* Permission of department

0-6 credits, S/U grading

## **DIA**

### **Digital Arts**

#### **DIA 207: Digital Media: History and Theory**

An introduction to historical and theoretical issues in digital media. Following discussion of basic concepts in studying digital media, the course focuses on examining the history of computer technologies, and their theoretical implications and cultural ramifications in the present. This course is offered as ARH 207 and DIA 207.

3 credits

#### **DIA 396- H: Video and Computer Game History**

The course examines video/computer games as historical artifacts while studying the processes of writing/documenting the history of videogames. Students will engage with histories of gaming companies and platforms, game designer memoirs, fiction, criticism, game analysis, theoretical writing, descriptive historical accounts, preservation practices, and ephemeral forms of historic documentation. Students will also have hands-on access to various console games from the 1970s to the present. This course is offered as both CCS 396 and DIA 396.

*Prerequisite:* CCS 101 or ARH 207/DIA 207; Satisfaction of DEC B or DEC D

3 credits

#### **DIA 397- H: Video and Computer Game Culture**

The course critically examines videogames within cultural, social, and political contexts. It will showcase the interaction between technology and culture and society by examining videogames in terms of play and game play, racial and gendered representation, racism and sexism, games in a global context of online play, power-relations between gamers, violence and moral panics, and military propaganda. This course is offered as both CCS 397 and DIA 397.

*Prerequisite:* CCS 101 or ARH 207/DIA 207; Satisfaction of DEC B or DEC D

3 credits

## **ECO**

## **Economics**

### **ECO 108- F: Introduction to Economics**

An introduction to economic analysis. Microeconomics (the study of individual, firm, industry, and market behavior) and macroeconomics (the study of the determination of national income, employment, and inflation). This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* C or higher in MAT 122 or MAT 123 or AMS 151 or level 4 on the mathematics placement examination

4 credits

### **ECO 301- H: Sustainability of the Long Island Pine Barrens**

The ecologically diverse Long Island Pine Barrens region provides a habitat for a large number of rare and endangered species, but faces challenges associated with protection of a natural ecosystem that lies in close proximity to an economically vibrant urban area that exerts intense development pressure. In this course we will consider the interaction of the ecological, developmental and economic factors that impact the Pine Barrens and the effectiveness of decision support systems in promoting sustainability of the Pine Barrens. This course is offered as BIO 301, GEO 301, ECO 301, ENV 301, and ESG 301.

*Prerequisites:* U3 or U4 status and one of the following: BIO 201, CHE 131, ECO 108, ESG 100, ESG 198, GEO 101, GEO 102

3 credits

### **ECO 303- F: Intermediate Microeconomic Theory**

Analytical study of the behavior of fundamental economic units (consumer and the firm) and its implications for the production and distribution of goods and services. Emphasis on the use of economic theory to provide explanations of observed phenomena, including the analytical derivation of empirically verifiable propositions. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites:* C or higher in ECO 108; C or higher in MAT 122 or MAT 123 or AMS 151 or placement level 4 on the mathematics placement examination

4 credits

### **ECO 305- F: Intermediate Macroeconomic Theory**

The theory of national income determination, employment, distribution, price levels, inflation, and growth. Keynesian and classical models of the different implications of monetary and fiscal policy. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites: C or higher in ECO 108; C or higher in MAT 122 or MAT 123 or AMS 151 or placement level 4 on the mathematics placement examination*

4 credits

### **ECO 310: Basic Computational Methods in Economics**

A first course in the computational and graphical techniques for finding numerical solutions to a small set of economic models (such as the Edgeworth Box) based on concepts and constructs presented in the intermediate microeconomics course. Includes the foundations of programming (using a symbolic algebra language), and finding maxima of functions, finding equilibria of markets, and exploring and fitting functions graphically. Emphasis is put on understanding the connections between the concepts, the algebra, the computation, and the graphical presentation of economic models and on using the numerical models to perform experiments.

*Prerequisite: C or higher in ECO 303*

4 credits

### **ECO 316- K: U.S. Class Structure and Its Implications**

Investigation of the economic foundations of social class in the U.S. and connections among class, race, and gender. Consideration of both theoretical and empirical strategies to understand the working class, the middle class, and the capitalist class in contemporary U.S. society, including the implications of class analysis for social issues such as government economic policy formation, the "underclass" and welfare reform, globalization, living standards, the distributions of income and wealth, and economic ethics.

*Prerequisite: C or higher in ECO 108*

3 credits

### **ECO 317: Marxist Political Economy**

An analysis of capitalism as a social system of production and exchange, based on the economic writings of Karl Marx and others working in that broad tradition. The course begins with study of Marx's philosophical method, dialectical materialism, and applies this method to the historical development of capitalism and the operation of the modern

capitalist economy. The course explores connections between economic power and political, cultural, and ethical issues.

*Prerequisite: C or higher in ECO 108*

3 credits

### **ECO 320: Mathematical Statistics**

An introduction to statistical methods and their properties that are useful in analysis of economic data. Topics include elements of probability theory and its empirical application, univariate and multivariate distributions, sampling distributions, limiting distributions, and point and interval estimation. Regular problem sets and occasional projects are required. Not for credit in addition to AMS 310. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites: C or higher in ECO 108; C or higher in MAT 122 or MAT 123 or AMS 151 or placement level 4 on the mathematics placement examination*

4 credits

### **ECO 321: Econometrics**

The application of mathematical and statistical methods to economic theory. Topics include the concept of an explanatory economic model, multiple regression, hypothesis testing, simultaneous equation models, and estimating techniques. Emphasis is placed on the application of econometric studies.

*Prerequisites: C or higher in ECO 320 or AMS 310; C or higher in ECO 108*

4 credits

### **ECO 323: Applied Microeconomics**

Exploration of the connection between economic theory and its applications, with a special emphasis on the use of econometric techniques. Real-life examples are used to examine how computer software and the internet allow us to better understand a problem, analyze a question, or find an answer. Computers are used intensively to learn about financial and business decisions, economic models, and econometric methodology. Models of inter-temporal choice, investment, investment under uncertainty, migration, retirement, housing decisions, economics of regulation, education, financial options, and many others are explored with real examples, often with real data and econometric tools. Students are expected to consult many sources and think analytically for problem sets, exams, and in class.

*Prerequisites: C or higher in ECO 303; C or higher in ECO 320 or AMS 310*

*Advisory Prerequisite: ECO 321*

4 credits

### **ECO 325: International Economics**

Economic theory of international trade, protection, commercial policy, customs unions, capital movements, and international finance.

*Prerequisite: C or higher in ECO 303*

3 credits

### **ECO 326: Industrial Organization**

A study of the structure of firms and markets and interactions between them. Price theory, strategic theory and transaction costs analysis are used to illuminate the sources of and limitations on market power of firms. Some empirical evidence, drawn primarily from the U.S. economy, is explored. A brief introduction to antitrust policy and regulatory policy is included.

*Prerequisite: C or higher in ECO 303*

3 credits

### **ECO 327- F: Health Economics**

An application of microeconomics to the health sector of the economy. Topics include the demand for health care; the roles of hospitals, physicians, and HMOs in the supply of health care; the role of the government in the provision of health care; and the detriments of health care costs.

*Prerequisite: C or higher in ECO 303*

3 credits

### **ECO 328- F: Regional Economics**

An examination of the major theories of economic structure within a spatial context. Special attention is paid to economic growth within a spatial world, migration of firms and resources across space, the empirical modeling of these processes, and regional economic modeling. Topics include export base theory; input-output modeling, social accounting matrices (SAMs), computable general equilibrium models (CGEs) and regional econometric and conjoined models.

*Prerequisite: C or higher in ECO 303*

3 credits

### **ECO 329: Urban Economics**

Construction of models to explain aspects of cities, including existence, dynamics, and land use patterns. Concepts include Lorenz Curve, externalities, tipping points, bid-rent curves, and separation of economic activities. Uses algebra, pre-calculus, graphing, and calculus. Computer spreadsheets and scientific hand calculators used.

*Prerequisite: C or higher in ECO 303*

*Advisory Prerequisite: MAT 131*

3 credits

**ECO 334- J: Demographic Economics of Developing Countries**

Problems related to both economics and demography. In scope, the material deals with both contemporary and historical situations in developing countries. Microeconomic aspects of the course concern fertility, marriage, divorce, and migration; macroeconomic aspects concern the implications for growth and development of various patterns of population increase.

*Prerequisites:* C or higher in ECO 320 or AMS 310; C or higher in ECO 303 and 305

3 credits

**ECO 335: Economic Development**

An examination of problems and aspects facing developing countries in the transition from traditional, predominantly rural economic systems to modern, largely urban-oriented economies. Theories of economic growth and development are presented in the light of the actual experience of developing countries.

*Prerequisites:* C or higher in ECO 303; MAT 126 or 131 or 141 or AMS 151

3 credits

**ECO 337: Labor Theory**

Microeconomic theory is used to investigate specific topics in the field of labor economics. Areas to be covered include the household's decision-making process and the supply of labor, investments in human capital and discrimination in the marketplace, the effect of market structure on the demand for labor, and the distribution of income.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 345: Law and Economic Issues**

An application of economic issues to major fields of law to study their effects on market and non-market behavior. The consequences that laws may have on the realization of efficient outcomes, as well as an exploration of the legal process from an economic perspective, are emphasized.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 348: Analysis for Managerial Decision Making**

Development of analytical techniques (such as linear programming and statistical decision theory) for making economic decisions, both in public and private enterprises. The student makes decisions on large-scale and detailed cases in realistic managerial situations and is introduced to the use of the computer. May

not be taken for credit after BUS 249. Not for credit in addition to the discontinued BUS 349.

*Prerequisite:* C or higher in ECO 303

4 credits

**ECO 351: Special Topics in Economics**

May be repeated as the topic changes.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 352: Special Topics in Economics**

May be repeated as the topic changes.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 353: Special Topics in Economics**

May be repeated as the topic changes.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 354: Special Topics in Economics**

May be repeated as the topic changes.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 355: Game Theory**

Introduction to game theory fundamentals with special emphasis on problems from economics and political science. Topics include strategic games and Nash equilibrium, games in coalitional form and the core, bargaining theory, measuring power in voting systems, problems of fair division, and optimal and stable matching. This course is offered as both AMS 335 and ECO 355.

*Prerequisites:* MAT 126 or 131 or 141 or AMS 151; C or higher in ECO 303

3 credits

**ECO 356: Special Topics in Economics**

May be repeated as the topic changes.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 357: Special Topics in Economics**

May be repeated as the topic changes.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 358- J: Topics in Developing Economies**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Topics may include titles such as The Economics of India and Chinese Economic Development. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western

world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; additional prerequisites announced with topic

3 credits

**ECO 360: Money and Banking**

An introduction to modern monetary institutions and mechanisms, their relationship to the economy, and governmental policies in this area.

*Prerequisite:* C or higher in ECO 108

3 credits

**ECO 362: Financial Economics**

An analysis of financial decision making inside the corporation, covering topics such as the choice of the dividend policy, the choice between equity and debt and the interaction between financing and investment decisions. We will also look at how market imperfections, in particular the existence of informational differences between managers and investors, influence the performance of corporations. Finally, we study the optimal policies to cope with market imperfections.

*Prerequisites:* C or higher in ECO 303; C or higher in ECO 320 or AMS 310

3 credits

**ECO 364: Thinking Strategically**

A focus on the strategic interaction between several decision makers. Topics include: optimal decisions of firms interacting in markets with imperfect competition, the value of information under strategic conflict, optimal bidding strategies for various auction mechanisms (including online auctions), optimal networking design, Blackjack and others.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 373- H: Economics of Environment and Natural Resources**

Analysis of economic policies designed to deal with environmental problems. Issues involving the management of renewable and exhaustible resources such as timber and oil as well as the advantage of market-based solutions over the conventional demand approach are discussed.

*Prerequisite:* C or higher in ECO 303

3 credits

**ECO 383: Public Finance**

Theories of taxation and the satisfaction of public wants; the nature of public goods; theory of public expenditure; effects of taxes on resource allocation and welfare; theories of tax incidence; fiscal and equity implications of alternative tax schemes; fiscal dynamics and growth; intergovernmental fiscal relations.

*Prerequisites: C or higher in ECO 303 and 305*

3 credits

### **ECO 385: U.S. Economic History**

The application of economic theory and statistical methods to analyze historical topics and themes. Topics may include the economic causes of the Revolutionary War; the economics of slavery; share cropping and debt peonage in the South after the Civil War; the economics of the resumption of the gold standard; the "cross of gold", the causes of the Great Depression, post World War II economic growth, and the causes and consequences of the Great Recession. Themes include an analysis of the American economic growth from the 1820's through today; the government's role in economic development; and the contributions of natural increase and migration to U.S. labor force and population increase.

*Prerequisite: ECO 303 and ECO 305*

*Advisory Prerequisite: ECO 320*

3 credits

### **ECO 389: Corporate Finance**

Introduction to the main concepts and problems confronted by financial managers in the corporate world. Development and application of tools and methods for financial decision-making and analysis, including: discounting and present value; asset valuation; investment criteria; risk and return; risk management; cost of capital; debt and dividend policies; international financial management.

*Prerequisite: C or higher in ECO 303*

*Advisory Prerequisite: C or higher in ECO 305*

3 credits

### **ECO 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: Permission of instructor and department*

3 credits, S/U grading

### **ECO 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisite: C or higher in ECO 475; permission of instructor and department*

3 credits, S/U grading

### **ECO 487: Independent Research in Economics**

An independent project, developed out of advanced coursework in economics, designed in consultation with and supervised by a faculty member. The project should be formulated before the start of the semester in which the research will be done and should culminate in a substantial written paper. May be repeated.

*Prerequisites: At least one upper-division ECO course that forms the basis of research; permission of a supervising faculty member*  
0-6 credits

### **ECO 488: Internship in Economics**

An independent research project undertaken in the context of a work environment that provides students with access to data, people, and experience that make possible the study of a particular economic issue. Related readings, a daily journal, and an analytical paper under the supervision of a faculty member are required. Permission must be obtained before the start of the semester in which the student enrolls in ECO 488. May be repeated up to a limit of 12 credits, but only counts as one course toward major requirements.

*Prerequisites: C or higher in ECO 303 and 305; permission of supervising faculty member, Career Center Internship Manager, and sponsoring employing agency*

0-6 credits, S/U grading

## **EDP**

### **Environmental Design, Policy, and Planning**

#### **EDP 301: The Built Environment I**

The functional determinants of an urban region's physical infrastructure, encompassing cities, suburbs, exurbs and satellite communities are presented. The course will

cover metropolitan infrastructure components including systems of transportation, water supply, waste disposal and energy distribution and how they are shaped by the interaction of economics, politics and planning practice.

*Prerequisite: SBC 200*

3 credits

#### **EDP 302: The Built Environment II**

The functional dynamics underlying the development and planning for structures and facilities in urban regions are presented including their cities, suburbs, exurbs and recreational satellite communities. The course will cover the interaction of real estate economics, politics and good planning practices as they affect residential, commercial, educational, cultural and industrial sites.

*Prerequisite: SBC 111 and SBC 200*

3 credits

#### **EDP 303: Spatial Economics**

Economic theories and empirical data that explain the distribution of man-made activities in geographic regions are presented. The course emphasizes spatial patterns among and within urban regions of the United States. Classes will cover the economic and demographic factors governing the distribution, within natural regional conurbations, of residences, industries and all other activities whose location is economically determined.

*Prerequisite: SBC 206*

3 credits

#### **EDP 305: Risk Assessment and Sustainable Development**

Course presents a comprehensive overview of risk analysis and its application to a broad range of human activities. The methodology of risk analysis enables those involved in environmental sustainability to evaluate the probability of an adverse effect of an agent, chemical, industrial process, or natural process.

*Prerequisite: ENV 115*

3 credits

#### **EDP 307: Theories and Design of Urban Settlements**

The course introduces students to the underlying economic, social and physical forces that shape the development of human settlements, with an emphasis on urban conurbations, and the typical United States metropolitan region.

*Prerequisite: SBC 111 and SBC 200*

3 credits

**EDP 309: Planning: Policies and Regulations**

An introduction to the process of planning and development of regulations necessary for the implementation of planning objectives.

*Prerequisite:* SBC 200

3 credits

**EDP 404: Environmental Design Project**

The Environmental Design Project is the culmination of the EDP Major. Each student should produce an individual work, that is a thoughtful analysis of a real-world problem addressing one of four central themes of the major's core: 1) historic and theoretical perspectives; 2) the physical and built environment; 3) policy, politics and regulation; or 4) societal and cultural change. Allowing that there may be some overlap among these four themes, each project must focus on a specific place, process or object. Students are expected to produce a final project portfolio-- which may include audio-visual materials, drawings, models, posters, artifacts, etc.-- and a written report. Each student is expected to make a presentation to faculty and students before the close of the semester.

*Prerequisites:* EDP 301 and EDP 302 and EDP 307 and CSK 102

3 credits

**EDP 487: Research in Environmental Design, Policy, & Planning**

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. May be repeated.

*Prerequisite:* Permission of instructor

1-6 credits, S/U grading

## EEL

**Select East European Languages****EEL 111: Elementary Selected East European Language I**

An introduction to spoken and written selected East European languages (Polish, Czech, Slovak, Serbo-Croatian, Bulgarian, Ukrainian), stressing pronunciation, speaking, comprehension, reading, writing, and culture. EEL 111 is designed for students who have no prior knowledge of the language. A student who has had two or more years of the selected language in high school (or who has otherwise acquired an equivalent proficiency) may not take EEL 111 without written permission from

the supervisor of the course. May be repeated for more than one language.

3 credits

**EEL 112 - S3: Elementary Selected East European Language II**

An introduction to spoken and written selected East European languages (Polish, Czech, Slovak, Serbo-Croatian, Bulgarian, Ukrainian), stressing pronunciation, speaking, comprehension, reading, writing, and culture. May be repeated for more than one language.

*Prerequisite:* EEL 111

3 credits

## EEO

**Electrical Engineering Online****EEO 124: C Programming for Electrical Engineers**

An introductory computer programming course using the ANSI C language with emphasis on topics of interest to electrical engineers. Subjects include data types, operations, program control structures, functions, data files, numerical techniques, pointers, structures, and bit operations. Students gain experience in applying the C language to the solution of a variety of electrical engineering problems.

*Prerequisites:* Calculus I and EEO Major

3 credits

**EEO 218: Digital Logic Design**

The course covers binary numbers, Boolean algebra, arithmetic circuits, flip-flops, analysis and design of sequential circuits, memory and programmable logic. The circuits are designed and simulated with CAD tools, assembled on a breadboard and verified with a logic analyzer.

*Prerequisite:* Physics II

4 credits

**EEO 271: Electrical Circuit Analysis I**

Electrical circuit analysis. Kirchoff's Law, Ohm's Law, nodal and mesh analysis for electric circuits, capacitors, inductors and steady-state AC; transient analysis using Laplace transform. Fundamentals of AC power, coupled inductors and two-ports.

*Prerequisites:* Calculus I and EEO Major

4 credits

**EEO 300: Technical Communication for Electrical Engineers**

Topics include how technical writing differs from other forms of writing, the components of technical writing, technical style, report

writing, technical definitions, proposal writing, writing by group or team, instructions and manuals, transmittal letters, memoranda, abstracts and summaries, proper methods of documentation, presentations and briefings, and analysis of published engineering writing. Also covered are the writing of resumes and cover letters.

3 credits

**EEO 301: Signals and Systems**

Provides an introduction to continuous-time and discrete-time signals and linear systems. Topics covered include time-domain descriptions (differential and difference equations, convolution) and frequency-domain descriptions (Fourier series and transforms, transfer function, frequency response, Z transforms, and Laplace transforms).

*Prerequisite:* Differential Equations, Circuits

4 credits

**EEO 304: Electronic Instrumentation and Operational Amplifiers**

Design of electronic instrumentation: structure of basic sensors and measurement systems, transducers, analysis and characteristics of operational amplifiers, analog signal conditioning with operational amplifiers, sampling, multiplexing, A/D and D/A conversion; digital signal conditioning, data input and display, and automated measurement systems.

*Prerequisite:* EEO 315

3 credits

**EEO 306: Random Signals and Systems**

Random experiments and events; random variables, probability distribution and density functions, continuous and discrete random processes; Binomial, Bernoulli, Poisson, and Gaussian processes; system reliability; Markov chains; elements of queuing theory; detection of signals in noise; estimation of signal parameters; properties and application of auto-correlation and cross-correlation functions; power spectral density; response of linear systems to random inputs.

*Prerequisite:* ESE 305

3 credits

**EEO 311: Electronics Circuits II**

Differential and multistage amplifiers with bipolar junction transistors (BJT) and field-effect transistors (FET). Biasing in integrated circuits and active loads. Frequency response of common-emitter (common-source), common-base (common-gate), common-collector (common-drain) single BJT (FET)

stages. Frequency response of differential-pair, cascode, and multistage circuits. Selection of coupling and bypass capacitors. Analog integrated circuits. Metal-Oxide-Semiconductor (MOS) digital circuits with emphasis on CMOS. LEC/LAB

*Prerequisite: Electronics Circuits I*

3 credits

### **EEO 314: Mos Transistor Modeling**

An overview of the metal-oxide semiconductor field effect transistor (MOSFET) and its models for circuit analysis. First, short review of the necessary semiconductor physics is given. Second, CMOS fabrication, device structure and operation are introduced. Analytical models of increasing complexity and their SPICE implementations are presented. Peculiarities of the contemporary nanoscale devices are discussed. The course involves a project.

*Prerequisite: EEO 331 and EEO Major*

3 credits

### **EEO 315: Electronics Circuits I**

Introduction to electronics, concentrating on the fundamental devices (diode, transistor, operational amplifier, logic gate) and their basic applications; modeling techniques; elementary circuit design based on devices.

*Prerequisite: Circuits and Digital Logic*

3 credits

### **EEO 316: Integrated Electronic Devices and Circuits**

This is an advanced circuit design course that will discuss the principles, concepts, and techniques required to produce successful designs of analog and digital integrated circuits. Fundamentals of devices, circuits and basic topologies will be reviewed. Topics considered will include design of high-performance operational amplifiers, comparators, continuous-time filters and switched-capacitor circuits.

*Prerequisite: EEO 315*

3 credits

### **EEO 323: Electromagnetics**

Fundamentals of electromagnetic fields, Maxwell's Equations, plane waves, reflections. Application to transmission lines, propagation, electromagnetic sensors and transducers, .

*Prerequisites: Courses in circuits, signals, and vector calculus.*

*Prerequisite: Calculus III, Physics I and II, Circuits*

3 credits

### **EEO 331: Introduction to Semiconductor Devices**

The principles of semiconductor devices. Energy bands, transport properties and generation recombination phenomena in bulk semiconductors are covered first, followed by junctions between semiconductors and metal-semiconductor. The principles of operation of diodes, transistors, light detectors, and light emitting devices based on an understanding of the character of physical phenomena in semiconductors. Provides background for subsequent courses in electronics.

*Prerequisites: AMS 161 or MAT 127 or 132 or 142 or 171; PHY 127 or 132/134 or 142*

3 credits

### **EEO 340: Nanotechnology, Engineering and Science**

The course is targeted at undergraduate students on their early stage of education. Through the examples, exercises, and educational Java applets the course will cover electromagnetic waves and quantum mechanics including the quantum-mechanical origin of the electrical and optical properties of materials and nanostructures, chemically-directed assembly of nanostructures, biomolecules, traditional and nontraditional methods of nanolithography, interactions between electronic and optical properties, as well as the forefront topics such as organic heterostructures, nanotubes, and quantum computing.

*Prerequisite: Physics I, II, Calculus III*

3 credits

### **EEO 346: Computer Communications**

Basic principles of computer communication. Introduction to performance evaluation of protocols. Protocols include those for local, metropolitan and wide area networks. Introduction to routing, high-speed packet switching, circuit switching and optical data transport. Other topics include, TCP/IP, Internet, Web server design, network security and data centers.

*Pre- or Corequisite: EEO 306*

3 credits

### **EEO 352: Electronics Laboratory I**

Electronics Laboratory I provides students with a hardware-based learning environment for hands-on experimentation with computer-based instrumentation and the construction, diagnosis, characterization of a variety of analog and digital electronic circuits. Devices used include resistors, capacitors, diodes, SCR, MOSFET, BJT, opamp, and digital ICs. Students also practice how to communicate effectively through writing reports.

*Prerequisite: Circuits*

3 credits

### **EEO 353: Electronics Laboratory II**

Electronics Laboratory II provides students with an advanced hardware-based learning environment for hands-on experimentation with computer-based instrumentation and the construction, diagnosis, characterization of a variety of analog and digital electronic circuits. Devices used include resistors, capacitors, diodes, SCR, MOSFET, BJT, opamp, and digital ICs. Students also practice how to communicate effectively through writing reports.

*Prerequisite: Circuits, Electronics Lab I*

3 credits

### **EEO 363: Fiber Optic Communications**

Design of single and multi-wavelength fiber optic communications systems. Topics include analysis of optical fibers, optical transmitters and receiver design, optical link design, single-wavelength fiber optic networks with analysis of FDDI and SONET/SDH, and wavelength division multiplexing.

*Prerequisite: ESE 372*

3 credits

### **EEO 366: Design using Programmable Mixed-Signal Systems-on-Chip**

This course focuses on development of mixed-signal embedded applications that utilize systems on chip (SoC) technology. The course discusses design issues such as: implementation of functionality; realizing new interfacing capabilities; and improving performance through programming the embedded microcontroller and customizing the reconfigurable analog and digital hardware of SoC.

*Prerequisites: ESE 380 and ESE 372; ESE 224 or CSE 230*

4 credits

### **EEO 401: RF/Microwave Circuits**

This course introduces the concepts of impedance matching in radio frequency (RF) circuits, S-parameter and S-matrix, and Smith-Chart. Also, it deals with the theory and principle of various RF components such as transmission lines, waveguides, couplers, and resonators. Students learn how to design and analyze those components using analytical formulas and numerical simulation tools.

*Prerequisite: Circuits*

3 credits

### **EEO 415: Introduction to Microelectromechanical Systems**

This course is designed as an elective for senior students. Silicon-based integrated MEMS promise reliable performance, miniaturization and low-cost production of sensors and actuator systems with broad applications in data storage, biomedical systems, inertial navigation, micromanipulation, optical display and microfluid jet systems. The course covers such subjects as materials properties, fabrication techniques, basic structure mechanics, sensing and actuation principles, circuit and system issues, packaging, calibration and testing.

3 credits

### **EEO 425: Electric Machinery and Energy Conversion**

This class is a survey of energy conversion and electric machine systems, with the foundation being in machines and related topics. Topics include but are not limited to magnetic circuits, per unit analysis, and ac and dc machines, including both motors and generators. The course culminates in a paper design project which accounts for 50% of the course grade.

*Prerequisite: Electromagnetism*

3 credits

### **EEO 440: Engineering Design I**

This is a two-semester, year-long capstone design project in which students acquire a culminating design experience by working under the supervision of a faculty member on a design project that involves realistic constraints including economic, environmental, sustainability, manufacturability, ethical, health, and safety, social, and political factors. Implementation and testing are carried out. Projects are solicited from industries and faculty members, and to the extent possible, mentored by professional engineers. Two comprehensive technical reports (one for EEO 440 and one for EEO 441) and an oral presentation are required.

*Prerequisite: EEO Major*

3 credits

### **EEO 441: Engineering Design II**

This is a two-semester, year-long capstone design project in which students acquire a culminating design experience by working under the supervision of a faculty member on a design project that involves realistic constraints including economic, environmental, sustainability, manufacturability, ethical, health, and safety, social, and political factors. In most cases, in the fall (EEO 440), students investigate and finalize the design aspect whereas in the spring (EEO 441), implementation and testing

are carried out. Projects are solicited from industries and faculty members, and to the extent possible, mentored by professional engineers. Two comprehensive technical reports (one for EEO 440 and one for EEO 441) and an oral presentation are required.

*Prerequisites: EEO 440; Permission of instructor*

3 credits

### **EEO 482: Power Systems Engineering I**

This class is a survey of modern energy systems, with the foundation being classical electrical power and related power electronics. Topics include complex power, per unit analysis, transmission line parameters and modeling, and compensation. Students also study alternative energy systems. The course also includes use of a Power Simulation Program in which modeling can be done. The simulation program is used for the final system design project paper which accounts for 50% of the course grade.

*Prerequisite: EEO 323 and EEO Major*

3 credits

### **EEO 488: Internship in Electrical Engineering**

An independent off-campus engineering project with faculty supervision. Students are required to submit an interim progress report and a final report before the last day of classes. May be repeated but only three credits may be counted toward the open elective requirement.

*Prerequisite: EEO Major*

3 credits

## **EGL**

### **English**

#### **EGL 191- B: Introduction to Poetry**

Intensive analysis of poems in English of various periods and types and varying complexity. Descriptions available from the English Department. Not for English major credit.

*Prerequisite: Completion of D.E.C. category A*

3 credits

#### **EGL 192- B: Introduction to Fiction**

An analysis of fictional prose in terms of each section's specific theme. A goal of each section is to interpret various pieces of literature in relation to a political or historical view, or a particular literary technique. Descriptions available from the English Department. Not for English major credit.

*Prerequisite: Completion of D.E.C. category A*

3 credits

#### **EGL 193- B: Introduction to Drama**

Introduction to the analysis of drama, emphasizing the literary more than the theatrical dimension of the works, through examination of a range of plays from a variety of genres and periods. Descriptions available from the English Department. Not for English major credit.

*Prerequisite: Completion of D.E.C. category A*

3 credits

#### **EGL 204: Literary Analysis and Argumentation**

An introduction to the techniques and terminology of close literary analysis and argumentation as applied to poetry, fiction, and drama. The course includes frequent demanding writing assignments and is designed for students beginning their major study in English. Transfer credit is not accepted for this course.

*Prerequisite: Completion of D.E.C. category A*

3 credits

#### **EGL 205- I: Survey of British Literature I**

The study of British literature from the Old English period to Milton.

*Prerequisite: Completion of D.E.C. category A*

3 credits

#### **EGL 206- I: Survey of British Literature II**

The study of British literature from Dryden to the end of the 19th century.

*Prerequisite: Completion of D.E.C. category A*

3 credits

#### **EGL 207: History of the English Language**

A survey of the history of the English language from its origins to the present, with emphasis on the historical development of the language and on modern English grammar and usage.

*Prerequisite: EGL 204; completion of D.E.C. A*

3 credits

#### **EGL 217- K: American Literature I**

The study of American literature from 1607 to 1865.

*Prerequisite: Completion of D.E.C. category A*  
*Advisory Prerequisites: Completion of D.E.C. categories I and J*

3 credits

#### **EGL 218- K: American Literature II**

The study of American literature from 1865 to 1945, with attention to the antebellum historical and cultural contexts.

*Prerequisite:* Completion of D.E.C. category A  
*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **EGL 224- G: 20th-Century Literature in English**

The study of literature in English in the 20th century from Great Britain, Africa, the Caribbean, Canada, Australia, Ireland, New Zealand, and other countries and areas that produce material written in the English language.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 226- K: 20th-Century American Literature**

A survey of major works reflecting the regional, ethnic, and traditional interests of American writers, with emphasis on the post-1945 period.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 231- I: Saints and Fools**

An introduction to literature about the lives of saints and the holy fool tradition in major texts of Russian and English literature. Emphasis is placed on the ways authors have used fundamental religious values of humility, the transcendent irrational, and kenosis to confront their own times. Authors considered range from monks to Dickens, Dumas, Chaucer, Gogol, and Pushkin; films include *Murder in the Cathedral* and *Forrest Gump*. This course is offered as both EGL 231 and HUR 231.

*Advisory Prerequisite:* Completion of D.E.C. category B  
3 credits

### **EGL 232- I: Rebels and Tyrants**

An exploration of literary rebels and tyrants central to Russian and Anglo-American traditions. The subversive tactics of such writers as Shakespeare, Dostoevsky, Sir Walter Scott, Solzhenitsyn, and Salinger are appraised in the light of the dominant social, political, and aesthetic systems they confront. This course offered as both EGL 232 and HUR 232.

*Advisory Prerequisite:* Completion of D.E.C. category B  
3 credits

### **EGL 243- I: Shakespeare: The Major Works**

A study of major works in several genres and consideration of Shakespeare's precursors and his influence on the development of drama to the present. Designed for students who want a one-semester survey of Shakespeare.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 249- K: African-American Literature and Music in the 19th and 20th Centuries**

A detailed look at African-American literature and music and their importance for American literature and music of the 19th and 20th centuries. An examination of the literature with attention to the special stylistic devices, tones of literary voice, and characterization that writers use in their efforts to match the music experience with the written word. Selections from the recordings of African-American and African-American inspired musicians -- from Bessie Smith and Louis Armstrong to Jimi Hendrix and the Rolling Stones. This course is offered as both AFH 249 and EGL 249.

*Advisory Prerequisite:* One D.E.C. category B or D course  
3 credits

### **EGL 260- G: Mythology in Literature**

The analysis of myth in literature from antiquity to the present. The course explores literary texts that use mythic material, analyzes the irrational in myth, and examines the history of motifs, figures, and themes in myths that persist in Western literature.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 261- B: The Bible as Literature**

A literary approach to the Bible that explores the characteristic principles of the Bible's narrative and poetic art. This course is offered as both EGL 261 and JDH 261.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 266- G: The 20th-Century Novel**

Major works and developments in the modern and contemporary novel. This course is offered as both CLT 266 and EGL 266.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 274- K: Black American Literature**

A survey of 19th- and 20th-century Black American literature. Particular attention is paid to the way in which themes of black literature reflect the historical developments of the time, especially the conditions before, during,

and after the Civil War and the Civil Rights Movement.

*Prerequisite:* Completion of D.E.C. category A  
*Advisory Prerequisites:* Completion of D.E.C. categories I and J  
3 credits

### **EGL 276- B: Feminism: Literature and Cultural Contexts**

An examination of works written by or about women reflecting conceptions of women in drama, poetry, and fiction. The course focuses on literature seen in relation to women's sociocultural and historical position. This course is offered as both EGL 276 and WST 276.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **EGL 285: Writing Workshop: Fiction**

A workshop in the development of skills in writing fiction through practice supplemented by readings.

*Prerequisites:* Permission of instructor; completion of D.E.C. category A  
3 credits

### **EGL 286: Writing Workshop: Poetry**

A workshop in the development of skills in writing poetry. Poetry writing is supplemented by readings.

*Prerequisites:* Permission of instructor; completion of D.E.C. category A  
3 credits

### **EGL 300- G: Old English Literature**

The study of Old English language and the literature written in it from its beginnings to the 11th century.

*Pre- or Corequisite:* EGL 204  
*Advisory Prerequisite:* EGL 205  
3 credits

### **EGL 301: Authors, Periods, Topics, or Genres, with Intensive Writing**

Course in English literary or cultural studies, with an emphasis on analytic writing. This course is designed for English majors only.

*Prerequisite:* EGL 204  
*Pre- or corequisite:* EGL 207  
3 credits

### **EGL 302- G: Medieval Literature in English**

Major authors, themes, and forms of British literature from the 13th to the early 16th century, usually excluding Chaucer.

*Pre- or Corequisite:* EGL 204  
*Advisory Prerequisite:* EGL 205

3 credits

**EGL 304- G: Renaissance Literature in English**

The study of English literature of the 16th century.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205*

3 credits

**EGL 305- J: The Pacific, Travel & Empire**

This cultural studies course examines the cultures of travel (i.e. fiction, memoirs, photography, and filmmaking) in narratives by and about the Pacific, South and Southeast Asia. We will study "empire" by analyzing narratives about the former colonies of Spain, France, Britain and the United States. As we discuss the metaphors or tropes of empire, we will also examine the concept of empire as a historical and contemporary formation, or what an empire meant in the 19th century and what it means today in the early 21st century. The course begins with the premise that travel narratives and modern visual culture illuminate the relationship between the violence and romance of travel. The course includes modern travel narratives (i.e. novels by Asian Americans) that focus on the lives of those who are forced to travel or migrate due to civil war, poverty and/or economic instability. This course is offered as AAS 305 and EGL 305.

*Prerequisite: Any 200 and/or 300 level course offered by the Department of Asian and Asian American Studies or the English Department*

3 credits

**EGL 306- G: English Literature of the 17th Century**

The study of English literature from the late Renaissance to the age of Dryden.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205*

3 credits

**EGL 310- G: Neoclassical Literature in English**

The study of English literature from about 1700 to 1790.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 206*

3 credits

**EGL 312- G: Romantic Literature in English**

The study of English literature from the end of the neoclassical period to the beginning of the Victorian Age, 1798-1832.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 206*

3 credits

**EGL 314- G: Victorian Literature**

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 206*

3 credits

**EGL 316- G: Early American Literature**

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 217*

3 credits

**EGL 318- G: 19th-Century American Literature**

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 217*

3 credits

**EGL 320- G: Modern and Contemporary Literature**

The study of literature in English from the year 1900 to the present; material may be drawn from British literature, American literature, or any other area that produces literature written in English.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 218, 224, or 226*

3 credits

**EGL 321- G: Modern and Contemporary Literature**

The study of literature in English from the year 1900 to the present; material may be drawn from British literature, American literature, or any other area that produces literature written in English.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 218, 224, or 226*

3 credits

**EGL 322- G: Modern and Contemporary Literature**

The study of literature in English from the year 1900 to the present; material may be drawn from British literature, American literature, or any other area that produces literature written in English.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 218, 224, or 226*

3 credits

**EGL 333- K: The Italian-American Experience in Literature**

Literary and historical perspectives on the experience of Italians in America and their contribution to American culture from the earliest wave of Italian immigration to the

present day. This course offered as both EGL 333 and HUI 333.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 340- G: Chaucer**

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205*

3 credits

**EGL 342- G: Milton**

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205*

3 credits

**EGL 344- G: Major Writers of the Renaissance Period in England**

May be repeated as the topic changes.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205*

3 credits

**EGL 345- G: Shakespeare I**

A study of the comedies and the history plays. Designed to complement EGL 346.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205 and 243*

3 credits

**EGL 346- G: Shakespeare II**

A study of the tragedies and the romances. Designed to complement EGL 345.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 205 and 243*

3 credits

**EGL 347- G: Major Writers of the Neoclassical Period in England**

May be repeated as the topic changes.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 206*

3 credits

**EGL 348- G: Major Writers of the Romantic Period in England**

May be repeated as the topic changes.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 206*

3 credits

**EGL 349- G: Major Writers of the Victorian Period in England**

May be repeated as the topic changes.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 206*

3 credits

**EGL 350- G: Major Writers of American Literature, Colonial Period to 1900**

Semester Supplements to this Bulletin contain descriptions when course is offered. May be repeated as the topic changes.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 217*

3 credits

**EGL 352- G: Major Writers of 20th-Century Literature in English**

Semester Supplements to this Bulletin contain descriptions when course is offered. May be repeated for credit as the topic changes.

*Pre- or Corequisite: EGL 204*  
*Advisory Prerequisite: EGL 218 or 224*

3 credits

**EGL 354- G: Major Writers of Contemporary British and American Literature**

Semester Supplements to this Bulletin contain descriptions when course is offered. May be repeated as the topic changes.

*Prerequisite: EGL 204*  
*Advisory Prerequisite: EGL 226*

3 credits

**EGL 360- G: Literature of Adolescence**

The study of novels, short stories, and poetry about adolescence.

*Prerequisite: EGL 441*

3 credits

**EGL 361- G: Poetry in English**

The study of the development of form, theme, and language of poetry in English. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 362- G: Drama in English**

The study of the development of plot, structure, character, theme, and language of drama in English. Semester Supplements to this Bulletin contain descriptions when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 363- G: Fiction in English**

The study of the development of plot, structure, character, theme, and language of fiction in English. May be repeated for credit as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 364- G: Prose in English**

The study of the various forms of prose such as the essay, utopia, memoir, autobiography, biography, and nonfictional narrative. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 365- G: Literary Criticism and Theory**

A survey of major texts and perspectives in literary criticism and theory.

*Pre- or Corequisite: EGL 204*

3 credits

**EGL 366- G: Topics in Literary Criticism and Theory**

Semester supplements to this Bulletin contain specific descriptions when course is offered. May be repeated for credit as the topic changes.

*Pre- or Corequisite: EGL 204*

3 credits

**EGL 367- G: Contemporary African-American Literature**

The study of contemporary African-American literature focused in varying ways, including literary and cultural traditions, and relations to other writers and traditions in American literature.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: EGL 274 or AFH 206*

3 credits

**EGL 368- G: Caribbean and American Connections in Literature**

An exploration of the connections between writers from the French-speaking and English-speaking Caribbean and from the African-American community, who share a similar cultural heritage, historical heritage, and historical experience, but differ in geopolitical situations. Special attention is paid to spirituality, gender, and identity motifs in the literature. This course is offered as both AFH 368 and EGL 368.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 369- G: Topics in Ethnic American Studies in Literature**

Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated for credit as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 371- G: Topics in Gender Studies in Literature**

May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 372- G: Topics in Women and Literature**

The study of texts written by and about women and of issues they raise relating to gender and literature. May be repeated as the topic changes. This course is offered as both EGL 372 and WST 372.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 373- J: Literature in English from Non-Western Cultures**

The study of literature in English from a nation or a region of the world that is significantly different from the United States and Europe. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 374- G: English Literature in Relation to Other Literatures**

The study of literature in English as it affects and is affected by other literatures. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 375- G: Literature in English in Relation to Other Disciplines**

The study of literature in English as it affects and is affected by other disciplines such as anthropology, science, sociology, the history of ideas, theology, and psychology. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**EGL 376- G: The Literature of Imperialism**

A course in the history and culture of European imperialism as it is evidenced in the literary texts produced both by Europeans and by the indigenous populations they colonized. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**EGL 377- G: Literature in English in Relation to Other Disciplines**

The study of literature in English as it affects and is affected by other disciplines such as anthropology, science, sociology, the history of ideas, theology, and psychology. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**EGL 378- J: Contemporary Native American Fiction**

The study of novels by contemporary Native American writers with particular attention to the way these novels develop imaginative perspectives on contemporary culture and values.

*Prerequisite:* One literature course at the 200 level or higher

3 credits

**EGL 379- J: Native American Texts and Contexts**

The study of Native American writings in a variety of genres, including autobiography, short stories, novels, poetry, the oral tradition, and history.

*Prerequisite:* One literature course at the 200 level or higher

3 credits

**EGL 381: Advanced Analytic and Argumentative Writing**

Argumentative writing involves making a claim and supporting it with specific, related points and appropriate evidence—in other words, it is thesis-driven writing. Whenever we don't quite like someone else's idea and we want him or her to come closer to ours, argumentative writing is the most efficient method for such persuasion, in whatever profession you're considering. This class, therefore, will focus on learning how to effectively utilize argumentative and counter-argumentative writing strategies. Students will explore an area of disciplinary interest to them through several stages—proposal, preliminary draft, multiple versions, literature review—culminating in a 20-30 page piece of writing in which they make a claim about a particular subject in that area of interest and support it with scholarly research and extensive elaboration. This course will fulfill the second half of the Writing Pre-Med/Pre-Health prerequisite. This course is offered as both EGL 381 and WRT 381.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

**EGL 382- G: Black Women's Literature of the African Diaspora**

Black women's literature presents students with the opportunity to examine through literature the political, social, and historical experiences of Black women from the African Diaspora. The course is structured around five major themes commonly addressed in Black women's writing: Black female oppression, sexual politics of Black womanhood, Black female sexuality, Black male/female relationships, and Black women and defining self. This course is offered as AFH 382, EGL 382, and WST 382.

3 credits

**EGL 385: Advanced Fiction Workshop**

A fiction writing workshop. Students receive detailed criticism of their work. May be repeated with permission of the director of undergraduate studies.

*Prerequisites:* EGL 285; permission of instructor

3 credits

**EGL 386: Advanced Poetry Workshop**

A poetry writing workshop. Students receive detailed criticism of their work. May be repeated with permission of the director of undergraduate studies.

*Prerequisites:* EGL 286; permission of instructor

3 credits

**EGL 387: Playwriting**

A workshop devoted to planning and writing finished scripts for the stage. This course offered as both EGL 387 and THR 326.

*Prerequisites:* Completion of D.E.C. categories A, B, and D

3 credits

**EGL 388: Interdisciplinary Topics**

Course on English literary and cultural studies in connection with other disciplines. May be repeated as the topic changes.

*Prerequisite:* completion of DEC A

3 credits

**EGL 389- H: Science Fiction**

The literary genre called Science Fiction enables us to explore our nature, and that of the universe we inhabit, by postulating worlds, cultures and technologies that do not (yet) exist, but could, and the consequences thereof. This course focuses on the sub-genre called hard science fiction, in which the science/technology is more or less plausible. Students should be prepared to address the genre from both its scientific and literary sides. This course is offered as both AST 389 and EGL 389.

*Prerequisites:* Completion of D.E.C. A and D.E.C. B requirements; one D.E.C. E course

3 credits

**EGL 390- G: Topics in Literary and Cultural Studies**

Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated for credit as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**EGL 391- G: Topics in Literary and Cultural Studies in American or Anglophone Literature**

Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied.

May be repeated for credit as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 392- G: Topics in Literary and Cultural Studies in Literature Pre-1800**

Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated for credit as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 393- G: Topics in Literary and Cultural Studies**

Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated for credit as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 394- H: Topics in Literary and Cultural Studies of Science and Technology**

May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 395- I: Topics in Literary and Cultural Studies of Europe**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Past topics have included titles such as Modern European Drama; War Poetry; and Ancient to Modern Fictional Narrative. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to Western civilization. Students will be expected to demonstrate knowledge of the development of the distinctive features of the

history, institutions, economy, society, and culture of Western civilization, and relate it to that of other regions in the world. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 397- J: Topics in Literary and Cultural Studies in Asia, Africa, and Latin America**

Topics may include titles such as South African Women Writers; Contemporary Latino Fiction; and Haiku in Japanese Society. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 398- J: Topics in Literary and Cultural Studies in Asia, Africa, and Latin America**

Topics may include titles such as South African Women Writers; Contemporary Latino Fiction; and Haiku in Japanese Society. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 399- K: Topics in American Literary and Cultural Studies**

Topics in U.S. literary and cultural studies, placed within a broad historical context, including social, political, economic, and cultural history and institutions. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

**EGL 440: Performance and Technology in Teaching Literature and Composition**

Introduction to the teaching of literature and composition through the use of classroom performance and technology, including film, video, and other media as well as computers and the Internet.

*Prerequisite: C or higher in EGL 441; acceptance into the English Teacher Preparation Program*

*Corequisite: Equivalent section of EGL 450*

3 credits

**EGL 441: Methods of Instruction in Literature and Composition**

Consideration of specific problems in the teaching of English, e.g., posing questions about literary texts and commenting on student papers. There is frequent use of writing by secondary school students, and the goals of instruction in literature and language are examined. Required of students seeking certification in secondary school English.

*Prerequisite: Admission to the English Teacher Preparation Program*

*Corequisite: Equivalent section of EGL 449*

3 credits

**EGL 449: Field Experience, Grades 7-12**

Observation, inquiry, and practice in English education at the secondary level including 50 hours of documented visitations and observation at documented sites. Field experience writing logs are the basis for group discussion. Satisfactory/Unsatisfactory grading.

*Corequisite: Equivalent section of EGL 441*

1 credit, S/U grading

**EGL 450: Field Experience, Grades 7-12**

Observation, inquiry, and practice in English education at the secondary level including 50 hours of documented visitations and observation at documented sites. Field experience writing logs are the basis for group discussion. Satisfactory/Unsatisfactory grading.

1 credit, S/U grading

**EGL 451: Supervised Student Teaching - English; Middle Level Grades 7-9**

*Prerequisites: Enrollment in English Teacher Preparation Program; permission of instructor*  
*Corequisites: Equivalent sections of EGL 452 and 454*

6 credits, S/U grading

**EGL 452: Supervised Student Teaching - English; High School Grades 10-12**

*Prerequisites: Enrollment in English Teacher Preparation Program; permission of instructor*  
*Corequisites: equivalent sections of EGL 451 and 454*

6 credits, S/U grading

**EGL 454: Student Teaching Seminar**

Seminar on problems and issues of teaching English at the secondary school level. Analysis of actual responsibilities and issues encountered by the teacher candidate in the student teaching experience.

*Prerequisite: C or higher in EGL 441*  
*Corequisites: Equivalent sections of EGL 451 and 452*

3 credits

**EGL 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisite: Upper-division standing; 12 credits in English; permission of instructor and director of undergraduate studies*

3 credits, S/U grading

**EGL 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisite: EGL 475; permission of instructor and director of undergraduate studies*

3 credits, S/U grading

**EGL 487: Independent Project**

Intensive study of a special topic undertaken with close faculty supervision. Request for project approval of undergraduate studies committee must be submitted no later than the last week of classes of the prior semester. May be repeated.

*Prerequisite: Permission of director of undergraduate studies*

0-6 credits

**EGL 488: Internship**

Participation in local, state, and national public and private organization. The work must involve skills related to the educational goals of the department. Request for approval of the undergraduate studies committee for internships must be submitted no later than the last week of classes of the prior semester.

*Prerequisites: 12 credits of English; 2.50 g.p.a.; permission of instructor and department*

0-6 credits, S/U grading

**EGL 490: Honors Seminar: Literary Studies**

Honors seminar on a topic in literature and culture.

*Prerequisite: Admission to English Honors Program; EGL 204*

3 credits

**EGL 491: Honors Seminar: British Literature before 1800**

Honors seminar on a topic in pre-1800 British literature and culture.

*Prerequisite: Admission to English Honors Program; EGL 204*

3 credits

**EGL 492: Honors Seminar: American Literature**

Honors seminar on a topic in American literature and culture.

*Prerequisite: Admission to English Honors Program; EGL 204*

3 credits

**EGL 494: Honors Practicum: Research**

Honors practicum for students interested in focusing on the development of research skills.

*Prerequisite: Admission to English Honors Program; EGL 204*

3 credits

**EGL 495: Honors Practicum for Writing Assistants**

Honors practicum for students interested in focusing on the development of pedagogical skills centered on the teaching of writing.

*Prerequisites: Admission to English Honors Program; EGL 204; 301*

3 credits

**EGL 496: Senior Honors Project**

*Prerequisites: EGL 490; permission of department*

3 credits

## EH1

### Ecological Studies and Human Impact

**EHI 310: Restoration Ecology**

A study of the rationale, principles, practices, and legal, social, economic, and ethical issues associated with restoring the structure and function of degraded ecological systems. Restoration ecology draws heavily from ecological theory, and the process of restoring a site can in fact provide unique experimental opportunities to test how well ecological theories predict the responses of natural systems. Important ecological concepts applied in restoration include disturbances, succession, fragmentation, system function, as well as, emerging areas such as assembly theory and alternative stable states.

*Prerequisite: MAT 125 or MAT 131; BIO 201*

3 credits

**EHI 311: Ecosystem Based Management**

Ecosystem-Based Management (EBM) is an emerging management paradigm for balancing ecosystem health and human activities. EBM stresses that management must 1) integrate ecological, social, economic, and institutional views, 2) produce sustainable results, 3) consider uncertainty and risks in making management decisions, and 4) utilize adaptive management practices. This course will examine these principles and identify ways they may be put into practice.

*Prerequisite: SBC 111 or ENS 101; BIO 351*

3 credits

**EHI 321: Human Reproductive Ecology**

Course builds on behavioral ecology to focus on why humans make the reproductive choices they do and examines cross cultural and individual differences in fertility, mortality and population growth. Course is organized around current debates in physiological, behavioral, and social aspects of human reproduction. A background in reproductive ecology allows students to think empirically about the demographic component of human/environment interactions, and to better model sustainable futures.

*Prerequisite: BIO 201; SBC 115 or SBC 204*

3 credits

**EHI 322: Human Ecology**

Human ecology investigates how humans and human societies interact with nature and with their environment. Course first introduces the concepts and methods of human ecology.

Following this foundation, the course will give special emphasis to empirical examples, case studies and lessons from history. The course will focus on individuals, communities and traditional societies. Human Ecology compliments Human Geography, which studies patterning at the larger scale.

*Prerequisite:* SBC 116 or ANT 102; BIO 201  
3 credits

### **EHI 326- E: Conservation Genetics**

This course is an introduction to genetics taught in the context of conservation. The course will cover a basic introduction to Mendelian, molecular, population, evolutionary and meta-population genetics, and then examine specific applications of these concepts to topics in conservation biology.

*Prerequisite:* MAT 125 or MAT 131; BIO 201  
3 credits

### **EHI 340- H: Ecological and Social Dimensions of Disease**

The ecology and evolutionary biology of disease will be examined to provide a more general context for human diseases. Pathogens may have large effects on many different types of organisms, from bacteria to plants to humans. We will build on this biological background to examine the social dimensions of disease in human populations and societies, including historical, political and economic aspects to issues of money, power, sexuality, international development and globalization. Specific case studies (the chestnut blight in North America, AIDS in Africa, etc.) will be used to examine concepts and principles in detail in a real-world context. This course will investigate basic fundamentals and recent research on these issues in a unified framework.

*Prerequisite:* BIO 201  
3 credits

### **EHI 342- H: Materials in the Natural and Human World**

Course explores in depth the origin, composition, use, bioavailability, mobility, persistence, and fate of selected materials and chemical compounds. Compounds or materials, such as DDT, aldicarb, freon, plastics, organotin, nuclear fuel, antibiotics, and carbon nanotubes, are used to illustrate how man-made substances once released into the environment can lead to environmental degradation, ecological degradation, and/or public health issues.

*Prerequisite:* ENV 115 or CHE 131; BIO 201  
3 credits

### **EHI 343- H: Sustainable Natural Resources**

This course explores in depth the economic viability, social acceptance, and potential of sustainable natural resources to replace non-renewable resources. Examples are drawn from water resource management, agriculture, forestry, fisheries, and renewable energy resources (wind, solar, biofuel, etc.). There is particular emphasis on examples of integrated, participatory and sustainable natural resources management project in less developed countries.

*Prerequisite:* SBC 111 or ENS 101; ENV 115 or CHE 131; BIO 201  
3 credits

### **EHI 487: Research in Ecosystems and Human Impact**

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. May be repeated.

*Prerequisite:* Permission of instructor  
1-6 credits, S/U grading

## **EHM**

### **Environmental Humanities**

#### **EHM 118- E: Introduction to the Natural History of Long Island**

This multidisciplinary course focuses on the natural history of Long Island and the ecological analysis of local forests, salt marshes, marine intertidal systems and bogs. Students will become familiar with observation techniques and conceptual approaches used to investigate ecological patterns and processes in the local environment.

3 credits

#### **EHM 201- D: Eco-Aesthetics in Art**

The biology, scale, texture, and color of the natural world and their relation to Art, Architecture and Design. Explores concepts of aesthetic-ecological harmony (developing symbiotic relationships between human-made artifacts and naturally occurring environments) as well as the history of Environmental Art, Architecture and Design. Slide lectures, readings, and the creation of site development proposals will introduce students to the basic principles of aesthetics, ecology, environmental inventory, and environmental art/design.

3 credits

#### **EHM 310- K: Beyond Eden: Contact Narratives, Origins and Sin**

This course surveys Pueblo, African, Spanish, British, and Shinnecock contributions to American literature from the 1500s through the 1900s. Students will extend their understanding of these diverse traditions by analyzing contemporary literature that addresses the themes of nature, origins and sin, and by engaging in their own creative work. A final project will require students to examine one tradition in depth, to demonstrate understanding of theoretical approaches to literature, and to engage in historical research.

*Prerequisite:* WRT 102  
3 credits

#### **EHM 314- J: Civilizations and Collapse**

A comparative study of the development and collapse of civilizations. Changing case studies drawn from prehistoric and historic societies in the Americas provide students with an in-depth understanding of the ways in which two non-Western cultures were affected by and attempted to cope with environmental change. Students will learn to think critically about these processes and will complete the course with an increased awareness of the diversity of human responses to climactic change.

*Prerequisite:* U3 or U4 status  
3 credits

#### **EHM 315: Ethnographic Field Methods**

Ethnographic Field Methods will explore and apply the methodological tools used by anthropologists to gather and interpret data. Using classic ethnographic texts, students will study a variety of anthropological methods. Both qualitative and quantitative methods will be examined. Students will apply the methods studied in class to an independent research project throughout the semester.

*Prerequisite:* U3/U4 standing  
*Advisory Prerequisite:* ANT 102  
3 credits

#### **EHM 320- G: Artists and Designers of the Environment and Ecosystems**

The location of Stony Brook provides students with a unique opportunity to study the fertile atmosphere New York has provided for artists, architects and other intellectuals whose work centers on environmental concerns. Commencing with the work of Landscape Architect Frederick Law Olmsted, students will trace this rich history to post war artists including Alan Sonfist. We will also study the work of contemporary artists and designers, such as Jackie Brookner, and built works such as the Highline. Assignments will be centered on primary research into the creative process and sources of inspiration through photo documentation and interviews.

*Prerequisite: Completion of EHM 201-D or another DEC D course and U3 / U4 Standing*  
3 credits

### **EHM 330- J: The Household in Non-Western Society**

This course offers a survey of vernacular architecture in Non-Western societies worldwide. Students examine the design and meaning of vernacular architecture in a variety of cultures, exploring the ways in which construction practices and architectural design are shaped by cultural requirements and social mores. Special attention will be given to the future of vernacular architecture, and the ways in which housing may be designed to be both sustainable and culturally appropriate.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: ANT 102, ANT 104, or ARH 205*

3 credits

### **EHM 331- J: Precolumbian Urbanism**

An examination of the development of Precolumbian cities throughout the Americas. Specific attention will be paid to the interaction of urban development and environment, as well as the ways in which culture and cosmology impact architectural design. In depth consideration will be given to urban architecture of specific cultural groups in North, Central, and South America.

*Prerequisite: U3/U4 standing*

3 credits

### **EHM 386- J: The Maya**

For many, the word 'Maya' evokes images of a long dead culture and ruined pyramids. This course uses that familiarity as a starting point and follows the history of the Maya from ancient times to the present. We begin with an overview of what scholars know about the ancient Maya before tracing their experiences since the Spanish conquest, placing emphasis on Spanish colonization in the lowland areas of Mesoamerica, Mexico's War of the Castas, and the diverse experiences of the modern Maya including the Guatemalan Civil War and the Chiapas uprising, the impact of foreign tourism, and the experience of transnational migration. Special attention will be paid to the ways in which environmental and agrarian issues have impacted this diverse group of peoples.

*Advisory prerequisite: HIS 212*

3 credits

### **EHM 487: Research in Environmental Humanities**

Qualified advanced undergraduates may carry out individual research projects under the

direct supervision of a faculty member. May be repeated.

*Prerequisite: Permission of instructor*

1-6 credits, S/U grading

## **ENS**

### **Environmental Studies**

#### **ENS 101- E: Prospects for Planet Earth**

An introduction for non-science majors to global environmental change. Exploration of the natural science of Earth's environment; the scientific, socioeconomic, and political issues that influence human impact on the global environment and responses to environmental changes; the strategies for humans to live in greater harmony with planet Earth. Global issues are related to the particular issues of the United States, the Northeast, and the greater metropolitan New York City-Long Island area.

3 credits

#### **ENS 119- E: Physics for Environmental Studies**

The principles of physics as they apply to environmental issues. A review of mathematics is followed by a discussion of Newton's laws, conservation principles, topics in fluids and wave motion, optical instruments, and radioactivity. Three lectures and one laboratory session per week. This course is offered as both ENS 119 and PHY 119.

*Prerequisites: MAT 123; CHE 131*

4 credits

#### **ENS 301- H: Contemporary Environmental Issues and Policies**

The scientific, socioeconomic, legal and legislative aspects of current environmental issues and policies. Invited experts address current environmental issues and policies of local, regional and global significance. Topics may include: land use practices and reform, farmland and open space preservation; soil and water conservation; wetlands protection and rehabilitation; waste management and reduction, recycling and composting; air pollution, global warming and sea level rise; and marine wilderness areas.

*Prerequisite: U3 or U4 status; ENS major or minor or permission of instructor*

3 credits

#### **ENS 311- H: Ecosystem Ecology and the Global Environment**

Ecosystem ecology with an emphasis on biogeochemical cycling in oceans and on land, as well as on biosphere-atmosphere interactions. Topics include earth system

processes such as climate and atmospheric composition, the hydrological cycle, cycling of chemicals such as nutrients and metals in the oceans, the soil cycle, and the fate and transport of materials in the atmosphere. Natural and perturbed systems are discussed. This course is offered as both BIO 386 and ENS 311.

*Prerequisites: C or higher in BIO 201; CHE 129 or CHE 131 or CHE 141*

*Advisory Prerequisite: MAR 104*

3 credits

#### **ENS 312- H: Population, Technology, and the Environment**

A study of the biological, social, and economic factors that influence population growth. The development of new technologies and their influence on resource use and the effects that increasing population and changing technologies have on the environment are explored.

*Prerequisites: MAR 340; one semester of BIO*

3 credits

#### **ENS 333: Environmental Law**

Survey of the origins of environmental law and the major legislation enacted by Congress and the state of New York. Special emphasis is placed on the application of environmental law to the problem of solid waste management on Long Island. This course is offered as both ENS 333 and POL 333.

*Prerequisites: ECO 108; POL 102*

3 credits

#### **ENS 443: Environmental Problem Solving**

The integration of information and skills from the natural sciences, social sciences, engineering and the humanities to address important environmental problems. An environmental problem of current interest is presented. Working in small groups, students develop a proposal to solve the problem, collect and analyze data, and present results. Data collection may include field and laboratory work outside of scheduled class meetings.

*Prerequisites: U3 or U4 standing; ENS major or minor*

2 credits

#### **ENS 447: Readings in Environmental Studies**

Tutorial readings in the environmental sciences. This course may be repeated but no more than 3 credits may be used toward Environmental Studies major requirements.

*Prerequisite: Permission of instructor and SoMAS undergraduate director*

*1-3 credits, S/U grading*

### **ENS 487: Independent Research in Environmental Studies**

An independent project, developed out of advanced coursework in environmental studies, designed in consultation with and supervised by a faculty member. The project should be formulated before the start of the semester in which the research will be done and should culminate in a substantial written paper. May be repeated.

*Prerequisites: Permission of a supervising faculty member and SoMAS Undergraduate Programs Director*

*0-6 credits*

### **ENS 488: Internship in Environmental Studies**

Internships provide students with an opportunity of gaining experience working in the community at government agencies, environmental groups, aquaria, summer camps, field studies, etc. A suitable proposal must be presented by the student and approved by the Director of Undergraduate Studies before the internship begins. May be repeated for a maximum of 6 credits for the ENS major, 3 credits for the ENS minor.

*Prerequisite: Permission of the SoMAS Undergraduate Programs Director*

*0-6 credits, S/U grading*

## **ENV**

### **Environmental Science**

#### **ENV 115- E: Chemistry, Life, and Environment**

This survey course introduces chemical principles by emphasizing the role chemistry plays in everyday life, the natural environment, the built environment, energy production, and in processes leading to environmental degradation. In addition, the role of chemistry in the development of alternative energy sources, remediation technologies, and eco-friendly products is discussed. This course for non-science majors introduces chemical principles using mostly qualitative approaches rather than quantitative approaches. Interactive tools and interactive visualization tools are extensively used to illustrate concepts, reactions, and processes. This course is offered as both CHE 115 and ENV 115.

*3 credits*

#### **ENV 301- H: Sustainability of the Long Island Pine Barrens**

The ecologically diverse Long Island Pine Barrens region provides a habitat for a large number of rare and endangered species, but faces challenges associated with protection of a natural ecosystem that lies in close proximity to an economically vibrant urban area that exerts intense development pressure. In this course we will consider the interaction of the ecological, developmental and economic factors that impact the Pine Barrens and the effectiveness of decision support systems in promoting sustainability of the Pine Barrens. This course is offered as BIO 301, GEO 301, ECO 301, ENV 301, and ESG 301.

*Prerequisites: U3 or U4 status and one of the following: BIO 201, CHE 131, ECO 108, ESG 100, ESG 198, GEO 101, GEO 102*

*3 credits*

#### **ENV 304- H: Global Environmental Change**

An analysis of the physical, chemical, and biological processes in the atmosphere, hydrosphere, lithosphere, and biosphere that are susceptible to change either from natural or anthropogenic causes. In addition to focusing on the processes, this course will examine the spatial/temporal scales of environmental changes, their consequences to systems including our economic, political, and social systems, and will consider our responsibility and capability in managing systems in a sustainable way. This course is offered as both ENV 304 and GEO 307.

*Prerequisites: SBC 111, or SBC 113, or ENS 101, or GEO 101, or GEO 102; ENV 115 or CHE 131*

*3 credits*

#### **ENV 310- H: Sustainability and Renewable Energy - Costa Rica**

Hands on experience in Costa Rica to learn and see the country's efforts for environmental sustainability and renewable energy. Students will spend 12 days in Costa Rica to participate in site visits to five renewable energy facilities and four environmental sustainability efforts. This in-depth experience is supported with topic-specific lectures, online readings and assignments, and work on an interdisciplinary capstone project. Students will also collaborate with local engineers on a community service project to provide the local communities with accessible water or other sustainability initiatives.

*Prerequisite: Permission of the instructor*

*4 credits*

#### **ENV 315: Principles and Applications of Groundwater Hydrology**

Principles of groundwater hydrology. Aquifer geology, with an emphasis on coastal groundwater systems and Long Island in particular. Introduction to quantitative numerical methods to simulate regional groundwater flow and contaminant transport in aquifers. Development and management of freshwater aquifers as drinking water resources.

*Prerequisites: MAT 126 or MAT 131; ENS 119; GEO 102; SBC 113 and SBC 114*

*3 credits*

#### **ENV 316: Coastal Zone Management**

Coastal zones are dynamic environments shaped by natural forces as well as human intervention. Developing management strategies is critical and requires an understanding of the coastal zones environments, the threats to these environments, as well as the applicable laws and policies. This course examines past and present coastal zone management strategies at the national, regional, and local level. Coastal zone management on Long Island will be extensively reviewed and discussed.

*Prerequisite: ENS 101 or SBC 111 or SBC 113 or GEO 102 or POL 102 or MAR 104; U3 or U4 status*

*3 credits*

#### **ENV 317: Ecology of Algae and Plants of Coastal Plains Freshwater Habitats**

An introduction to the ecology of algae and aquatic plants of Long Island's freshwater habitats. Specific focus is on the lakes and ponds, rivers and streams, and wetlands (bogs, swamps, and marshes) of the coastal plains. Emphasis is on natural ecology, biodiversity, and water quality. Subject matter includes the major functional groups of algae and aquatic plants, taxonomic identification skills, aquatic field and lab methods, water quality analyses, and data analysis.

*Prerequisite: BIO 201; CHE 131 or ENV 115*

*3 credits*

#### **ENV 320- H: Chemistry for Environmental Scientists**

Course designed to provide a firm understanding of the chemical principals and reactions of importance in environmental degradation of natural environments or built environments, remediation and abatement processes, energy production. In addition, the course reviews the chemical processes that control the transport, fate, and bioavailability of common organic pollutants, metals, and metalloids. The course expands on concepts from general chemistry, and introduces

concepts from physical chemistry, analytical chemistry, organic chemistry, photochemistry, and geochemistry. Not for credit in addition to CHE 310.

*Prerequisite:* CHE 132 or CHE 142

3 credits

### **ENV 321: Chemistry for Environmental Scientists-Lab**

Laboratory course is designed to illustrate principles, processes, and reactions presented in ENV 320. In addition, the laboratory will focus on the quantitative analysis and identification of common chemical pollutants, including common volatile and semi-volatile organics, metals and metalloids. Some of the laboratory meetings will be in the form of short field trips to practice sampling techniques as well as in situ and on site analysis techniques.

*Prerequisite:* CHE 133

*Pre- or corequisite:* ENV 320 or CHE 310

1 credit

### **ENV 340: Contemporary Topics in Environmental Science**

Course explores one or more contemporary environmental science topics in depth. Topic(s) vary by semester. Examples of topics include: formation and fate of Asian Brown Cloud; Arsenic in Drinking water; Acid Rain; Environmental issues related to mining; Environmental impact of burning and mining coal; Pesticides and Herbicides in the Environment. Course may be repeated once.

*Prerequisite:* U3/U4; ENV 115 or CHE 131

3 credits

### **ENV 405: Field Camp**

A field course in environmental science of closely related field that may be taken at any one of several approved university programs. Student should plan in consultation with Undergraduate Program Director.

*Prerequisite:* U3/U4 standing

1-6 credits, S/U grading

### **ENV 447: Readings in Environmental Sciences**

Tutorial readings in the environmental science. May be repeated.

1-2 credits, S/U grading

### **ENV 487: Research in Environmental Sciences**

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. May be repeated.

*Prerequisite:* Permission of instructor

0-6 credits, S/U grading

## **ESE**

### **Electrical Engineering**

#### **ESE 123: Introduction to Electrical and Computer Engineering**

Introduces basic electrical and computer engineering concepts in a dual approach that includes: laboratories for hands-on wired and computer simulation experiments in analog and logic circuits, and lectures providing concepts and theory relevant to the laboratories. Emphasizes physical insight and applications rather than theory.

*Pre- or Corequisites:* AMS 151 or MAT 125 or 131 or 141; PHY 125 or 131 or 141

4 credits

#### **ESE 124: Computer Techniques for Electronic Design I**

An extensive introduction to problem solving in electrical engineering using the ANSI C language. Topics covered include data types, operations, control flow, functions, data files, numerical techniques, pointers, structures, and bit operations. Students gain experience in applying the C language to the solution of a variety of electrical engineering problems, based on concepts developed in ESE 123. Knowledge of C at the level presented in this course is expected of all electrical engineering students in subsequent courses in the major.

*Pre- or Corequisites:* AMS 151 or MAT 125 or 131 or 141; ESE 123 or equivalent

3 credits

#### **ESE 201: Engineering and Technology Entrepreneurship**

The purpose of this course is to bridge the gap between technical competence and entrepreneurial proficiency. Students are not expected to have any formal business background, but have some background in a technical field. These fields can range from the engineering disciplines to computer science, and from biology and chemistry to medicine. Accordingly, the course will provide the necessary exposure to the fundamentals of business, while minimizing the use of business school jargon. Entrepreneurship is considered as a manageable process built around innovativeness, risk-taking and proactiveness. The course focuses on ventures where the business concept is built around either a significant technical advance in an operational process, or in the application of technology to create a new product or service.

*Prerequisite:* BME 100 or CME 101 or ESG 100 or ESE 123 or MEC 101 or EST 192 or EST 194 or EST 202 or LSE 320

3 credits

#### **ESE 211: Electronics Laboratory A**

Introduction to the measurement of electrical quantities; instrumentation; basic circuits, their operation and applications; electronic devices; amplifiers, oscillators, power supplies, wave-shaping circuits, and basic switching circuits.

*Prerequisite:* ESE 271

*Corequisite:* ESE 372

2 credits

#### **ESE 218: Digital Systems Design**

Develops methods of analysis and design of both combinational and sequential systems regarding digital circuits as functional blocks. Utilizes demonstrations and laboratory projects consisting of building hardware on breadboards and simulation of design using CAD tools. Topics include: number systems and codes; switching algebra and switching functions; standard combinational modules and arithmetic circuits; realization of switching functions; latches and flip-flops; standard sequential modules; memory, combinational, and sequential PLDs and their applications; design of system controllers.

*Prerequisite or Corequisite:* PHY 127/134 or PHY 132/134 or PHY 142 or ESE 124

4 credits

#### **ESE 224: Computer Techniques for Electronic Design II**

Introduces C++ programming language for problem solving in electrical and computer engineering. Topics include C++ structures, classes, abstract data types, and code reuse. Basic object-oriented programming concepts as well as fundamental topics of discrete mathematics and algorithms are introduced.

*Prerequisite:* ESE 124

3 credits

#### **ESE 231: Introduction to Semiconductor Devices**

The principles of semiconductor devices. Energy bands, transport properties and generation recombination phenomena in bulk semiconductors are covered first, followed by junctions between semiconductors and metal-semiconductor. The principles of operation of diodes, transistors, light detectors, and light emitting devices based on an understanding of the character of physical phenomena in semiconductors. Provides background for subsequent courses in electronics.

*Prerequisites:* AMS 361 or MAT 303; PHY 127/134 or PHY 132/134 or PHY 142

3 credits

### **ESE 271: Electrical Circuit Analysis I**

Kirchoff's Laws, Ohm's Law, nodal and mesh analysis for electric circuits, capacitors, inductors, and steady-state AC; transient analysis using Laplace Transform. Fundamentals of AC power, coupled inductors, and two-ports.

*Prerequisites:* AMS 161 or MAT 127 or 132 or 142 or 171; PHY 127 or 132/134 or 142

4 credits

### **ESE 290: Transitional Study**

A vehicle used for transfer students to remedy discrepancies between a Stony Brook course and a course taken at another institution. For example, it allows the student to take the laboratory portion of a course for which he or she has had the theoretical portion elsewhere. Open elective credit only.

*Prerequisite:* Permission of department

1-3 credits

### **ESE 300: Technical Communication for Electrical and Computer Engineers**

Topics include how technical writing differ from other forms of writing, the components of technical writing, technical style, report writing, technical definitions, proposal writing, writing by group or team, instructions and manuals, transmittal letters, memoranda, abstracts and summaries, proper methods of documentation, presentations and briefings, and analysis of published engineering writing. Also covered are the writing of resumes and cover letters.

*Prerequisite:* WRT 102; ESE or ECE major, U3 standing;

*Pre- or Corequisite:* ESE 314 or 324 or 380 or 382

3 credits

### **ESE 301- H: Engineering Ethics and Societal Impact**

The study of ethical issues facing engineers and engineering related organizations and the societal impact of technology. Decisions involving moral conduct, character, ideals and relationships of people and organizations involved in technology. the interaction of engineers, their technology, the society and the environment is examined using case studies.

*Prerequisites:* U3 or U4 standing, one D.E.C. category E course

3 credits

### **ESE 304: Applications of Operational Amplifiers**

Design of electronic instrumentation: structure of basic measurement systems, transducers, analysis and characteristics of operational amplifiers, analog signal conditioning with operational amplifiers, sampling, multiplexing, A/D and D/A conversion; digital signal conditioning, data input and display, and automated measurement systems. Application of measurement systems to pollution and to biomedical and industrial monitoring is considered.

*Prerequisite:* ESE 372

3 credits

### **ESE 305: Deterministic Signals and Systems**

Introduction to signals and systems. Manipulation of simple analog and digital signals. Relationship between frequencies of analog signals and their sampled sequences. Sampling theorem. Concepts of linearity, time-invariance, causality in systems. Convolution integral and summation; FIR and IIR digital filters. Differential and difference equations. Laplace transform, Z-transform, Fourier series and Fourier transform. Stability, frequency response and filtering. Provides general background for subsequent courses in control, communication, electronics, and digital signal processing.

*Pre- or Corequisite:* ESE 271

3 credits

### **ESE 306: Random Signals and Systems**

Random experiments and events; random variables, probability distribution and density functions, continuous and discrete random processes; Binomial, Bernoulli, Poisson, and Gaussian processes; system reliability; Markov chains; elements of queuing theory; detection of signals in noise; estimation of signal parameters; properties and application of auto-correlation and cross-correlation functions; power spectral density; response of linear systems to random inputs.

*Pre- or Corequisite:* ESE 305

4 credits

### **ESE 311: Analog Integrated Circuits**

Engineering design concepts applied to electronic circuits. Basic network concepts, computational analysis and design techniques: models of electronic devices; biasing and compensation methods; amplifiers and filters designed by conventional and computer-aided techniques.

*Prerequisite:* ESE 372

3 credits

### **ESE 314: Electronics Laboratory B**

Laboratory course on design and operation of basic building blocks of electronics. The course is coordinated with, and illustrates and expands upon, concepts presented in ESE 372. Emphasis is given to design solutions more relevant to integrated rather than to discrete element electronics. Field effect transistors are given special attention due to their importance in contemporary analog and digital IC. Frequency responses of the basic amplifiers and active filters are analyzed. Internal structure and fundamental performance limitations of digital inverter and other gates are studied.

*Prerequisites:* ESE 211 and 372

3 credits

### **ESE 315: Control System Design**

Analysis and design of linear control systems. Control components, development of block diagrams. Computer simulation of control systems and op-amp circuit implementation of compensators. Physical constraints in the design. Pole-placement and model matching design using linear algebraic method. Selection of models using computer simulation and quadratic optimal method. Root-locus method and Bode plot method. Use of PID controllers in practice.

*Prerequisite:* ESE 271

3 credits

### **ESE 319: Electromagnetics and Transmission Line Theory**

Fundamental aspects of electromagnetics wave propagation and radiation, with application to the design of high speed digital circuits and communications systems. Topics include: solutions of Maxwell's equations for characterization of EM wave propagation in unbounded and lossy media; radiation of EM energy; guided wave propagation with emphasis on transmission lines theory.

*Prerequisite:* ESE 271

3 credits

### **ESE 324: Electronics Laboratory C**

Illustrates and expands upon advanced concepts presented in ESE 372. Experiments include analog circuits such as oscillators, voltage regulators; mixed -signal circuits such as data converters, phase - locked loops, and several experiments emphasizing the analog design issues in digital circuits. Laboratory fee required.

*Prerequisites:* ESE or ECE major; U3 standing; ESE 211 and 372

2 credits

### **ESE 325: Modern Sensors**

The course focuses on the underlying physics principles, design, and practical implementation of sensors and transducers including piezoelectric, acoustic, inertial, pressure, position, flow, capacitive, magnetic, optical, and bioelectric sensors. Established as well as novel sensor technologies as well as problems of interfacing various sensors with electronics are discussed.

*Prerequisite:* ESE 372

3 credits

### **ESE 330: Integrated Electronics**

An overview of the design and fabrication of integrated circuits. Topics include gate-level and transistor-level design; fabrication material and processes; layout of circuits; automated design tools. This material is directly applicable to industrial IC design and provides a strong background for more advanced courses.

*Prerequisite:* ESE 372

3 credits

### **ESE 333: Real-Time Operating Systems**

Introduces basic concepts and principles of real-time operating systems. Topics include structure, multiple processes, interprocess communication, real-time process scheduling, memory management, virtual memory, file system design, security, protection, and programming environments for real-time systems.

*Prerequisites:* ESE 124; CSE 214; ESE 380 or CSE 220

3 credits

### **ESE 337: Digital Signal Processing: Theory**

Introduces digital signal processing theory sequences, discrete-time convolution, difference equations, sampling and reconstruction of signals, one- and two-sided Z-transforms, transfer functions, and frequency response. Design of FIR and IIR filters. Discrete and fast Fourier transforms and applications.

*Prerequisite:* ESE 305

3 credits

### **ESE 340: Basic Communication Theory**

Basic concepts in both analog and digital data communications; signals, spectra, and linear networks; Fourier transforms, energy and power spectra, and filtering; AM, FM, and PM; time and frequency multiplexing;

discussion of problems encountered in practice; noise and bandwidth considerations; pulse modulation schemes.

*Prerequisites:* ESE 305 and 306

3 credits

### **ESE 341: Introduction to Wireless and Cellular Communication**

Basic concepts of wireless cellular communications, radio frequency, spectrum reuse, radio channel characterization, path loss and fading, multiple access techniques, spread spectrum systems, channel coding, specific examples of cellular communication systems.

*Prerequisite:* ESE 340

3 credits

### **ESE 342: Digital Communications Systems**

Pulse modulation and sampling. All-digital networks. Pulse code modulation. Digital modulation techniques. Time-division multiplexing. Baseband signaling. Intersymbol interference. Equalization. Basic error control coding. Exchange of reliability for rate. ARQ schemes. Message and circuit switching.

*Prerequisite:* ESE 340

3 credits

### **ESE 344: Software Techniques for Engineers**

Trains students to use computer systems to solve engineering problems. Includes C/C++ programming languages, UNIX programming environment, basic data structures and algorithms, and object oriented programming.

*Prerequisites:* ESE 218; CSE 230 or ESE 224

3 credits

### **ESE 345: Computer Architecture**

Starts with functional components at the level of registers, buses, arithmetic, and memory chips, and then uses a register transfer language to manipulate these in the design of hardware systems up to the level of complete computers. Specific topics included are microprogrammed control, user-level instruction sets, I/O systems and device interfaces, control of memory hierarchies, and parallel processing organizations.

*Prerequisites for CSE majors:* CSE 220 and ESE 218

*Prerequisite for ESE and ECE majors:* ESE 380

3 credits

### **ESE 346: Computer Communications**

Basic principles of computer communications. Introduction to performance evaluation of protocols. Protocols covered include those for

local, metropolitan, and wide area networks. Introduction to routing, high speed packet switching, circuit switching, and optical data transport. Other topics include TCP/IP, Internet, web server design, network security, and grid computing. Not for credit in addition to CSE/ISE 310. This course is offered as both CSE 346 and ESE 346.

*Pre- or corequisite for ESE and ECE majors:* ESE 306

*Pre- or corequisite for CSE majors:* AMS 310 or 311

3 credits

### **ESE 347: Digital Signal Processing: Implementation**

Fundamental techniques for implementing standard signal-processing algorithms on dedicated digital signal-processing chips. Includes a review of discrete-time systems, sampling and reconstruction, FIR and IIR filter design, FFT, architecture and assembly language of a basic signal processing chip, and an introduction to adaptive filtering.

*Prerequisites:* ESE 337, or ESE 305 and 380

4 credits

### **ESE 350: Electrical Power Systems**

Fundamental engineering theory for the design and operation of an electric power system. Modern aspects of generation, transmission, and distribution are considered with appropriate inspection trips to examine examples of these facilities. The relationship between the facilities and their influence on our environment is reviewed. Topics include power system fundamentals, characteristics of transmission lines, generalized circuit constants, transformers, control of power flow and of voltage, per unit system of computation, system stability, and extra-high voltage AC and DC transmission.

*Prerequisite:* ESE 271

3 credits

### **ESE 352: Electromechanical Energy Converters**

Basic principles of energy conversion; DC, induction, and synchronous rotary converters; the three-phase system and symmetrical components; the relationships between voltage, current, flux, and m.m.f.; equivalent circuits and operating characteristics of rotary converters; and analysis of saturation effects.

*Prerequisite:* ESE 372

3 credits

### **ESE 355: VLSI System Design**

Introduces techniques and tools for scalable VLSI design and analysis. Emphasis is on

physical design and on performance analysis. Includes extensive laboratory experiments and hands-on use of CAD tools.

*Prerequisite: ESE 218*

4 credits

### **ESE 356: Digital System Specification and Modeling**

Introduces concepts of specification and modeling for design at various levels of abstraction. High Level specification language is used for executable models creation, representing possible architecture implementations. Topics include design space exploration through fast simulation and re-use of models and implementation.

*Prerequisites: ESE 124 and ESE 380*

3 credits

### **ESE 358: Computer Vision**

Introduces fundamental concepts, algorithms, and computational techniques in visual information processing. Covers image formation, image sensing, binary image analysis, image segmentation, Fourier image analysis, edge detection, reflectance map, photometric stereo, basic photogrammetry, stereo, pattern classification, extended Gaussian images, and the study of human visual system from an information processing point of view.

*Prerequisites for ESE and ECE majors: ESE 305; ESE 224 or CSE 230*

*Prerequisites for CSE majors: CSE 214 and 220*

3 credits

### **ESE 360: Network Security Engineering**

An introduction to computer network and telecommunication network security engineering. Special emphasis on building security into hardware and hardware working with software. Topics include encryption, public key cryptography, authentication, intrusion detection, digital rights management, firewalls, trusted computing, encrypted computing, intruders and viruses. Not for credit in addition to CSE 408.

*Prerequisite: ESE/CSE 346 or CSE/ISE 310*

3 credits

### **ESE 363: Fiber Optic Communications**

Design of single and multi-wavelength fiber optic communications systems. Topics include analysis of optical fibers, optical transmitters and receiver design, optical link design, single-wavelength fiber optic networks with analysis of FDDI and SONET/SDH, and wavelength division multiplexing.

*Prerequisite: ESE 372*

4 credits

### **ESE 366: Design using Programmable Mixed-Signal Systems-on-Chip**

This course focuses on development of mixed-signal embedded applications that utilize systems on chip (SoC) technology. The course discusses design issues such as: implementation of functionality; realizing new interfacing capabilities; and improving performance through programming the embedded microcontroller and customizing the reconfigurable analog and digital hardware of SoC.

*Prerequisites: ESE 380 and ESE 372; ESE 224 or CSE 230*

4 credits

### **ESE 372: Electronics**

The pertinent elements of solid-state physics and circuit theory are reviewed and applied to the study of electronic devices and circuits, including junction diodes, transistors, and gate and electronic switches; large- and small-signal analysis of amplifiers; amplifier frequency response; and rectifiers and wave-shaping circuits.

*Prerequisite: ESE 271*

*Corequisite for ESE and ECE majors: ESE 211*

4 credits

### **ESE 373: RF Electronics for Wireless Communications**

Introduces basic concepts and key circuits of radio-frequency systems. Taught within the design and construction of a transceiver for wireless communications, the course covers fundamental principles which apply to all radio devices. Essential theoretical background, with additional emphasis on practical implementation using commercially-available integrated circuits for double-balanced mixers, oscillators, and audio power amplifiers. Basic components and circuits; key elements of radio electronics, including filters, matching networks, amplifiers, oscillators, mixers, modulators, detectors, and antennae. Computer simulation via Pspice and Puff is emphasized as an integral part of the design process.

*Prerequisite: ESE 372*

3 credits

### **ESE 380: Embedded Microprocessor Systems Design I**

Fundamental concepts and techniques for designing electronic systems that contain a microprocessor or microcontroller as a key component. Topics include system

level architecture, microprocessors, ROM, RAM, I/O subsystems, address decoding, PLDs and programmable peripheral ICs, assembly language programming and debugging. Hardware-software trade-offs in implementation of functions are considered. Hardware and software design are emphasized equally. Laboratory work involves design, implementation, and testing of microprocessor controlled circuits.

*Prerequisite: ESE 218*

4 credits

### **ESE 381: Embedded Microprocessor Systems Design II**

A continuation of ESE 380. The entire system design cycle, including requirements definition and system specifications, is covered. Topics include real-time requirements, timing, interrupt driven systems, analog data conversion, multi-module and multi-language systems. The interface between high-level language and assembly language is covered. A complete system is designed and prototyped in the laboratory.

*Prerequisites: ESE 271 and 380*

4 credits

### **ESE 382: Digital Design Using VHDL and PLDs**

Digital system design using the hardware description language VHDL and system implementation using complex programmable logic devices (CPLDs) and field programmable gate arrays (FPGAs). Topics include design methodology, VHDL syntax, entities, architectures, testbenches, subprograms, packages, and libraries. Architecture and characteristics of PLDs and FPGAs are studied. Laboratory work involves writing the VHDL descriptions and testbenches for designs, compiling, and functionally stimulating the designs, fitting and timing simulation of the fitted designs, and programming the designs into a CPLD or FPGA and bench testing.

*Prerequisite: ESE 218*

4 credits

### **ESE 440: Engineering Design I**

Lectures by faculty and visitors on typical design problems encountered in engineering practice. During this semester each student will choose a senior design project for Engineering Design II. The project incorporates appropriate engineering standards and multiple realistic constraints. A preliminary design report is required. Not counted as a technical elective. Laboratory fee required.

*Prerequisites: ESE or ECE major, U4 standing; two ESE technical electives*

(excluding ESE 390 and 499); ESE 300.  
Students may need additional prerequisites depending on the design project undertaken.  
3 credits

### **ESE 441: Engineering Design II**

Student groups carry out the detailed design of the senior projects chosen during the first semester. The project incorporates appropriate engineering standards and multiple realistic constraints. A comprehensive technical report of the project and an oral presentation are required. Not counted as a technical elective. Laboratory fee required.

*Prerequisite:* ESE 440

3 credits

### **ESE 475: Undergraduate Teaching Practicum**

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

*Prerequisites:* U4 standing; a minimum g.p.a. of 3.00 in all Stony Brook courses, and a grade of B or better in the course in which the student is to assist; permission of department.

3 credits

### **ESE 476: Instructional Laboratory Development Practicum**

Students work closely with a faculty advisor and staff in developing new laboratory experiments for scheduled laboratory courses in electrical and computer engineering. A comprehensive technical report and the instructional materials developed must be submitted at the end of the course. May be used as a technical elective for electrical and computer engineering majors. May be repeated as an open elective.

*Prerequisites:* U4 standing; minimum cumulative g.p.a. of 3.0 and minimum grade of A- in the course for which the students will develop material; permission of department and instructor

3 credits

### **ESE 488: Internship in Electrical/Computer Engineering**

An independent off-campus engineering project with faculty supervision. May be repeated but only three credits of internship electives may be counted toward the non-ESE technical elective requirement.

*Prerequisites:* ECE or ESE major; U3 or U4 standing; 3.00 g.p.a. minimum in all engineering courses; permission of department

3 credits

### **ESE 494: Honors Seminar on Research**

An introduction to the world wide research enterprise with special emphasis on research in the United States. Topics include research funding, publications, patents, career options, theory versus experiment, entrepreneurship and presentation skills.

*Prerequisite:* Acceptance into the ECE or ESE Honors programs or permission of instructor.

1 credit

### **ESE 495: Honors Research Project**

A research project, for students in the honors program, conducted under the supervision of an electrical and computer engineering faculty member.

*Prerequisite:* ESE 494, permission of department

3 credits

### **ESE 499: Research in Electrical Sciences**

An independent research project with faculty supervision. Permission to register requires a 3.00 g.p.a. in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated but only three credits of research electives (AMS 487, BME 499, CSE 487, MEC 499, ESM 499, EST 499, ISE 487) may be counted toward non-ESE technical elective requirements.

*Requirements:* U4 standing, 3.00 g.p.a. minimum in all engineering courses, permission of department

0-3 credits

## **ESG**

### **Engineering Science**

#### **ESG 100: Introduction to Engineering Science**

An overview of the development and application of engineering principles in response to social, industrial, and environmental problems from ancient times to the present. Engineering methods and theory through case studies and real-world applications. Creativity and problem solving techniques of modern engineering through participation in a design project as well as learning through analyses of engineering disasters.

3 credits

#### **ESG 111: C Programming for Engineers**

Introduces computer programming techniques for engineering students who are not planning to take advanced computer science courses. Students learn C programming language as applied to various scientific and engineering problems. Includes advanced simulation packages such as Labview to introduce computer control of experimental systems. Not intended for students who have completed a C programming course.

*Pre- or Corequisites:* AMS 151 or MAT 125 or 131 or 141; PHY 125 or 131/133 or 141

3 credits

#### **ESG 198: Fundamentals of Engineering Chemistry**

A quantitative introduction to chemistry (stoichiometry, bonding, states of matter, equilibrium) with emphasis on topics of interest to students in engineering (metals and semiconductors; thermochemistry; electrochemistry and corrosion; polymers). Labs include an introduction to analytical techniques, electrochemistry and chemical synthesis. Both quantitative and qualitative methods are emphasized. May not be taken for credit in addition to CHE 131/133, 141/143 or 198/199.

*Pre- or Corequisites:* PHY 132 or PHY 142 or PHY 126 and PHY 127; MAT 127 or MAT 132 or MAT 142 or AMS 161

4 credits

#### **ESG 199: Introduction to Undergraduate Research**

An introduction to independent research and basic research skills. Students perform an independent research project in engineering science under the supervision of a faculty member. May be repeated.

*Prerequisite:* Permission of instructor

0-3 credits

#### **ESG 201- H: Learning from Disasters**

The role of the engineer is to respond to a need by building or creating something along a certain set of guidelines (or specifications) which performs a given function. Just as importantly, that device, plan or creation should perform its function without fail. Everything, however, does eventually fail and, in some cases, fails with catastrophic results. Through discussion and analysis of engineering disasters from nuclear meltdowns to lost spacecraft to stock market crashes, this course will focus on how modern engineers learn from their mistakes in order to create designs that decrease the chance and severity of failure.

*Prerequisite:* One D.E.C. category E course

3 credits

### ESG 217: Engineering Science Design I

An introduction to the philosophy of engineering design, emphasizing the integration of problem-solving techniques with choices of available technology and materials in order to respond to a particular human need. Engineering ethics are also examined from both historical and decision-making perspectives. Basic science of design, including system viability and project management, is discussed through examples, flowcharts, and optimization techniques with an emphasis on design for manufacturing and reliability.

3 credits

### ESG 281: Engineering Introduction to the Solid State

A discussion of relativity followed by review of the atom and its constituents. Lectures treat the quantization of light and of atomic energy levels, matter waves, and introduce the Schrodinger equation, first in one dimension, then in three dimensions. Electron spin and magnetic effects are discussed, followed by multielectron atoms and the periodic table. Radiation and lasers, molecules and solids, including conductors, semiconductors, and insulators.

*Prerequisite:* PHY 132/134 or 142 or 126/127

4 credits

### ESG 300: Writing in Engineering Science

See Requirements for the Major in Engineering Science, Upper-Division Writing Requirement.

*Prerequisites:* WRT 102; ESG major; U2 standing

*Corequisite:* ESG 312

S/U grading

### ESG 301- H: Sustainability of the Long Island Pine Barrens

The ecologically diverse Long Island Pine Barrens region provides a habitat for a large number of rare and endangered species, but faces challenges associated with protection of a natural ecosystem that lies in close proximity to an economically vibrant urban area that exerts intense development pressure. In this course we will consider the interaction of the ecological, developmental and economic factors that impact the Pine Barrens and the effectiveness of decision support systems in promoting sustainability of the Pine Barrens. This course is offered as BIO 301, GEO 301, ECO 301, ENV 301, and ESG 301.

*Prerequisites:* U3 or U4 status and one of the following: BIO 201, CHE 131, ECO 108, ESG 100, ESG 198, GEO 101, GEO 102

3 credits

### ESG 302: Thermodynamics of Materials

The basic laws and concepts of thermodynamics are elucidated, and the important thermodynamic relationships are systematically developed with reference to the behavior of materials. The thermodynamics of solids is discussed, including the thermodynamics of solutions and the calculation of reaction-free energies and equilibria in condensed phase reactions such as phase transformations, oxidation, and diffusion.

*Prerequisite:* ESG 198 or CHE 131/132/133 and AMS 161

*Advisory Prerequisite:* AMS 261

4 credits

### ESG 312: Engineering Laboratory

Laboratory exercises and lectures covering the theory, practice, and design of engineering experimentation. The course has three components: error analysis and data message; electrical circuits and experiment control; and mechanical and optical measurement. Laboratory fee required.

*Prerequisites:* PHY 126 and 127 or PHY 132/134; U2 standing

*Corequisite:* ESG 300

4 credits

### ESG 316: Engineering Science Design II: Methods

Design and design-planning methods are developed from the conceptual stages through the application stages using lecture and laboratory. Includes synthesis, optimization, modeling, and simulation and systems engineering. Case studies illustrate the design process. Students undertake a number of laboratory projects employing various design tools. Laboratory fee required.

*Prerequisites:* ESG major; U2 standing or higher; ESG 217; AMS 161 or MAT 127 or MAT 132 or MAT 142 or MAT 171

4 credits

### ESG 332: Materials Science I: Structure and Properties of Materials

A study of the relationship between the structure and properties of engineering materials and the principles by which materials' properties are controlled. The structure and structural imperfections in simple crystalline materials and the role that these factors play in defining electrical conductivity,

chemical reactivity, strength, and ductility are considered. The molecular structure of polymers is discussed and related to the behavior of plastics, rubbers, and synthetic fibers. The principles of phase equilibria and phase transformation in multicomponent systems are developed. These principles are applied to the control of the properties of semiconductors, commercial plastics, and engineering alloys by thermochemical treatment. Corrosion, oxidation, and other deterioration processes are interpreted through the interaction of materials with their environment.

*Prerequisites:* CHE 131 or CHE 141 or ESG 198 and ESG 302 or PHY 306 or CME 304 or CHE 353 (or Mechanical Engineering majors may use MEC 301 as a corequisite)

4 credits

### ESG 333: Materials Science II: Electronic Properties

After a review of quantum mechanics and atomic physics, the binding energy and electronic energy levels in molecules and solids are discussed. The free-electron theory of metals is introduced and applied to the quantitative treatment of a number of electron emission effects. The band theory of solids is developed quantitatively via the Kronig-Penney model, and the transport properties of metals and semiconductors are discussed in detail. The physical principle of pn junctions, transistors, tunnel diodes, etc. is explained. Fundamentals and applications of photoconductors, lasers, magnetic materials, and superconductors are also discussed. (ESG 332 is not a prerequisite.)

*Prerequisites:* ESG 281 or PHY 251; ESG 302 or CME 304

4 credits

### ESG 339: Thin Film Processing of Advanced Materials

Fundamental aspects of thin film materials design, fabrication, and characterization. Overviews of semiconductor fabrication, surface analysis, and vacuum system design. This course includes a design content of one credit, achieved through a design exercise related to thin film fabrication.

*Prerequisite:* ESG 332, or ESE 331 for ESE majors

4 credits

### ESG 375: Fundamentals of Professional Engineering

The course provides an overview of professional licensure and focuses on the general fundamentals of the engineering exam. Students take a practice exam for both the

general exam and in-depth general exam option and review the results.

*Prerequisite: Junior or Senior Standing*  
1 credit

### **ESG 440: Engineering Science Design III**

Lectures by faculty members and visitors on typical design problems encountered in engineering practice. During this semester each student chooses a senior design project. A preliminary design report is required. Not counted as a technical elective. Laboratory fee required.

*Prerequisites: ESG 312; ESG 316; ESG 332; ESG major; U4 standing; permission of the department*

3 credits

### **ESG 441: Engineering Science Design IV**

Student groups carry out the detailed design of the senior projects chosen during the first semester. A final and detailed design report is prepared. Not counted as a technical elective. Laboratory fee required.

*Prerequisite: ESG 440*

3 credits

### **ESG 487: Cooperative Research in Technological Solutions**

An independent research course in which students apply principles of engineering design, technological problem solving, mathematical analysis, computer-assisted engineering, and effective teamwork and communication to develop solutions for a need in a governmental, educational, non-profit, or community organization in a multidisciplinary setting.

*Prerequisites: U3 or U4 standing; an abstract of the project; permission of instructor*

0-3 credits

## **ESL**

### **English as Second Language**

#### **ESL 191: Intermediate Oral/Aural Skills**

Students improve skills necessary for speaking and understanding English with special emphasis on developing communication capabilities. Class work includes pronunciation modification, presentation skills and cultural awareness in the classroom. Language and listening laboratories required. A diagnostic test during the first week of classes determines placement in the course.

3 credits

#### **ESL 192: Intermediate Composition**

A course for students who have attained a degree of fluency in speaking English but need additional training in reading and writing skills. Beginning with basic sentence patterns and working toward paragraph development and eventually essays, each student has the opportunity to practice many different varieties of writing. May be repeated but counts only once toward graduation. Writing placement score determines placement in the course. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used.

*Prerequisite: A score of 1 on the writing assessment*

3 credits, ABC/U grading

#### **ESL 193: Advanced Composition**

Advanced training in writing for ESL students who need to concentrate on paragraph and essay development. The course deals with the development of a variety of essay genres, including the personal narrative, summary/response and argumentation/persuasion. Key grammar points are reviewed and are expected to be mastered. May be repeated but counts only once toward graduation. Writing placement score or successful completion of ESL 192 determines placement in the course. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used.

*Prerequisite: A score of 2 on the writing assessment or successful completion of ESL 192*

3 credits, ABC/U grading

#### **ESL 194: Academic English Skills for U.S. Residents**

The study of spoken and written English for students who are graduates of American high schools but are non-native speakers of English. The focus of the course is on helping students to speak, write, and understand English in academic contexts. Particular attention is paid to understanding lectures, increasing vocabulary, and improving knowledge of English sentence structure. Open to first semester English Enrichment Program students only. A through F grading only. The Pass/No Credit option may not be used. Only for students in the English Enrichment Program.

3 credits

#### **ESL 198: Advanced Oral/Aural Skills and Accent Improvement**

An advanced course in speaking and listening skills for non-native speakers of English. Work is done with individual problem sounds, stress, and intonation in order to help students modify their accents and make their speech more intelligible. Techniques of speaking before a

group are taught to enable non-native speakers to feel more confident in participating in their other classes. Advanced work in American idioms and grammar is usually included. Language laboratory work may be required by individual instructors. Especially useful for undergraduate and graduate students who need to make seminar presentations and for graduate students with teaching assistantships.

3 credits

## **ESM**

### **Materials Science**

#### **ESM 212: Introduction to Environmental Engineering**

Multidisciplinary, materials-oriented approach to environmental and civil engineering, incorporating the concept of sustainable development: basic principles, including pollutant transport, water quality, waste and waste water treatment, energy systems and energy efficiency, use of sustainable building materials, 'green' manufacturing and pollution prevention, engineering materials issues unique to construction. Use of field and laboratory sensors and analytical tools will be discussed and demonstrated. Project and problem-based approach to design of structures and materials engineering, incorporating environmental considerations.

*Prerequisites: ESG 100 or ESG 201; ESG 198 or equivalent; PHY 199 or 121 or 125 or 131 or 141.*

3 credits

#### **ESM 213: Studies in Nanotechnology**

The emerging field of nanotechnology develops solutions to engineering problems by taking advantage of the unique physical and chemical properties of nanoscale materials. This interdisciplinary, co-taught course introduces materials and nano-fabrication methods with applications to electronics, biomedical, mechanical and environmental engineering. Guest speakers and a semester project involve ethics, toxicology, economic and business implications of nanotechnology. Basic concepts in research and design methodology and characterization techniques will be demonstrated. Course is cross-listed as BME 213, MEC 213, and EST 213 and is required for the Minor in Nanotechnology Studies (NTS).

*Prerequisites: PHY 131 or PHY 125; CHE 131 or ESG 198*

3 credits

**ESM 299: Directed Research in Materials Science**

A directed research project with faculty supervision or as part of a research team. Intended for freshman or sophomore students to develop research skills in a closely mentored environment. A final report and oral presentation are required at the end of the project. ESM 199 is a recommended prerequisite.

*Prerequisite: Permission of the Undergraduate Program Director*

0-3 credits

**ESM 325: Diffraction Techniques and Structure of Solids**

X-ray diffraction techniques are emphasized. Topics include coherent and incoherent scattering of radiation, structure of crystalline and amorphous solids, stereographic projection, and crystal orientation determination. The concept of reciprocal vector space is introduced early in the course and is used as a means of interpreting diffraction patterns. Laboratory work in X-ray diffraction patterns is also included to illustrate the methods.

*Prerequisite: ESG 332*

3 credits

**ESM 335: Strength of Materials**

The mechanical behavior of materials, assuming a basic knowledge of elasticity, plasticity, fracture and creep. Provides treatment of these topics across size scales. Continuum mechanics, advanced phenomena in mechanics of materials, and case studies and measurement techniques.

*Prerequisites: AMS 261 or MAT 203; ESG 302*

4 credits

**ESM 336: Electronic Materials**

The properties of intrinsic and extrinsic semiconductors are discussed with particular attention first to the equilibrium distribution of electrons in the bands and then to the nonequilibrium transport of charge carriers. The properties and applications of photoconductors and of luminescent materials are then described. The concept of stimulated emission is introduced, laser operation explained, and laser materials discussed in relation to their applications in science and technology. Other topics considered are the properties of magnetic materials, of dielectric materials, and of superconductors.

*Prerequisite: ESG 333*

3 credits

**ESM 353: Biomaterials: Manufacture, Properties, and Applications**

The engineering characteristics of materials, including metals, ceramics, polymers, composites, coatings, and adhesives, that are used in the human body. Emphasizes the need of materials that are considered for implants to meet the material requirements specified for the device application (e.g., strength, modulus, fatigue and corrosion resistance, conductivity) and to be compatible with the biological environment (e.g., nontoxic, noncarcinogenic, resistant to blood clotting if in the cardiovascular system).

*Prerequisite: ESG 332*

3 credits

**ESM 369: Polymer Engineering**

An introductory survey of the physics, chemistry, and technology of polymers. Topics covered include classification of polymers, molecular forces and bonds, structure of polymers, measurement of molecular weight and size, rheology and mechanical properties, thermodynamics of crystallization, polymerization mechanisms, and commercial polymer production and processing.

*Prerequisite: ESG 332*

3 credits

**ESM 378: Materials Chemistry**

Our high-technology world is driven forward by advances in materials chemistry. This class will discuss some of the materials that underpin these technologies, as well as some of the novel classes of materials that are being developed for future applications. The course will cover the synthesis, structures, and properties of advanced materials, focusing on a range of topics with current societal importance (e.g. energy, computers, nanoscience, etc.). Specific topics may include batteries, fuel cells, catalysts, metals, semiconductors, superconductors, magnetism, and polymers.

*Prerequisites: CHE 375 or permission of the instructor*

3 credits

**ESM 400: Research and Nanotechnology**

This is the capstone course for the minor in Nanotechnology Studies (NTS). Students learn primary aspects of the professional research enterprise through writing a journal-quality manuscript and making professional presentations on their independent research (499) projects in a formal symposium setting. Students will also learn how to construct a grant proposal (a typical NSF graduate fellowship proposal), methods to search for

research/fellowship funding, and key factors in being a research mentor.

*Prerequisites: ESM 213, at least one semester of independent research (499 level)*

3 credits

**ESM 450: Engineering Systems Laboratory**

A systems approach will be taken to understand the fundamental properties of materials and their implications on engineering design and applications. The advanced gas turbine engine is used as the main testbed for this laboratory class. Results from mechanical testing and phase analysis will be analyzed in the context of real-world system construction, operation and reliability.

*Prerequisites: ESG 332 and ESM 335*

*Students in BE/MS Program: Prerequisite: ESG 332; Corequisite: ESM 513*

3 credits

**ESM 455: Materials and Processes in Manufacturing Design**

The design of mechanical and electrical systems, materials selection, and fabrication processes are surveyed and shown to be essential components of manufacturing engineering. The mechanical and thermal processing of a wide range of metallic and nonmetallic materials is reviewed. Modern computer-based materials selection, advanced processing methods, and automation are explored.

*Prerequisite: ESG 332 or 333*

3 credits

**ESM 460: Advanced Engineering Laboratory**

Students work in teams to perform advanced laboratory projects that emphasize the structure-property relationship. Emphasis on statistical analysis, multivariate fitting of data, and technical manuscript preparation.

*Prerequisites: ESG 312, ESG 332, and ESG 333*

3 credits

**ESM 475: Undergraduate Teaching Practicum**

May be used as an open elective only and repeated once.

*Prerequisites: U4 standing as an undergraduate major within the college; a minimum g.p.a. of 3.00 in all Stony Brook courses and the grade of B or better in the course in which the student is to assist; permission of department*

3 credits

### **ESM 486: Innovation and Entrepreneurship in Engineering**

Designed for upper division students, this course will explore the key elements and challenges involved in implementing innovation in complex engineering systems. This course will tackle this issue through historical analysis of engineering innovation through detailed case studies and examples. Framework for entrepreneurial developments will also be analyzed.

*Prerequisites:* U4 standing; B+ or higher in ESG 316 or ESE 380 or ESM 450 or MEC 310 or permission of instructor.

3 credits

### **ESM 488: Cooperative Industrial Practice**

A design engineering course oriented toward both research/development and manufacturing technology. Students work in actual industrial programs carried out cooperatively with companies established as university incubators or with regionally located organizations. Supervised by a committee of faculty and industry representatives to which students report.

*Prerequisite:* Permission of department  
0-6 credits

### **ESM 499: Research in Materials Science**

An independent research project with faculty supervision. Permission to register requires a B average in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated, but only three credits of research electives (AMS 487, BME 499, CSE 487, ESE 499, ESM 499, EST 499, ISE 487, MEC 499) may be counted toward technical elective requirements. Prerequisite: B average in all engineering courses and the agreement of a faculty member to supervise the research

*Prerequisites:* B average in all engineering courses; permission of faculty advisor  
0-4 credits

## **EST**

### **Technology and Society**

#### **EST 100: Computer Literacy in a Digital Era**

Introduces computer applications and selection of computer-based tools and the skills necessary to be successful in an era of digital revolution including: electronic communication; application-based projects; information management and assessment;

and the societal impacts of digital literacy. Emphasizes computer literacy skills used in education, industry, and other professional environments. Participation in weekly computer labs is required.

3 credits

#### **EST 102- E: Weather and Climate**

Introduces the nature and causes of common meteorological phenomena, severe weather occurrences, and climatic patterns. Topics include formation and movement of air masses and large-scale storms; techniques for weather prediction; weather satellites; hurricanes, tornadoes, and thunderstorms; cloud and precipitation types; the climatic history of the earth; and actual and potential effect of human activities on weather and climate, and of weather and climate on humans. This course is offered as both ATM 102 and EST 102.

3 credits

#### **EST 104: Projects in Technology and Society**

Introduces students to technological issues in society. A new topic is presented each semester. Explores underlying scientific and engineering concepts, ethical issues, and technological risks. Students complete a project with faculty supervision.

*Prerequisite:* Permission of department  
1-3 credits

#### **EST 192: Introduction to Modern Engineering**

Familiarizes students with systems and decision-making concepts of modern engineering and technology. The conceptual areas to be studied include an engineering approach to problem solving and design, modeling of dynamic systems, and technology assessment. The artificial heart program, solar energy technology, and building access for the handicapped are some of the socio-technological case studies that are used.

*Prerequisites:* Course is for students without prior engineering experience, permission of the department required

3 credits

#### **EST 194- C: Patterns of Problem Solving**

A survey of techniques and methods of problem solving as developed by the engineer and applied scientist. Applications drawn from a broad range of fields. Intended for non-engineering majors.

*Prerequisites:* Course is for students without prior engineering or natural science

*experience, permission of the department required*

3 credits

#### **EST 201- H: Technological Trends in Society**

Explores the impact of technology and engineering design on society past, present, and future. The main themes as they relate to changing technology are: industry and the economy; the environment; social, educational, and psychological implications of computers; energy and society; warfare; and 21st-century emerging technologies.

*Prerequisite:* One D.E.C. category E course  
3 credits

#### **EST 202: Introduction to Science, Technology, and Society Studies**

An introduction to the interrelationship between science and technology as dynamic and inseparable. Discusses the concepts, framework, and context of science-technology studies. Includes ethical issues, social influences, and public policies as they influence and interact with the social management of science and technology.

*Prerequisite:* EST 192  
3 credits

#### **EST 203: Technology in the City**

This course covers the intersection of technology and society. Topics include, how different technologies play an essential element of urban society such as transportation systems, energy, and financial systems. It examines the changes in technology which causes changes in society.

3 credits

#### **EST 210: Learning to Learn New Technologies**

Developing processes for learning new technology that continues to change at an increasing rate. The key issues covered are: learning new software tools, the problem solving process, applying tools, debugging, choosing a tool, helping others to learn new software packages, how networks change the use of tools, ethical issues, Internet and the information explosion. Classes are held in computer laboratories. Students are required to work in campus computer consulting situations.

3 credits

#### **EST 213: Studies in Nanotechnology**

The emerging field of nanotechnology develops solutions to engineering problems by taking advantage of the unique physical and

chemical properties of nanoscale materials. This interdisciplinary, co-taught course introduces materials and nano-fabrication methods with applications to electronics, biomedical, mechanical and environmental engineering. Guest speakers and a semester project involve ethics, toxicology, economic and business implications of nanotechnology. Basic concepts in research and design methodology and characterization techniques will be demonstrated. Course is cross-listed as BME 213, MEC 213, and EST 213 and is required for the Minor in Nanotechnology Studies (NTS).

3 credits

### **EST 291- H: Energy, Environment, and People**

Case studies selected from topics such as radioactive wastes; Long Island's toxic wastes; Shoreham, Chernobyl, and nuclear safety; agriculture and the environment; and global resources. The course emphasizes the interplay between scientific and engineering considerations and human values and institutions.

*Prerequisites:* Two D.E.C. category E courses (except those designated ANP); any AMS or MAT course

3 credits

### **EST 304: Communication for Engineers and Scientists**

Students learn how to write about technical concepts that make sense not only to other technologists and scientists, but also to audiences ranging from high school students to technical consumers in the world marketplace. Examines issues of rhetorical persuasion, ethical presentation, and emotional engagement (logos, ethos, pathos), and the basics of information design and use. Students work on polishing their prose voice and learn how to apply different technical communications styles to different audiences and for different applications.

*Prerequisite:* Level 5 on the writing placement examination or WRT 102

3 credits

### **EST 305: Applications Software for Information Management**

Introduction to the role of applications software in various types of organizations with emphasis on methods of formulating the requisite information flows to engender adequate communications, operation, and control. The importance of audit ability, maintainability, and recoverability in systems design is stressed. Provides students with knowledge of basic techniques and

elementary skills in representing system structure with application of the principles in practical case studies using spreadsheet and database software. Extensive interaction with applications software reinforces concepts presented.

*Prerequisite:* EST 100 or CSE 101

3 credits

### **EST 310: Design of Computer Games**

Fundamental ideas underlying the design of games, which occurs before the programming stage. How games function to create experiences, including rule design, play mechanics, game balancing, social game interaction and the integration of visual, audio, tactile and textual elements into the total game experience. Game design documentation and play testing. Students will design their own game during the semester. This course is offered as both EST 310 and ISE 340.

*Advisory Prerequisite:* Basic Computer Skills

3 credits

### **EST 320- H: Communication Technology Systems**

Emphasizes basic science and engineering concepts underlying design and usage of modern telecommunications systems. Considers effects of human factors and societal constraints on design and development of nascent technological systems. Includes the electromagnetic spectrum, analog and digital signals and resonance as well as societal considerations of government regulations, international competition, and environment.

*Prerequisites:* MAT 123; one D.E.C. category E course

3 credits

### **EST 323: Human-Computer Interaction**

A survey course designed to introduce students to Human-Computer Interaction and prepare them for further study in the specialized topics of their choice. Students will have the opportunity to delve deeper in the course through a course project, and through a two-three week special topic selected at the instructor's discretion. Course is cross-listed as CSE 323, EST 323 and ISE 323.

*Prerequisites:* CSE 214 or CSE 230 or CSE 260 or ISE 208

3 credits

### **EST 325- H: Technology in the Workplace**

A study of automation and information technologies in both manufacturing and service industries. Considers how technology is changing the work and lives of everyone from

production workers to executives. Case studies are used to understand how technology can improve quality and productivity and how incorrect use produces disappointing results.

*Prerequisites:* Completion of D.E.C. category E

3 credits

### **EST 326: Management for Engineers**

This course will introduce all the principals and theories in the area of operation management and quality control. The important issues relating to management of innovation and project management will also be included.

3 credits

### **EST 327: Marketing for Engineers**

This course will introduce the important principles and theories of marketing, especially for new product design and development, for technical and eCommerce industries. The preparation and evaluation of a marketing plan will also be covered.

3 credits

### **EST 330- H: Natural Disasters: Societal Impacts and Technological Solutions**

A study of the physical causes of natural disasters; their societal impacts in developed and developing nations; the use of engineering, architecture, and regional planning to reduce vulnerability and loss; and the institutional mechanisms, both domestic and international, for providing cross-cultural technology transfer and post-disaster assistance. Case studies of disasters in a number of countries are included.

*Prerequisites:* U3 or U4 standing; one D.E.C. category E course

3 credits

### **EST 331: Professional Ethics and Intellectual Property**

The study of ethical decisions confronting individuals and organizations in engineering and science. Related questions about moral conduct, character, ideals, and relationships of people and organizations involved in technical development are discussed. Ethics codes for engineers, computer scientists, and natural scientists are covered. Includes topics in intellectual property such as patents, trademarks, copyrights and copyright applications, licensing, and IP in cyberspace.

*Prerequisite:* Junior or Senior Standing

3 credits

### **EST 341: Waste Treatment Technologies**

This course will examine technologies such as wastewater management, solid waste disposal, and drinking water treatments that minimize the effects of human wastes. Pollution prevention will be emphasized.

*Prerequisites:* EST 202; or MAT 123 and one D.E.C. category E course

3 credits

### **EST 388: Special Topics in Technological Systems Management**

A lecture or seminar course on a current topic in technology and society. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as topic changes.

*Prerequisite:* TSM major or permission of instructor or department.

1 credit

### **EST 389: Special Topics in Technological Systems Management**

A lecture or seminar course on a current topic in technology and society. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as topic changes.

*Prerequisite:* TSM major or permission of instructor or department.

3 credits

### **EST 391- H: Technology Assessment**

A multidisciplinary analysis of the environmental, economic, scientific, engineering, social, and ethical impacts of a technology and of policies for controlling them. Each class, often working with research teams and visiting area facilities, concentrates on topics such as plastics recycling, the future of the automobile, nuclear power, nanotechnology, space stations, virtual reality, biotechnology, smart weapons, and the Internet.

*Prerequisites:* PHY 132/134 or CHE 132 or BIO 201 or 202 or 203; MAT 127 or 132 or 142 or 171 or AMS 161

3 credits

### **EST 392- F: Engineering and Managerial Economics**

Applications of fundamental economics principles and systems analysis to problems of planning and design in manufacturing or service sectors of industry. Includes the time value of money, analysis of various types of cash flows, development of rate of return, and benefit-to-cost ratios in their use to evaluate competing investment programs. The role of depreciation and investment tax credits on

the level of corporate taxation leading to the determination of after-tax rates of return.

*Prerequisite:* AMS 151 or MAT 125

3 credits

### **EST 393: Project Management**

Lays the foundation for an understanding of project management principles. Project initiation, implementation, and conclusion are explored, and the software tools for implementation of project management are studied. Case studies are presented and discussed in each part of the course.

*Prerequisite:* EST 391

3 credits

### **EST 400: Research and Nanotechnology**

This is the capstone course for the minor in Nanotechnology Studies (NTS). Students learn primary aspects of the professional research enterprise through writing a journal-quality manuscript and making professional presentations on their independent research (499) projects in a formal symposium setting. Students will also learn how to construct a grant proposal (a typical NSF graduate fellowship proposal), methods to search for research/fellowship funding, and key factors in being a research mentor.

*Prerequisites:* EST 213; at least one semester of independent research (499 level)

3 credits

### **EST 440: Interdisciplinary Research Methods**

Uses scientific research and related engineering technology problem-solving as a framework for the synthesis of diverse disciplines studied by students in the first three undergraduate years. Provides students with experience in team problem-solving. Students develop a proposal for interdisciplinary research or project to be carried out in the final semester of study.

*Prerequisites:* EST 393 and TSM major

3 credits

### **EST 441: Interdisciplinary Senior Project**

Students carry through to completion their own research, development or product evaluation project based on the proposal submitted and approved in EST 440. Requires practical steps including garnering faculty mentorship, creating a schedule, assembling resources, conducting research or working on prototype, and a final paper and presentation.

*Prerequisite:* EST 440

3 credits

### **EST 475: Undergraduate Teaching Practicum**

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

*Prerequisites:* U4 standing; a minimum g.p.a. of 3.00 in all Stony Brook courses and a grade of B or better in the course in which the student is to assist; permission of department

3 credits

### **EST 488: Internship in Technology and Society**

Participation in a private enterprise, public agency, or nonprofit institution. Students are required to submit a proposal to the department at the time of registration that included the location, immediate supervisor, nature of the project and hours per week for the project. One mid-semester report and one end of semester report are required. May be repeated up to a limit of 12 credits but only 3 credits of EST 488 may be used for either TSM major credit or specialization credit.

1-3 credits

### **EST 499: Research in Technology and Society**

An independent research project with faculty supervision. Permission to register requires a B average in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated, but only three credits of research electives (AMS 487, CSE 487, ESE 499, EMS 499, EST 499, ISE 487, MEC 499) may be counted toward engineering technical elective requirements.

*Prerequisite:* Permission of instructor

0-3 credits

## **EUR**

### **European Studies**

### **EUR 101- G: Foundations of European Culture**

This course presents students with the thinking from a variety of disciplines that influenced the development of the diverse national cultures of Europe. Students are exposed to a chronological representation of the major ways that classical Greek, Roman, Judeo-Christian, and Islamic cultures contributed to the making of individual national cultures and identities of the major countries of Europe.

3 credits

**EUR 201- I: Development of European Culture**

An introduction to the important literary works that arose from major European cultural and intellectual movements and an examination of their continued influence on the modern world. Readings focus on central texts pertaining to core religious issues, the Renaissance, the Enlightenment, Romanticism, Realism, Modernism, and Post Modernism. Examples from the arts, including film, music, and theatre, are used to illustrate the influence of the literary works.

*Prerequisite: Completion of D.E.C. category B*  
3 credits

**EUR 390- I: Special Topics in European Studies**

May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisite: To be announced with the topic*  
3 credits

**EUR 401: Senior Research Seminar in European Studies**

Intensive investigation of specific topics within the European Studies concentrations. Students will develop their skills in selecting a relevant topic, problematizing it, conducting research and writing on it in a persuasive fashion, presenting their findings in the seminar, and submitting a written paper at least 20 pages in length.

*Prerequisites: EUR 201; 15 additional credits in the major; U4 standing; European Studies major*  
3 credits

**EUR 447: Directed Readings in European Studies**

Independently supervised readings in selected topics in European Studies. May be repeated.

*Prerequisite: Permission of instructor*  
1-6 credits

**EUR 475: Undergraduate Teaching Practicum in European Studies I**

Students aid instructors and students in European Studies courses in one or several of the following ways: leading discussions, helping students improve writing and research skills, and library research. Students meet regularly with the supervising instructor. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: U3 or U4 standing; permission of instructor and department; EUR major or minor*  
3 credits, S/U grading

**EUR 476: Undergraduate Teaching Practicum in European Studies II**

Students aid instructors and students in European Studies courses in one or several of the following ways: leading discussions, helping students improve writing and research skills, and library research. Students meet regularly with the supervising instructor. In EUR 476, students assume greater responsibility in areas such as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: EUR 475; permission of instructor and department; EUR major or minor*  
3 credits, S/U grading

**EUR 487: Independent Project in European Studies**

The designing and carrying out of a research project selected by the student and arranged by the student and the instructor. May be repeated once.

*Prerequisite: Permission of instructor*  
0-6 credits

**EUR 488: Internship in European Studies**

Participation in local, state, national, and international public and private agencies and organizations to apply and reinforce language and related skills and knowledge of social and cultural institutions. May be repeated up to a limit of 12 credits.

*Prerequisites: Permission of instructor and department*  
0-6 credits, S/U grading

**EUR 495: Senior Honors Project in European Studies**

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

*Prerequisites: Permission of instructor and department*  
3 credits

## EXT

**Externships****EXT 288: Internship**

Internships are work-learning arrangements. These supervised, career-related work

experiences, combined with reflection that relates the work to academic study, help students 'learn by doing.' A sponsored internship with an off-campus organization or on-campus agency gives students an opportunity to learn how to effectively apply their university studies to work in professional settings and explore untested areas of work experience. Internships must be sponsored by a faculty member. As with established guidelines for EXT 488 internship, a request for approval of the Career Center Internship Manager must be submitted no later than two days prior to the last day of the add period as scheduled in the academic calendar. Course is not repeatable.

*Prerequisites: Minimum g.p.a. 2.5; one prior semester of attendance at Stony Brook; completion of DEC A, first course; acceptance by a faculty sponsor; permission of appropriate department and the Career Center Internship Manager*  
0-3 credits, S/U grading

**EXT 488: Internship**

Participation in an off-campus or on-campus agency or organization that provides students the opportunity to learn to apply their university studies to areas of work experiences. Internships must be sponsored by a faculty member. Request for approval of the internship manager in the Career Center must be submitted no later than two days prior to the last day of the add period as scheduled in the academic calendar. Students may register for only one 488 course per semester. May be repeated up to a limit of 12 credits.

*Prerequisites: Minimum g.p.a. of 2.50; U3 standing; one prior semester of attendance at Stony Brook; acceptance by faculty sponsor; permission of appropriate department and internship manager*  
0-6 credits, S/U grading

## FLA

**Foreign Language Teacher Preparation****FLA 339: Methods and Materials in the Teaching of Foreign Languages**

A review of methods and materials for the teaching of foreign languages and literatures in the secondary schools. Special attention is given to the problems and purposes of the teaching of foreign languages at the high school level.

*Prerequisites: Admission to a Foreign Language Teacher Preparation program; C or higher in one 300-level foreign language*

course; C or higher in one 300-level literature course; minimum GPA of 2.75

Corequisite: FLA 449

3 credits

### **FLA 340: Curriculum Development and Micro-Teaching**

A course designed to train future language teachers in the development of well-articulated programs in secondary schools. Students have the opportunity to enjoy clinical experiences in school settings. Special attention is given to lesson planning, classroom management, and portfolio development.

Prerequisites: C or higher in FLA 339; minimum g.p.a. of 2.75

Corequisite: FLA 450

3 credits

### **FLA 439: Technology Literacy for Foreign Language Teachers**

FLA 439 is designed as a course to improve the technological literacy of all future language teachers. In this course, teacher candidates will explore in a very hands-on, practical and applied manner all of the technologies used by teachers of languages. The class will also discuss how the technologies relate to current language pedagogies, both for individualized and classroom learning, especially as these issues can be discussed in a very applied and pragmatic manner.

Prerequisite: FLA 339

3 credits

### **FLA 440: Foreign Language Acquisition Research**

A study of recent trends in foreign language acquisition research. The focus is on classroom-based research: qualitative and quantitative research methodologies, variables in classroom-based learning research, analysis of research results. Students conduct classroom research studies, present their findings, and address applications of their findings to classroom teachers and learners of foreign languages.

Prerequisites: FLA 339; acceptance into a foreign language secondary teacher preparation program

3 credits

### **FLA 449: Field Experience, Grades 7-12**

Observation, inquiry, and practice in foreign language education at the secondary level including 50 hours of documented visitations and observation at documented sites. Field experience writing logs are the basis for group discussion. Satisfactory/Unsatisfactory grading.

Prerequisites: Admission to a Foreign Language Teacher Preparation program; minimum GPA 2.75

Corequisite: FLA 339

1 credit, S/U grading

### **FLA 450: Field Experience, Grades 7-12**

Observation, inquiry, and practice in foreign language education at the secondary level including 50 hours of documented visitations and observation at documented sites. Field experience writing logs are the basis for group discussion. Satisfactory/Unsatisfactory grading.

1 credit, S/U grading

### **FLA 451: Supervised Student Teaching: Middle School Level Grades 7-9**

Prerequisite: Enrollment in the Foreign Language Teacher Preparation Program; permission of instructor

Corequisites: FLA 452 and 454

6 credits, S/U grading

### **FLA 452: Supervised Student Teaching: High School Grades 10-12**

Prerequisites: Enrollment in the Foreign Language Teacher Preparation Program; permission of instructor

Corequisite: FLA 451 and 454

6 credits, S/U grading

### **FLA 454: Student Teaching Seminar**

Seminar on problems encountered by student teachers and public school teachers at the secondary level in foreign language teaching. Study and analysis of the many aspects of the foreign language teaching profession, such as individualized teaching, testing, and professional organizations.

Prerequisite: C or higher in FLA 340

Corequisites: FLA 451 and 452

3 credits

## **FRN**

### **French**

#### **FRN 101 - S3: Intensive Elementary French**

An intensive course covering the elementary French program (FRN 111, 112) in one semester. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of French in high school (or who has otherwise acquired an equivalent proficiency) may not

take FRN 101 without written permission from the supervisor of the course. May not be taken for credit after any other course in French.

6 credits

#### **FRN 111: Elementary French I**

An introduction to spoken and written French, stressing pronunciation, speaking, comprehension, reading, and writing. Language Center supplements class work. FRN 111 is designed for students who have no prior knowledge of the language. A student who has had two or more years of French in high school (or who has otherwise acquired an equivalent proficiency) may not take FRN 111 without written permission from the supervisor of the course. May not be taken for credit in addition to FRN 101.

4 credits

#### **FRN 112 - S3: Elementary French II**

An introduction to spoken and written French, stressing pronunciation, speaking, comprehension, reading, and writing. Language Center supplements class work. May not be taken for credit in addition to FRN 101.

Prerequisite: FRN 111

4 credits

#### **FRN 201 - S3: Intensive Intermediate French**

Review of grammar and analysis of simple French texts through reading, writing, and discussion. Language Center supplements class work. May not be taken for credit in addition to FRN 211 or FRN 212.

Prerequisite: FRN 101 or 112

6 credits

#### **FRN 211 - S3: Intermediate French I**

Intermediate courses in conversation, composition, and the interpretation of French texts. May not be taken for credit in addition to FRN 201.

Prerequisite: FRN 101 or 112

3 credits

#### **FRN 212 - S3: Intermediate French II**

Intermediate courses in conversation, composition, and the interpretation of French texts. May not be taken for credit in addition to FRN 201.

Prerequisite: FRN 211

3 credits

#### **FRN 311 - S3: Conversation**

A course emphasizing the development of oral and aural proficiency in French. Class work,

supplements, use of technologically-based materials.

*Prerequisite: FRN 212 or 201*

3 credits

### **FRN 312 - S3: Composition**

A course emphasizing writing proficiency in French. Class work, supplements, use of technologically-based materials.

*Advisory Pre- or Corequisite: FRN 311*

3 credits

### **FRN 313: French Vocabulary through Popular Culture**

A course designed to increase vocabulary and oral comprehension of French through the study of realms from clothing and banking to love and music.

*Prerequisite: FRN 212 or FRN 201*

3 credits

### **FRN 395- G & 3: Readings in French Literature I: Analysis and Interpretation**

These courses teach literary analysis and its application to representative texts chosen from various periods of French literature. All readings are done in French. Discussions are in French.

*Prerequisite: FRN 312*

3 credits

### **FRN 396- G & 3: Readings in French Literature II: Analysis and Interpretation**

These courses teach literary analysis and its application to representative texts chosen from various periods of French literature. All readings are done in French. Discussions are in French.

*Prerequisite: FRN 312*

3 credits

### **FRN 410 - S3: Business French**

A course designed for students who wish to become more proficient in reading, writing, and translating French. Students also are trained in the use of French in business, in administration, and in everyday professional life. Emphasis is placed on the idiomatic peculiarities of the French language and the relation of French to the structure of English.

*Prerequisite: FRN 312*

3 credits

### **FRN 411 - S3: Phonetics and Diction**

A course designed to develop mastery of the spoken language. Students learn to express themselves in the current idiom with fluency and accuracy. At least one hour of laboratory is required weekly.

*Prerequisite: FRN 312*

3 credits

### **FRN 412 - S3: Stylistics**

A course designed to acquaint students with the subtleties of French grammar and style. Extensive practice in composition and in translation from English to French.

*Prerequisite: FRN 312*

3 credits

### **FRN 413 - S3: Advanced French Conversation**

A course designed to develop and maintain complete fluency in the language.

*Prerequisite: FRN 312*

3 credits

### **FRN 423- J: Africana Literature in French**

An examination of a range of literature in French produced by writers throughout the African diaspora who claim affiliation with Africa. While the course is conducted in French, students will have the option to write papers in either French or English. Competence in reading and speaking French is a requirement for the course. This course is offered as both AFH 423 and FRN 423.

*Prerequisite: A 200-level course in literature. For French majors, FRN 395, 396 or Permission of the Instructor.*

3 credits

### **FRN 433 - S3: Studies in 17th-Century Literature**

Semester Supplements to this Bulletin contain description when course is offered. May be repeated as topic changes.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 434 - S3: Studies in 18th-Century Literature**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 435 - S3: Studies in 19th-Century Literature**

Semester Supplements to this Bulletin contain description when course is offered. May be repeated as topic changes.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 436 - S3: Studies in 20th-Century Literature**

May be repeated as the topic changes.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 438- J & 3: Caribbean and African Literature in French**

A study of representative texts (tales, novels, poems, plays, etc.) from the French-speaking world outside continental France, with special emphasis on the literature of the Caribbean and Africa.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 441- I & 3: French Civilization**

A discussion of French civilization from the creation of the modern state to the present. The course is intended for those interested in studying the background and traditions of modern France. An anthology of historical texts and documents serves as a point of departure; the institutions and life in France are considered, along with the development of art, architecture, music, and literature. The emphasis is on discussion (in French) and individual projects. Visiting lecturers contribute to the variety of topics and points of view.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 442 - S3: Free Seminar**

A seminar built around themes like "Women in French Literature," "Self-Deception in the 17th- Century Moralists and the 20th-Century Novel," and "The City in the French Novel." A detailed description of the seminar may be obtained from the department for each semester it is offered. May be repeated as topic changes.

*Prerequisite: FRN 395 or 396*

3 credits

### **FRN 447 - S3: Directed Readings in French**

Individually supervised readings in selected topics in French language and literature or, alternatively, for the purpose of developing French vocabulary in a secondary field, in selected topics in the humanities, social sciences, or natural sciences. May be repeated.

*Prerequisite: Permission of department*

1-6 credits

### **FRN 475 - S3: Undergraduate Teaching Practicum in French I**

Each student conducts a regular problem or tutorial section that supplements a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion and helping students with problems. Not for major or minor credit.

*Prerequisites: Fluency in French; permission of instructor and department*

3 credits, S/U grading

### **FRN 476 - S3: Undergraduate Teaching Practicum in French II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisites: Fluency in French; permission of instructor and department*

3 credits, S/U grading

### **FRN 495 - S3: Senior Honors Project in French**

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

*Prerequisite: Permission of department*

3 credits

## **GEO**

### **Geosciences**

#### **GEO 101- E: Environmental Geology**

Fundamental earth science concepts are used to assess the impact of increasing global population and development on earth's natural resources and also to examine how natural processes affect human activities. Topics include water usage and pollution, soil pollution and erosion, radioactive and solid waste disposal, landslides, stream flooding, coastal erosion, environmental consequences of energy and mineral resource utilization, acid rain, global climate change, and the environment effects on human health. Aspects of environmental geology that are particularly applicable to Long Island and metropolitan New York are emphasized.

3 credits

#### **GEO 102- E: The Earth**

A summary of the processes that have shaped the earth and the other terrestrial planets as inferred from study of their surface materials, structural features, and interiors. Topics include the earth in the solar system; earth materials and rock-forming processes; surface processes and their bearing on human activities; crustal deformation and global tectonics; the earth's interior; and the geological features, compositions, and evolution of the terrestrial planets.

3 credits

#### **GEO 103- E: The Earth Through Time**

The history of the earth from its formation 4.5 billion years ago to the present. Major issues to be addressed include formation and early history of the earth and moon; evolution of continents, oceans, and atmosphere within the framework of plate tectonics; origin of life; and evidence of past climates.

3 credits

#### **GEO 105- E: Energy Resources for the 21st Century**

Today we are faced with the challenge of driving the economies of modern civilization with new energy resources. This course looks at the current energy sources to assess their long term sustainability. In particular, this course examines fossil fuels, from the geologic processes that create them through their utilization. This course evaluates the impact on the global environment and the finiteness of each resource. Nuclear, geothermal, solar, wind, hydro, tidal, and other energy sources will be evaluated. This course projects forward to anticipate needs and evaluate future resources for time scales of 10, 20, 50, and 100 years. It identifies the technical advances that are required to meet the future energy needs. The emphasis of the course is to provide a vision of the current global energy setting. It develops tools that enable critical thinking on issues that interface society and science. Homework assignments will use the internet for accessing relevant information and spread sheets (such as Excel) and Google Earth to evaluate this information.

3 credits

#### **GEO 106- E: Planetary Geology**

Geology and geological history of the terrestrial planets, planetary satellites and minor bodies of the solar system are evaluated. Whenever possible, emphasis will be placed on geological results from the most recent planetary missions. Among the main topics to be considered are meteorites and the origin of terrestrial planets, the internal structure of terrestrial planets, planetary volcanism,

planetary stratigraphy, surface processes such as meteorite impacts, wind and weathering, minor bodies of the solar system and the origin of the solar system. Not for credit in addition to AST 105 or AST 205.

*Advisory Prerequisite: High School Earth Science*

3 credits

#### **GEO 107- E: Natural Hazards**

An introduction to the concepts, techniques, and scientific methods used in the earth sciences. The natural hazards posed by earthquakes and volcanic eruptions are used as a focus. These phenomena are examined in the context of the theory of plate tectonics to determine their cause, destructive potential, and the possibility of predicting and controlling their occurrence. Elementary probability methods are introduced in the treatment of approaches to prediction. Societal responses to forecasts are also considered.

3 credits

#### **GEO 112: Physical Geology Laboratory**

Rock and mineral identification, introduction to topographic and geologic maps.

*Pre- or Corequisite: GEO 102*

1 credit

#### **GEO 113: Historical Geology Laboratory**

An introduction to basic techniques used for interpreting geological history. Topics include interpretation of topographic and geological maps and cross sections, introduction to fossils, and basic stratigraphic techniques. One three-hour laboratory per week.

*Pre- or Corequisite: GEO 103*

1 credit

#### **GEO 121: Principles of Geology**

Course offered in conjunction with Sayville High School.

4 credits

#### **GEO 287: Introductory Research in Geology**

Independent research, under the supervision of a faculty member, at a level appropriate to lower-division students. May be repeated once.

*Prerequisites: U1 or U2 standing; one GEO course; permission of instructor and departmental research coordinator*

0-3 credits, S/U grading

#### **GEO 301- H: Sustainability of the Long Island Pine Barrens**

The ecologically diverse Long Island Pine Barrens region provides a habitat for a large number of rare and endangered species, but faces challenges associated with protection of a natural ecosystem that lies in close proximity to an economically vibrant urban area that exerts intense development pressure. In this course we will consider the interaction of the ecological, developmental and economic factors that impact the Pine Barrens and the effectiveness of decision support systems in promoting sustainability of the Pine Barrens. This course is offered as BIO 301, GEO 301, ECO 301, ENV 301, and ESG 301.

*Prerequisites:* U3 or U4 status and one of the following: BIO 201, CHE 131, ECO 108, ESG 100, ESG 198, GEO 101, GEO 102

3 credits

### **GEO 303: Geology of the Turkana Basin**

Field course that applies fundamental geological concepts to the sediments and rock units in the Turkana Basin, Kenya, to provide a foundation for the chronology and context for recorded events in human evolution. Emphasis is given to sedimentation, stratigraphy, volcanism, and tectonics, as they apply to local geology, including training in field methods. Modern terrestrial processes and landscape evolution are examined using features present in the Turkana Basin. Consideration is also given to broader geologic events spanning the Oligocene to the present. Geologic concepts are linked to modern and ancient environments, archaeology, and paleoanthropology in northern Kenya.

*Prerequisite:* Permission of the instructor/ Study Abroad office

*Advisory Prerequisite:* GEO 103 and GEO 113

3 credits

### **GEO 304- H: Energy, Mineral Resources, and the Environment**

A survey of the origin, distribution, and importance to modern civilization of the fuels and minerals won from the earth. Geology of mineral resources and problems of finding, extracting, and supplying fossil fuels, metallic ores, water, and non-metallic commodities to industry and community as well as the ultimate limits of their abundances. Environmental concerns related to the exploitation of mineral resources with review of legislation and other steps being taken to minimize environmental damage.

*Prerequisite:* One DEC E course

3 credits

### **GEO 305: Field Geology**

Geological field studies on and near the Stony Brook campus. Labs emphasize mapping techniques and field studies of glacial and environmental geology, and include geophysical and hydrological analyses and mapping. Course consists of two three-hour sessions per week, divided between lecture and outdoor labs.

*Prerequisites:* GEO 102/112 or GEO 112 and 103 and 113 or GEO 112 and 101 and 111

3 credits

### **GEO 306: Mineralogy**

Topics include basic crystallography, crystal chemistry, and identification of the important rock-forming and ore minerals. Included are the fundamentals of optical crystallography: indices of refraction, isotropic, uniaxial, and biaxial minerals; optical indicatrix theory and interference figures. Laboratory exercises involve work with crystallographic models, mineral samples, refraction oils and the polarizing light microscope. Three hours of lecture and one three-hour laboratory per week.

*Prerequisites:* GEO 102 and 112; CHE 131

4 credits

### **GEO 307- H: Global Environmental Change**

An analysis of the physical, chemical, and biological processes in the atmosphere, hydrosphere, lithosphere, and biosphere that are susceptible to change either from natural or anthropogenic causes. In addition to focusing on the processes, this course will examine the spatial/temporal scales of environmental changes, their consequences to systems including our economic, political, and social systems, and will consider our responsibility and capability in managing systems in a sustainable way. This course is offered as both ENV 304 and GEO 307.

*Prerequisites:* SBC 111, or SBC 113, or ENS 101, or GEO 101, or GEO 102; ENV 115 or CHE 131

3 credits

### **GEO 309: Structural Geology**

Principles of structural geology, including classification, criteria for recognition, and mechanics of formation of crustal structural features. Elementary concepts of rock mechanics. Discussion of important tectonic features of the continents and oceans. Accompanying laboratory to cover map interpretation and algebraic and graphical solutions of structural problems. Three hours of lecture and one three-hour laboratory per week. A two-day weekend field trip visits "classic" structural localities in the East.

This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* GEO 122, or GEO 102 and 112; one semester of calculus; PHY 121/123 or 131/133 or 141 or PHY 125 and 126

4 credits

### **GEO 310: Introduction to Geophysics**

An introduction to theoretical and applied geophysics. Topics in global geophysics include seismology, gravity, geomagnetics and heat flow, with applications to the structure and dynamics of the earth's interior. Students conduct computer-based analysis of geophysical data, some of which they collect using techniques of geophysical exploration and environmental geology. Three hours of lecture per week, plus group field experiments and analysis.

*Prerequisites:* MAT 127 or 132 or 142 or 171 or AMS 161; GEO 122, or GEO 102 and 112; PHY 122/124 or 132/134 or 142, or PHY 126 and 127

3 credits

### **GEO 311- H: Geoscience and Global Concerns**

An exploration of how technologically-based problems facing the United States and the world are related to the basic scientific principles that explain the properties of the lithosphere, hydrosphere, and atmosphere. The set of issues include such geoscience-based topics as global warming, fossil fuel resources, nuclear waste disposal, and earthquake prediction and preparedness.

*Prerequisite:* GEO 101 or 102 or 107 or 122

3 credits

### **GEO 312: Structure and Properties of Materials**

This course will explore materials from the viewpoint of their structure and chemistry and how these affect applications. We will discuss different states matter (crystals, quasicrystals, glasses, liquids) and their similarities and differences, focusing on the crystalline state. Nanomaterials and their peculiarities in terms of structure and properties will also be considered. Particular attention will be paid to (1) Materials for energy and environment applications, (2) materials for technological applications, and (3) Earth- and planet-forming materials.

*Advisory Prerequisite:* CHE 131 or PHY 131

3 credits

### **GEO 313- H: Understanding Water Resources for the 21st Century**

A survey of the world's water resources and the fundamental processes and concepts that govern their distribution and resupply. Topics to be covered include processes in the hydrologic cycle, water resource supply and demand, water quality, and societal aspects relating to drinking water, and industrial and agricultural water usage. Consideration is given to global water shortages, projected impacts of climate change, water-based conflict, water resource management, and conservation practices. Detail will be devoted to pollution sources, water quality standards, drinking water treatment, and government regulation. Local water issues will also be addressed.

*Prerequisite: One DEC E course*

3 credits

### **GEO 315: Groundwater Hydrology**

Physical and chemical principles of geohydrology. Concepts of groundwater geology. Introduction to quantitative models of regional fluid flow and groundwater contamination. Groundwater and geologic processes, with examples from tectonics, petroleum geology, geothermics, and economic mineralization.

*Prerequisites: GEO 102 or GEO 122; MAT 127 or MAT 132 or MAT 142 or MAT 171 or AMS 161*

3 credits

### **GEO 316: Geochemistry of Surficial Processes**

Chemical principles used in the study of surface and near-surface water, rocks, and soils. Application of equilibrium concepts and reaction rates to reactions involving gases, fluids, and minerals in nature. Consideration of soil properties and processes.

*Prerequisites: GEO 122, or 102 and 112; CHE 132 or 142*

4 credits

### **GEO 318: Engineering Geology and Coastal Processes**

Fundamental concepts of soil, sediment, and rock mechanics and the physics of surficial processes. Application is made to problems of geotechnical and coastal engineering. Topics include consolidation, loose boundary hydraulics, slope stability, underground excavations and beach and tidal inlet stability, and channel sedimentation. This course is offered as both GEO 318 and MAR 318.

*Prerequisites: GEO 122 or GEO 102 and 112; MAT 127 or 132 or 142 or 171 or AMS 161*

3 credits

### **GEO 320- E: Glacial Geology**

History of glaciation on earth; formation and dynamics of glaciers and ice sheets; processes of glacial erosion and deposition; and the nature of glacial sediments and landforms particularly relating to the development of Long Island.

*Prerequisite: GEO 102 or 122*

3 credits

### **GEO 330: The Geology of Mars**

Overview of Mars as a planetary system. Evolution of the planet and its atmosphere through time. Detailed discussion of processes that have shaped the martian surface, including erosion, sedimentation, volcanism, impact cratering, physical and chemical weathering. Comparison of geologic processes on Mars and Earth. Discussion of past and future spacecraft missions to Mars.

*Prerequisite: GEO 102 or GEO 122 or GEO 106*

*Advisory Prerequisite: GEO 112*

3 credits

### **GEO 347: Remote Sensing**

An introduction to the fundamental principles of remote sensing, with emphasis on geological and environmental applications. Discussion of the physical basis for remote sensing techniques. Survey of commonly used sensors and image analysis methods in earth sciences. Participants gain practical experience in geologic and environmental analysis using satellite imagery.

*Prerequisite: GEO 102 or GEO 106 or GEO 122*

3 credits

### **GEO 403: Sedimentation and Stratigraphy**

The history and practice of defining units of layered rocks and interpreting their spatial relationships. Topics include the basis for the geologic time scale, lithostratigraphic versus chronostratigraphic units, biostratigraphy, magnetostratigraphy, facies patterns and Walther's Law, subsurface stratigraphy, and the application of stratigraphy to geological problems. Laboratory emphasizes practical techniques in stratigraphy. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: GEO 306*

*Corequisite: GEO 401*

4 credits

### **GEO 405: Field Camp**

A field course that may be taken at any one of several approved university field stations.

*Prerequisites: Two upper-division GEO courses*

1-6 credits

### **GEO 407: Igneous and Metamorphic Petrology**

Topics focus on the processes that govern the formation and distribution of igneous and metamorphic rocks and their link to the Earth's mantle, crust, and tectonic regimes. Emphasis will be placed on integrating assessment of the chemical control on compositional diversity through phase diagrams with the study of natural rock suites through hand sample and thin section analysis. Three hours of lecture and one three-hour laboratory per week.

*Prerequisite: GEO 306*

4 credits

### **GEO 420: Environmental Analysis Using Remote Sensing and Geographic Information Systems**

The use of aerial and satellite imagery in environmental analysis and the manipulation of geographic data sets of all types using Geographic Information Systems. Concentrating on Long Island, each student designs and completes a research project on a particular section of the area, focusing on the habitats of local wildlife, the locations of archaeological sites, coastal regimes, etc. Students should expect to spend approximately 10 hours per week beyond regularly scheduled classes in a University computer laboratory. This course is offered as both ANT 420 and GEO 420.

*Prerequisite: Upper-division course in ANT or BIO or GEO or MAR*

4 credits

### **GEO 447: Senior Tutorial in Geology**

Independent readings in advanced topics. May be repeated once.

*Prerequisites: Permission of instructor and chairperson*

1-3 credits

### **GEO 448: Geosciences Colloquium**

Every semester, the Department of Geosciences hosts a colloquium series. The series features weekly lectures covering a wide variety of geosciences research topics. The purpose of this course is to expose upper division geoscience students to current research being performed at Stony Brook University and elsewhere. May be repeated up to a limit of 3 credits.

*Prerequisite: U3 or U4 status as a GEO or ESS major; Permission of Instructor*

1 credit

### **GEO 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisite: U4 standing; previous preparation in subject field; interview; permission of instructor*

3 credits, S/U grading

### **GEO 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisite: GEO 475; previous preparation in subject field; interview; permission of instructor and department*

3 credits, S/U grading

### **GEO 487: Senior Research in Geology**

Under the supervision of a faculty member, a major in the department may conduct research for academic credit.

*Prerequisites: Permission of instructor and chairperson*

0-6 credits

### **GEO 488: Internship**

Participation in local, state, or national private enterprises, public agencies, or nonprofit institutions. May be repeated to a limit of 6 credits.

*Prerequisites: Permission of instructor and department*

0-6 credits, S/U grading

## **GER**

### **Germanic Languages and Literature**

#### **GER 101 - S3: Intensive Elementary German**

An intensive course covering the elementary German program (GER 111, 112) in one semester. GER 101 is designed for students who have no prior knowledge of the language. A student who has had two or more years of

German in high school (or who has otherwise acquired an equivalent proficiency) may not take this course without written permission from the supervisor of the course. May not be taken for credit after GER 111 or any other course in German.

6 credits

#### **GER 111: Elementary German I**

An introduction to spoken and written German, stressing pronunciation, speaking, comprehension, reading, writing, and culture. The course consists of four hours in a small section conducted in German, and one laboratory hour. The course is designed for students who have no prior knowledge of German. A student who has had two or more years of German in high school (or who has otherwise acquired an equivalent proficiency) may not take GER 111 without written permission from the supervisor of the course.

4 credits

#### **GER 112 - S3: Elementary German II**

An introduction to spoken and written German, stressing pronunciation, speaking, comprehension, reading, writing, and culture. The course consists of four hours in a small section conducted in German, and one laboratory hour.

*Prerequisite: GER 111*

4 credits

#### **GER 211 - S3: Intermediate German I**

The reading and interpretation of a wide variety of German texts, with a review of German grammar, composition, and conversation. Work in the language laboratory further develops audiolingual skills.

*Prerequisite: GER 101 or 112*

3 credits

#### **GER 212 - S3: Intermediate German II**

The reading and interpretation of a wide variety of German texts, with a review of German grammar, composition, and conversation. Work in the language laboratory further develops audiolingual skills.

*Prerequisite: GER 211*

3 credits

#### **GER 311 - S3: German Conversation and Composition**

The active use of spoken and written German.

*Prerequisite: GER 212*

3 credits

#### **GER 312 - S3: German Conversation and Composition**

The active use of spoken and written German.

*Prerequisite: GER 212*

3 credits

#### **GER 313: German Vocabulary in Conceptual Groups**

The study of German vocabulary in so-called "conceptual groups" that reflect the world of nature (flowers, etc.) and culture (musical instruments, etc.). The objective is primarily to increase our stock of words and practice using them in context, but also to enrich our knowledge of selected words by examining significant moments or developments in their histories.

*Prerequisite: GER 212*

3 credits

#### **GER 343- G & 3: Introduction to Literary Genres**

Using selected texts easily read and understood by students whose background in German may be limited, this course is intended to introduce those students to terminology and techniques of literary analysis and interpretation.

*Prerequisite: GER 212*

3 credits

#### **GER 344- G & 3: Survey of German Literature**

A chronological survey of German literature from the 18th century to the present with stress on defining the periods therein. All readings are in German.

*Prerequisite: GER 212*

3 credits

#### **GER 402 - S3: German Prose**

A survey of German prose and its subgenres. All work is done in German.

*Prerequisite: GER 343 or 344*

3 credits

#### **GER 404 - S3: Goethezeit**

An intensive study of German literature in the period 1750-1832. All work is done in German.

*Prerequisite: GER 343 or 344*

3 credits

#### **GER 438 - S3: Structure of German**

Study of the phonological, graphemic, morphological, syntactic, and semantic structures of Modern German.

*Prerequisite: GER 212*

3 credits

**GER 439 - S3: History of German**

The development of the German language from Indo-European to Modern High German. A representative selection of texts from different periods is examined. Conducted as a seminar.

*Prerequisite: GER 212*

3 credits

**GER 447 - S3: Directed Readings in German**

Independently supervised readings in selected topics in German language and literature, which may focus on a specific German language author or the literature of a specific period or genre. May be repeated.

*Prerequisites: Permission of instructor and department*

3 credits

**GER 475 - S3: Undergraduate Teaching Practicum in German I**

Each student conducts a regular problem or tutorial section that supplements a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion and helping students with problems. Not for major or minor credit.

*Prerequisites: Fluency in German; permission of instructor and department*

3 credits, S/U grading

**GER 476 - S3: Undergraduate Teaching Practicum in German II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisites: Fluency in German; permission of instructor and department*

3 credits, S/U grading

**GER 488 - S3: Internship**

Participation in local, state, national, and international public and private agencies and organizations to apply and reinforce language and related skills and knowledge of social and cultural institutions.

*Prerequisites: GER 311 and 312; permission of instructor and department; specific placement examinations where applicable*

0-6 credits, S/U grading

**GER 495 - S3: Senior Honors Project in German**

Per project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

*Prerequisite: Permission of department*

3 credits

## GLS

### Global Studies

**GLS 101: Introduction to Stony Brook**

A seminar intended to integrate students into the Undergraduate College of Global Studies and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, ACH 101, LDS 101, HDV 101, ITS 101, SSO 101, SBU 101, SCH 101, or LSE 101.

*Prerequisite: Admission to the GLS Undergraduate College*

1 credit, S/U grading

**GLS 102: Undergraduate College Seminar: Global Studies**

A seminar for all first-year students in the Undergraduate College of Global Studies. Seminar topics vary annually by section and cover a variety of subjects under the general scope of Global Studies. Required for all first year students. Not for credit in addition to ACH 102, HDV 102, ITS 102, LDS 102, or SSO 102.

*Prerequisite: Admission to the GLS Undergraduate College*

1 credit, ABC/U grading

**GLS 275: Undergraduate College Fellows Seminar**

Creates a curricular component for the second year of the Undergraduate College Experience. College fellows will enroll in GLS 275 in the spring semester of their freshman year and GLS 276 in the fall semester of their sophomore year. 275 (spring) engages students in four main content areas: student development theory, scholarship on mentoring and leadership development, concepts of teaching and learning, and programming and event planning. These areas prepare students for supervised learning and teaching

experiences that will occur primarily in the fall 276 course.

*Prerequisites: Grade of "S" in GLS 101 and a strong desire to help other students. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

1 credit, S/U grading

**GLS 276: Undergraduate College Fellows Practicum**

The second semester in the sequence following GLS 275. Students assume higher responsibility and are given opportunities to apply teaching theories and concepts as learned in GLS 275. Students act as a TA for GLS 101.

*Prerequisites: A grade of "S" in GLS 275. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

1 credit, S/U grading

**GLS 475: Undergraduate College Teaching Practicum**

The purpose of this course is to allow upper-division students the opportunity to work with a faculty member as an assistant in one of the faculty member's scheduled Undergraduate College seminars. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course. May be repeated up to a limit of 2 credits.

*Prerequisite: Permission of the instructor and department*

1 credit, S/U grading

**GLS 488: Undergraduate College Internship**

Students learn about contemporary issues in higher education, community building, and teaching at a research university through hands-on work with faculty mentors. Work assigned will include participation in the planning and operation of events and initiatives sponsored by the Undergraduate Colleges. Students are required to submit written reports on their experiences to the Undergraduate Colleges office and Faculty Directors. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of the instructor and department*

0-3 credits, S/U grading

# GRK

## Greek

### GRK 101 - S3: Intensive Elementary Modern Greek

An intensive introduction to spoken and written modern Greek, stressing pronunciation, speaking, comprehension, reading, and writing. This course is designed for students who have no prior knowledge of the language.

6 credits

### GRK 111: Elementary Ancient Greek I

An introduction to the language and culture of ancient Greece. The course focuses on grammar, syntax, and techniques of translation. Development of reading skills is stressed.

*Prerequisite: Permission of instructor*

4 credits

### GRK 112 - S3: Elementary Ancient Greek II

A continuation of GRK 111: the grammar and syntax of ancient Greek, with emphasis on reading comprehension.

*Prerequisite: GRK 111*

4 credits

### GRK 121: Elementary Modern Greek I

An introduction to spoken and written Modern Greek, stressing pronunciation, speaking, comprehension, reading, and writing. Language Center supplements class work. The course is designed for students who have no prior knowledge of the language. Students who have had two or more years of Modern Greek in high school (or who has otherwise acquired an equivalent proficiency) may not take GRK 121 without written permission from the supervisor of the course. May not be taken for credit in addition to GRK 101.

3 credits

### GRK 122 - S3: Elementary Modern Greek II

An introduction to spoken and written Modern Greek, stressing pronunciation, speaking, comprehension, reading, and writing. Language Center supplements class work. May not be taken for credit in addition to GRK 101.

*Prerequisite: GRK 121*

3 credits

### GRK 221 - S3: Intermediate Modern Greek I

First course in an intermediate course sequence in the reading and interpretation of a wide

variety of selected Modern Greek texts. Completion of grammatical and syntactic points not covered in Elementary Modern Greek. Extensive practice in communicative ability.

*Prerequisite: GRK 101 or GRK 122*

3 credits

### GRK 222 - S3: Intermediate Modern Greek II

Second course in a two-semester intermediate course sequence in the reading and interpretation of a wide variety of selected Modern Greek texts. Completion of grammatical and syntactic points not covered in Intermediate Modern Greek I. Extensive practice in communicative ability.

*Prerequisite: GRK 221*

3 credits

# GSS

## Geospatial Science

### GSS 105- F: Introduction to Maps and Mapping

An introduction to the study and design of map formats, symbology, coordinate systems, and how maps record the historical patterns of human behavior. The course will also examine maps as a tool to analyze human activity and societal development, and include important aspects of map data collection, processing, the Global Positioning System (GPS), quantitative mapping, and GIS-based mapmaking techniques.

3 credits

### GSS 309: GIS and Cartography

Cartography is the knowledge associated with the art, science, and technology of maps. Digital computer cartography still follows the same fundamental principles and still requires a broad understanding of graphicacy as a language (as well as numeracy and literacy). This course will provide an introduction to cartographic principles, concepts, software and hardware necessary to produce good maps, especially in the context (and limitations) of geographic information systems (GIS).

*Prerequisite: SBC 113 or GSS 105*

3 credits

### GSS 313: GIS Design and Application I

Provides the basic concepts underlying modern geographic information science and technology. Emphasis is placed on the principles of GIS for characterizing environmental systems and computer-based techniques for processing and analyzing

spatial data. The course is three credit hours of lecture. This lecture course must be taken in the same semester as the associated laboratory, GSS 314.

*Prerequisite: MAT 125 or MAT 131*

3 credits

### GSS 314: GIS Laboratory

Practice using the GIS techniques and tools learned in the lecture (GSS 313), work on exercises, and process and analyze the spatial data for the course project. This laboratory course must be taken in the same semester as GSS 313.

*Corequisite: GSS 313*

1 credit

### GSS 323: GIS Database and Design

Concepts of geodatabase design and management in geographic information systems (GIS), SQL statements, geographic data types and functions, data entry, techniques of geographic information structure applications. This is a Windows based computer class with the majority of students work involving GIS computer software.

*Prerequisite: GSS 313*

3 credits

### GSS 325: GIS Design & Applications II

The course builds upon the topics covered in GIS Design and Application I. It emphasizes the applications of GIS in solving real-world problems. Students are expected to gain an understanding of GIS theory, methodology and most importantly application. Students are also expected to demonstrate abilities of spatial thinking, spatial analysis, and be able to solve practical spatial problems utilizing a GIS. Because GIS is both a tool for analysis and the visual communication of these data, students will be required to develop a GIS presentation, much as would be expected in a professional setting. This independent project will constitute a substantial portion of the final grade. This is a Windows based computer class with the majority of students work involving GIS computer software.

*Prerequisite: GSS 313 or equivalent*

3 credits

### GSS 326: GIS Project Management

The course addresses issues unique to a GIS operation such as implementation issues, decision making procedures, strategies for success, legal issues, involvement of management, marking within an organization, strategic planning, and industry outlook.

*Prerequisite: GSS 313*

3 credits

**GSS 475: Undergraduate Teaching Practicum**

Work with a faculty member as assistant in a regularly scheduled course. The student must attend all classes and carry out all assignments; in addition the student will be assigned a specific role to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course.

*Prerequisites: Permission of instructor and undergraduate director*

3 credits, S/U grading

**GSS 487: Geospatial Science Research**

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. Repeatable to a maximum of 3 credits.

*Prerequisite: Permission of instructor*

0-3 credits, S/U grading

**GSS 488: Geospatial Science Internship**

The GSS Internship is designed to provide students experience in the real workplace. Interns are expected to function as a GIS/Remote Sensing professional and work within the existing host facility structure or on a free standing project. Interns will complete assigned tasks by hosting facility such as GIS data entry, data retrieval, remote sensing analysis, GPS field work, documentation, or general GIS facility duties. These activities will be monitored by both a representative of the host facility and the instructor. May be repeated to a limit of 12 credits.

*Prerequisites: GSS 313 and GSS 325, or instructor consent*

0-12 credits, S/U grading

**HAD****Clinical Laboratory Sciences****HAD 210: Introduction to Clinical Laboratory Sciences**

Defines basic clinical laboratory sciences terminology and application. Introduces the specialties within the clinical laboratory sciences profession including microbiology, hematology, chemistry, immunohematology, and immunology and their roles in patient care. Reviews professional organizations and licensures. Examines employment opportunities. Visitation of clinical laboratories included. Open to west campus students.

1 credit

**HAD 302: Fundamental Concepts in Forensic Science**

Introduces specialties within the broad definition of forensic science including criminalistics, crime scene analysis, physical evidence, instrumentation, drug analysis, and biological sciences. Explores up-to-date technologies utilized in crime laboratories to apprehend criminals and to exonerate the innocent. Includes DNA testing, the DNA national database (CODIS), finger print data bank (AFIS), the fired bullet data bank (IBIS), trace evidence techniques, and high-tech advances in crime scene investigation. Not to be taken for credit if completed HAD 304. Open to west campus students.

3 credits

**HAD 304: Intro to Forensic Science**

Introduces the student to forensic science. Describes the interesting and diverse disciplines that comprise the field. Addresses the value of all physical evidence to criminal and civil investigations. Emphasizes forensic biology and chemistry, and the role of the forensic laboratory in the process of criminal investigation. Open to west campus students.

1 credit

**HAL****Athletic Training****HAL 205: Introduction to Athletic Training**

Introduction to the health care profession of athletic training. The course explores the history and development of the profession and the concept of the sports medicine team, as well as medical terminology. Students will be required to complete a 50 hour clinical observation. Open to west campus students.

3 credits

**HAL 210: Emergency Care of Athletic Injuries**

Recognition and management of medical emergencies with emphasis on those conditions that are most commonly suffered by athletes. Successful completion of the course leads to Professional level Cardio-Pulmonary Resuscitation(CPR), Automated External Defibrillator (AED) and First Aid certification by the American Academy of Orthopedic Surgeons Emergency Care and Safety Institute. HAL 205 is recommended prerequisite. Open to west campus students.

3 credits

**HAL 300: Kinesiology**

The mechanical aspects of human motion and the structure and function of these motions in physically active individuals with or without pathological involvement. The student learns basic qualitative and quantitative clinical techniques used in identifying pathological movement. Open to west campus students.

*Prerequisite/Corequisite: ANP 300*

*Corequisite: ANP 300*

4 credits

**HAN****Health Sciences****HAN 200: Human Anatomy and Physiology for Health Science I**

This is the first course in a two-part sequence that introduces the study of human anatomy and physiology at cell, tissue, and organ system levels of organization, with emphasis on understanding disease processes associated with systems. Laboratory sessions include virtual on-line exercises designed to illustrate principles learned and computer simulations in physiology and anatomy dissection. (P/NC grade option is not available.) Open to non-HSC students.

*Prerequisite: one BIO course*

4 credits

**HAN 202: Human Anatomy and Physiology for Health Science II**

This is the second course in a two-part sequence that continues the study of human anatomy and physiology. Topics include the endocrine system, blood composition, the cardiovascular system, the lymphatic system, the immune system, the respiratory system, the digestive system, nutrition, the urinary system, the reproductive system, fluid, electrolyte, acid-base balance and heredity. Laboratory sessions entail virtual online exercises designed to illustrate principles learned and computer simulations in physiology and anatomy dissection. (P/NC grade option is not available) Open to non-HSC students.

*Prerequisite: HAN 200*

4 credits

**HAN 300: Health Care Issues**

Provides students with an overview of the organization of the health care delivery system. Includes the role of health care professionals and health care organizations. Explores issues regarding health care insurance, the uninsured and underserved, managed care and changes in the health care marketplace. Provides an overview of major diseases including epidemics, chronic and acute illness.

Discusses the role of health promotion and disease prevention as well as alternative and complementary medicine. Restricted to HAN majors.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HAN 312: Medical Terminology and Human Anatomy**

Provide a pre-health student the medical terminology and human anatomy needed for the many diverse roles in the health care system. Through didactic and experiential techniques students will be exposed to medical terminology and human anatomy by reviewing body systems including the digestive system, urinary system, integumentary system, reproductive system, respiratory system, endocrine, nervous systems and special senses, musculoskeletal system, cardiovascular and lymphatic systems and the blood system. Students will learn how to build a medical vocabulary and understand the importance of precise communication in the delivery of health care. Students will use the medical vocabulary learned to identify its relation to human anatomy and clinical scenarios. Introduces students to the medical professions, medical conditions, and the technology utilized to diagnosis and treat patients. (P/NC grade option is not available.) Open to non-HSC students.

*Prerequisite: U2 status or higher*

3 credits

### **HAN 333: Communication Skills**

Introduces the principles of effective communication and stages of group development. Offers theory and practice of interpersonal communication and groups. Provides specific topics related to health care teams. Restricted to HAN majors.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HAN 335: Professional Ethics**

Provides students with a framework for identifying ethical dilemmas in professional settings. Through the use of case studies and role-playing, students simulate ethical situations relating to confidentiality, informed consent and truth-telling, and explore various approaches for resolving these conflicts. Presents professional codes of ethics using small and large group discussions. Presents and discusses ethics-related topics such as genetics, transplants, cloning, advance directives, and health care accessibility. Restricted to HAN majors.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HAN 364: Issues in Health Care Informatics**

Acquaints students with the use and application of personal computers and medical information systems used in health care. Emphasizes the optimization and customization potential of computer functions for standard and specialized tasks. Examines the present and potential use of the Internet in the health care arena. Presents the application of medical informatics to health care delivery through classroom demonstrations and discussions. Restricted to HAN majors.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HAN 383: Professional Writing**

Comprehensive overview of the skill set required to write professional documents. Students will be required to communicate to a variety of audiences via letters, memos, electronically transmitted documents, grant proposals, researched essays, and brochures. Introduces students to software packages and other web-based resources. Restricted to HAN majors.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HAN 395: Radiation Physics in Medicine**

Provides an introduction to radiological and radiation oncology physics for students interested in a career in either medical imaging or radiation therapy/oncology. Presents elements of mathematics and general physics relevant to the radiological sciences. Topics include production of radiation, radioactivity, interaction of radiations with matter, radiation detection, characteristics of high energy medical LINAC radiation, absorbed dose calculation and measurement, radiography, radionuclide imaging, imaging with ultrasound, imaging with magnetic resonance, and basic medical radiation safety. Restricted to HANBS students.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

4 credits

### **HAN 401: Radiobiology and Health Physics**

Presents an overview of the biological effects of radiation by examining the interaction of radiation with matter, macromolecules, cells,

tissue and the whole body. Studies the clinical impact of responses to radiation. Introduces students to radiation safety through topics such as biologic consequences of irradiation, regulatory limitation of exposure, methods for exposure minimization, and radiation monitoring. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*

3 credits

### **HAN 402: Radiographic Anatomy and Pathology**

Provides basic radiographic anatomy from both the projection and cross sectional point of view. Introduces to basic disease processes, including the nature and causes of disease and injury. Examines these processes on medical images acquired through radiography, computed tomography, angiography, magnetic resonance, scintigraphy, emission computed tomography and ultrasonography. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*

3 credits

### **HAN 404: Radiology Instrumentation**

Expands imaging physics into the area of Radiologic Technology. Studies the physical basis, construction, operation, and quality control of radiographic, fluoroscopic, computed radiographic, direct radiographic, digital subtraction, and computed tomography systems. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*

3 credits

### **HAN 405: Radiographic Technique**

Focuses on production of radiographic image. Includes rationale for selection of technical factors, issues of image resolution and contrast, image receptor technology; film sensitometry; image intensification; film processing; grids; automatic exposure control; portable/surgical procedures; and basic contrast agent pharmacology, and administration directly related to the production of radiographic images. Presents an overview of the special modalities of computed radiography (CR), direct radiography (DR), fluoroscopy, digital fluoroscopy, digital subtraction angiography (DSA), computed tomography (CT), and

picture archive communication systems (PACS). Special emphasis is placed on reducing patient exposure to radiation. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*  
3 credits

#### **HAN 406: Radiologic Procedures and Positioning I**

Examines routine clinical radiographic positioning of the upper and lower extremities, shoulder, spine, chest, pelvis skull, abdomen, and digestive and urinary systems. Includes portable studies, operating room applications, angiography and advanced imaging techniques. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*  
6 credits

#### **HAN 416: Special Issues in Emergency Care and Resuscitation**

Explores issues in special patient populations and areas in emergency care. Covers pediatric emergencies, obstetric emergencies, neonatology, and geriatric emergencies. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite: Admission to HAN 400 level classes*  
3 credits

#### **HAN 417: Cardiac Emergencies**

Exposes students to concepts and issues critical to assessment and care of patients presenting with cardiac emergencies. Covers cardiovascular pathophysiology; cardiac patient assessment and management; cardiac electrophysiology; cardiopulmonary resuscitation; and advanced cardiac life support. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite: Admission to HAN 400 level classes*  
3 credits

#### **HAN 426: Instrumentation for Nuclear Medicine Technology**

Expands on HAN 394 (Imaging Physics), specifically in the area of Nuclear Medicine Technology. Examines the physical basis, construction, operation and quality control of radiation detection, pulse height analysis, planar imaging, Single Photon Emission

Tomography (SPECT) imaging and Positron Emission Tomography (PET) imaging devices. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*  
3 credits

#### **HAN 427: Nuclear Medicine Procedures**

Covers principles, methods and instrumentation used in Nuclear Medicine imaging. Examines the preparation and performance of planar, Single Photon Emission Tomography (SPECT) and Positron Emission Tomography (PET) nuclear medicine imaging procedures. Provides information needed to perform a variety of imaging and/or functional studies (e.g. liver, spleen, hepatobiliary, gastric reflux, gastrointestinal bleeds, lung, endocrine, central nervous system). Presents in vitro nuclear medicine procedures. Principles of sensitivity, specificity, accuracy, and predictive values of diagnostic testing are also examined. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*  
6 credits

#### **HAN 429: Radiopharmacy and Therapy in Nuclear Medicine**

Examines the production, labeling, quality control, clinical biodistribution, and application of radionuclide tracers for nuclear medicine imaging. Covers radionuclide and radiopharmaceutical characteristics that provide suitable imaging properties. Discusses various aspects of laboratory procedures (e.g. safe handling of radionuclides, radiation safety surveys, hot laboratory instruments, radiopharmaceutical preparation, quality control and sterile technique). Explores pathologies, radiopharmaceuticals, dosage calculation and administration, and patient management issues related to radionuclide therapy. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

*Prerequisite: Admission to HAN 400 level classes*  
3 credits

#### **HAN 432: Introduction to Health Care Management**

Introduces students to the practices and theories of health care policy and management. Presents an overview of the trends in public

policy and management techniques. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite: Admission to HAN 400 level classes*  
4 credits

#### **HAN 434: Corporate Compliance and Regulation**

Provides an overview of recently enacted legislation requiring health care institutions' compliance programs. Introduces regulations and compliance including anti-trust, controlled substances, Americans with Disabilities Act, Occupational Safety and Health Act, Joint Commission on Accreditation of Health Care Organizations, Department of Health jurisdiction over hospitals and licensure requirements. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite: Admission to HAN 400 level classes*  
4 credits

#### **HAN 435: Sales and Marketing in Health Care**

Introduces the essential aspects of marketing and sales in the changing health care world. Addresses the concept of marketing, the nature of marketing strategy and the environment in which marketing operates. Provides a framework for understanding the consumer, along with key selling methods. Topics include the "Four Ps" of marketing, promotional elements of marketing, the communication process, and personal selling. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite: Admission to HAN 400 level classes*  
3 credits

#### **HAN 436: Continuous Quality Improvement in Health Care**

Provides basic principles associated with Total Quality Management (TQM) and Continuous Quality Improvement (CQI). Aids identification and quality problem-solving found in all health care organizations utilizing CQI tools and techniques. Through the use of case studies, current events, and textbook materials, students will learn how to identify problems, recommend improvements, and collect data to demonstrate process improvement. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite: Admission to HAN 400 level classes*

3 credits

### **HAN 440: Introduction to Community Health Education**

Introduces students to the foundation of planning, implementing and evaluating community-based health education programs. Presents classic theories of health education including the social learning theory, health belief model, and the attribution theory. Reviews relevant health education programs. Examines various learning styles and skills. Basic health education models are introduced and critiqued through individual and group projects. Reviews health education professional organizations and associations. Each student is required to design a health education program for a selected population. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 443: Aging and Disability**

Provides comprehensive overview of aging and disability. Includes introduction to the field of geriatrics, age related disabilities, and the experiences of people with disabilities as they age. Presents an interdisciplinary perspective. Incorporates social, environmental, cultural, economic and historical issues related to disability and aging. Film, narrative, biography and guest speakers provide students with first-hand accounts of elders with disabilities. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 446: Disability Health and Community**

Presents a comprehensive view of health and community concerns experienced by people with disabilities. Explores historical analysis, biomedical discourse, cultural critique, and field research to understand the evolution of medical practices, cultural beliefs, and social structures influencing the treatments, services, and opportunities available to people with disabilities in the United States and internationally. Includes gender, sexuality, race, poverty, "invisible disabilities", eugenic sterilization, assisted suicide topics. Guest speakers will facilitate a multi-layered understanding of the issues faced by people with disabilities and their families. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 447: Children with Disabilities**

Provides a comprehensive overview of the theories of child development and issues related to children with developmental spectrum disorders, neurodevelopmental disorders, and communication and learning disorders. Includes behavioral, developmental, language, medical, motor and sensory needs of children with developmental disabilities. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 448: Disability and Employment**

Presents a comprehensive overview of the Disability and Employment field. Explores pertinent employment-related legislation, the vocational rehabilitation system, the structure of existing governmental and not-for-profit programs, and current disability employment practices, through the use of didactic and experiential techniques. Emphasizes the key roles of placement professionals. Provides individualized learning opportunities for individuals with disabilities who happen to be job seeking. Restricted to students approved for appropriate senior year track in the Health Science major

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 449: Project in Disability Studies**

Students will develop independent projects in topic area of disability studies. They will be required to develop a set of readings, engage in a minimum of 15 hours of experiential learning [in the form of community site-visits, volunteerism, or internships]. Course instructors and assigned mentors will assist students during bi-weekly group meetings and by scheduled appointments. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

### **HAN 450: Introduction to Public Health**

Introduces the principles and practices of public health, including definitions and concepts, history and development, determinants of health, and ethical and legal aspects of public health. Orients students to various public health settings such as local

and state health departments, not-for-profit community organizations, and agencies for special populations. Provides students with basic knowledge and skills for conducting community needs assessment with diverse populations. Addresses infectious disease control, environmental health, chronic disease control, tobacco and drug control, maternal and child health, women's health, and injury control topics. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 452: Epidemiology and Biostatistics**

Provides students with the basic knowledge and skills for studying diseases of individuals and groups. Introduces biostatistical approaches and skills for collecting and organizing data of communities to meet health needs. Addresses epidemiological concepts, limitations and resources. Through the use of case studies, students study various epidemiological models used regionally, nationally and internationally. Includes discussions about ethical situations related to research and statistical studies. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 453: Research Methods in Public Health**

Focuses on the details of public health research design. Guides students through a step-by-step approach through qualitative, comparative, and quantitative research designs and analysis methods. Students will learn the language of research, various methods for conducting research and how to identify and synthesize research literature. Builds on concepts covered in the other courses in the public health/community health concentration. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 456: Behavioral and Social Aspects of Health**

Introduces social and behavioral factors as determinants of health. Explores theories of human and group behavior and health behavior change models through lecture and case study. Explores the dynamics between

health behaviors and culture, gender, age and socioeconomic status. Students study various inventory tools for measuring health-related knowledge and methods for measuring behavior change. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

#### **HAN 462: Developing Health Information Systems**

Introduces students to fundamental hardware and software concepts, operating systems, GUI or desktop environments and system development life cycles. Reviews Windows applications such as spreadsheet, database, forms, queries and reports. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

#### **HAN 464: Health Information Systems Management**

The course includes organizational change issues in health care environments, resource management (inventory, tracking and acquisition) and the role of policy formulation. Consumer issues, standards and security and the provision of health information resources to healthcare workers will also be covered. Relevant applications and issues related to health services will also be explored. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

#### **HAN 466: Applied Health Care Informatics**

Provides overview of the role of information systems in health care organizations. Emphasizes the integration of evidence-based research into clinical decision-making and the influence of information systems on health outcomes. Explores technical, organizational and cost-benefit issues related to health care information systems, including clinical decision-support, integrated networking and distributed computing technologies, telemedicine applications and artificial intelligence solutions. Through a combination of classroom-based seminars, group case studies, and computer laboratory exercises, students will develop and exercise analytical skills for appraising health information systems, as well as acquire

practical experience using biomedical research databases, desktop application software, and electronic communication systems. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

#### **HAN 467: Utilization and Outcomes Research Methods**

Provides the necessary tools to evaluate and implement research methods and utilize outcomes within the health care system. Presents an overview of statistics and research methods and evaluation techniques by utilizing group discussions and case studies. Demonstrates the utilization of technology as a resource for existing research as well as management tools. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

#### **HAN 470: Environmental Health, Occupational Health, and Safety Engineering**

Provides fundamentals of occupational safety and health including safety engineering regulations, codes and practices, safety program administration, recognition of hazards, and implementation of hazard controls. Focuses on fire safety problems associated with modern industry and the controls needed to prevent or mitigate hazards. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

#### **HAN 471: Trauma and Trauma Systems**

Explores concepts and issues that are critical to the assessment and care of trauma patients. Covers kinematics, pathophysiology, trauma patient assessment and management, and trauma system development. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

#### **HAN 472: Emergency Response to Hazardous Materials and Terrorism**

Students will learn how healthcare providers recognize and respond to hazardous material (HAZMAT) and terrorist incidents. Includes

management strategies for hazardous materials incidents; identification of on-scene indicators of a suspicious incident; recognition of the tactics and objectives of terrorism; and scene/perimeter control issues unique to a terrorist incident. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

#### **HAN 474: Industrial Hygiene**

Introduces basic concepts of industrial hygiene. Presents the methodology and procedures that professionals in the field use to identify, measure, and correct hazards in the work environment. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

#### **HAN 476: Hazardous Materials, Emergency Response and Environmental Auditing**

Concentrates on the nature of hazardous materials and how they are handled in the workplace. Presents the fundamentals of emergency response planning and how to perform environmental audits. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

#### **HAN 477: Medical Emergencies**

Presents concepts and issues critical to assessment and care of patients presenting with medical emergencies. Covers pathophysiology, medical patient assessment, and management of medical emergencies. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

#### **HAN 478: Internship in Environmental Health**

Proposals for special projects involving advanced readings, reports and discussions on selected environmental health topics must be submitted. A research paper on the selected topic will be submitted to an assigned faculty sponsor. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

2 credits

### **HAN 481: Introduction to Anesthesia**

Introduces the basics of the anesthesia specialty. Defines the role of the anesthesia specialist as an integral part of the patient care team. Through the use of lecture, video, tour, and hand-on demonstration, students will gain a working knowledge of how to assist anesthesiologists and anesthesiologists in the acquisition, preparation and application of equipment and supplies required for the administration of anesthesia. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

2 credits

### **HAN 482: Introduction to Pathology**

Pathology is the branch of medicine devoted to the study and understanding of disease. This course will introduce the student to the concept of disease. The types of growth, causative factors and biological behavior of neoplastic diseases are discussed. Staging procedures are introduced. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 483: Cardiopulmonary Physiology for Anesthesia Technology**

Familiarizes students with the anatomical structures and physiological mechanisms and functions of the cardiopulmonary system. Reviews mathematical formulas and calculations used in clinical applications of physiologic concepts. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 485: Clinical Monitoring**

Provides students with a working knowledge of clinical monitoring devices and their application to clinical settings. Covers duties of anesthesia technologist including the provision of technical support to professional staff in order to facilitate anesthesia departmental function. Student develops skills to maintain and organize the anesthesia environment, equipment and supplies. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

1 credit

### **HAN 486: Principles and Practice of Radiation Therapy**

Introduces student to the practice and technical aspects of radiation therapy. An overview of cancer to include: statistics, epidemiology, etiology, patient education and assessment, and pharmacology and drug administration. Radiation therapy techniques specific to anatomical site will be demonstrated and treatment outcome statistics discussed. Explores treatment options available to cancer patients. Introduces practice and technical aspects of radiation therapy, including techniques specific to anatomical sites and treatment outcome statistics and options available to cancer patients. Includes cancer statistics; epidemiology; etiology; patient education and assessment; a review of the emotional and physical needs of cancer patients; and pharmacology and drug administration. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 487: Introduction to Treatment Planning**

Provides a detailed exploration of treatment planning in the field of radiation therapy. Includes, but is not limited to, in-depth instruction in planning algorithms, data transfer, dose computation, plan evaluation and implementation, and Quality Assurance (QA). Reviews and discusses a variety of treatment planning systems and treatment machines. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

3 credits

### **HAN 489: Pharmacology for Anesthesia Technology**

Presents basic principles of pharmacologic properties and clinical applications. Through the use of lectures and scenarios, provides working knowledge base of drug classifications and their modes of action to produce therapeutic effects on target sites. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

### **HAN 490: Fundamentals of Medical Dosimetry and Contouring**

Covers a variety of Radiation Therapy disease sites that are fundamental to the planning competencies required during the clinical year. Includes radio-geographical cross-sectional anatomy using Computerized Tomography (CT), Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI) imaging; full-body anatomical contouring; tolerance doses for critical organs; patient treatment setup; immobilization devices; beam modifiers; Dose Volume Histograms and electron planning including but not limited to 3 Dimensional (3D) planning vs. Intensity Modulated Radiation Therapy (IMRT) of all competency sites. Discussions include Radiation Therapy Oncology Group (RTOG) protocols of all competency sites. Restricted to students approved for appropriate senior year track in the Health Science major.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

### **HAN 492: Radiation Oncology/Medical Physics II**

Provides students interested in a career in medical dosimetry with an introduction to medical physics for radiation oncology. This is the second course in a two-part series that provides the basis for further study of the applications of radiation oncology physics to radiation treatment planning and radiation dose calculations. Covers topics such as radiation dose distribution, patient dose calculations, treatment planning, electron beam therapy, brachytherapy, modern treatment delivery, and radiation protection. Restricted to students approved for appropriate senior year track in the Health Science program.

*Prerequisite:* Admission to HAN 400 level classes

4 credits

### **HAN 499: Health Science Teaching Practicum**

Advanced students assist faculty members teaching Health Science courses. In addition to working as tutors during instructional periods, students have regular conferences with a faculty supervisor. Students may not serve as teaching assistants in the same course twice. Permission of the instructor is required.

*Prerequisite:* Admission to Undergraduate Health Sciences Center program

1-2 credits

# HAO

## Occupational Therapy

### HAO 313: Introduction to Occupational Therapy

Introduces the history and essential aspects of occupational therapy. Examines philosophical base, definitions related to the practice, scope of practice and role delineations. Provides an orientation to professional organizations, statutes, and credentialing. Open to west campus students.

1 credit

## HAS

### Allied Health

#### HAS 190: Introduction to the Health Professions

Presents topics of interest to students considering careers as health professionals. Introduces the student to basic concepts of health, factors influencing health care, health care settings, and selected health professions. May not be taken for credit in addition to LHW 102. Open to west campus students.

1 credit

#### HAS 300: Issues in Health Care

Examines major issues influencing health care delivery. Emphasizes analysis of significance of these issues to the health professions. Covers organization of the delivery system, professional roles, quality control, cost controls, health agencies and alternative delivery models, consumer life-styles, and health statistics. Integrates current trends in managed care, reimbursement, health policy and reform. Discusses infectious disease and nutrition. Allows for discipline-specific program development and implementation through HSC outreach efforts.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

2 credits

#### HAS 332: Management Concepts for Health Professionals

Identifies coping strategies with bureaucracies as agent, participant, and consumer. Considers the human dimensions of personnel, financial and materials management as related to the service functions of health agencies.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1 credit

#### HAS 335: Medical Ethics

Introduces health professional students to basic concepts and challenges in medical ethics. Uses a framework and decision-making process to help students learn how to approach ethical dilemmas. Explores current topics in health care ethics including advance directives, assisted dying, genetics, cloning, transplants, confidentiality, informed consent, and professional conduct.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1 credit

#### HAS 350: Introduction to Statistics

Discusses elements of biostatistics, graphs and tables, descriptive statistics, probability, populations of samples, normal distribution, hypothesis testing, and computers.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

2 credits

#### HAS 351: Research Literacy/Research Design

Prepares students to perform a literature search in their respective disciplines to find scientific and health articles and books in the Health Sciences Center Library. Presents research terminology, methods, and design. Provides basic skills to enhance interpretation, evaluation and analysis of research articles, including the hypothesis, literature review, design, methodology, and data analysis.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1 credit

#### HAS 363: Computer Literacy for Health Professionals

Surveys the uses of computers for health practitioners. Offers practical experience in literature database searching and use of applications software.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1 credit

#### HAS 391: Readings in Health

Supplementary specialized readings under faculty supervision. Topics determined by mutual agreement between undergraduate student and faculty and must have the approval of the program director in the School of Health Technology and Management prior to registration.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1-3 credits

#### HAS 399: Independent Study in Health

A special project involving advanced readings, reports, discussions, research, or special course work on topics or problems of the student's choosing, with the guidance of an assigned faculty member. Projects must have the approval of the program director in the School of Health Technology and Management prior to registration.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1-6 credits

#### HAS 490: Research Tutorial

An original research project is conducted.

*Prerequisite: HAS 351*

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

2 credits

#### HAS 498: SHTM Full Time Enrollment

For students who are maintaining matriculation before the start date of the HSC program.

12 credits, S/F graded

#### HAS 499: SHTM Full Time Enrollment

For students who are maintaining matriculation before the start date of the HSC program.

12 credits, S/F graded

## HAT

### Respiratory Care

#### HAT 210: Introduction to Respiratory Care

An introduction to the science of respiratory care. Current trends in professional practice are discussed and students have the opportunity to observe clinical practice at a variety of affiliated health care facilities. This course is specifically designed for lower-division four year respiratory care majors. Open to west campus students.

1 credit

## HBA

### Anatomical Sciences

#### HBA 109- E: Life Through Time

An examination of biodiversity as preserved in the fossil record and how it contributes to the understanding of evolution. Species examined include invertebrates, plants, dinosaurs, and mammals and the ultimate origin and evolution of humans. Principles of evolution, paleontology, phylogeny reconstruction, and

conservation are discussed. This course is offered as both GEO 109 and HBA 109.

3 credits

### **HBA 398: Research Project in Anatomical Sciences**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to juniors and seniors. May be repeated.

*Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor*

2-4 credits

### **HBA 399: Research Project in Anatomical Sciences**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to juniors and seniors. May be repeated.

*Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor*

2-4 credits

### **HBA 460: Regional Human Anatomy for Students in Cytotechnology**

A lecture and laboratory course that includes the dissection of the head, neck and trunk. The course is organized in two modules: 1) thorax and abdomen, and 2) head and neck, including neuroanatomy. It covers regional and conceptual information on a gross anatomical level.

3 credits

### **HBA 461: Regional Human Anatomy**

An overview of the gross anatomy of the human body. Dissection of the entire human body. Includes neuroanatomy. Prerequisite: Permission of instructor for non-Health Sciences students.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

5 credits

## **HBH**

### **Pharmacology**

### **HBH 330: Fundamentals of Pharmacology I**

HSC Bulletin Information Covers the basic principles that underlie the action of drugs on physiological processes. These principles are applied to the specific action of drugs on the autonomic nervous system. In addition, the pharmacology of cardiovascular drugs are covered in detail.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

2 credits

### **HBH 331: Fundamentals of Pharmacology II**

A continuation of HBH 330. Covers the action of drugs on individual systems as well as drug-drug interactions emphasizing the mechanisms of drug action. Surveys therapeutic applications and adverse drug reactions. Prerequisite: HBH 330

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HBH 332: Pharmacology in Cardiorespiratory Sciences**

Includes the basic principles of drug actions and covers drug applications in the autonomic, cardiovascular and respiratory systems. For cardiorespiratory sciences students enrolled in The School of Health Technology and Management.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HBH 393: Topics in Pharmacology**

Tutorial readings in pharmacology with periodic conferences, reports, and examinations arranged with the instructor. Open to juniors and seniors. May be repeated. May not be used toward the requirements for the major in pharmacology.

*Prerequisites: U3 or U4 standing; permission of instructor*

1-5 credits

### **HBH 394: Topics in Pharmacology**

Tutorial readings in pharmacology with periodic conferences, reports, and examinations arranged with the instructor. Open to juniors and seniors. May be repeated. May not be used toward the requirements for the major in pharmacology.

*Prerequisites: U3 or U4 standing; permission of instructor*

1-5 credits

### **HBH 396: Research Project in Pharmacology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project. May be repeated. May not be taken for credit in addition to BCP 487.

*Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor*

0-6 credits

### **HBH 398: Research Project in Pharmacology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project. May be repeated. May not be taken for credit in addition to BCP 487.

*Prerequisite: U3 or U4 standing*

1-6 credits

### **HBH 399: Research Project in Pharmacology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project. May be repeated. May not be taken for credit in addition to BCP 487.

*Prerequisite: U3 or U4 standing*

1-6 credits

## **HBM**

### **Molecular Genetics and Microbiology**

#### **HBM 320: General Microbiology**

A study of the molecular structure, functional anatomy, growth, genetics, and pathogenic mechanisms of microbial agents, with an emphasis on bacteria and viruses. Non-specific and specific host defenses and the control of microorganisms will also be covered. Satisfies the microbiology requirement for admission to most allied health, nursing, optometry, and veterinary medicine professional schools.

*Prerequisites: BIO 202; CHE 132*

3 credits

#### **HBM 321: General Microbiology Laboratory**

Complementing the lecture material of HBM 320, this optional laboratory covers basic and applied microbiological methods. Students are introduced to methods for isolating pure cultures, microscopy and staining, quantitation of bacteria and determination of sensitivity to antimicrobial agents. This laboratory is limited to pre-allied health, pre-nursing, and pre-veterinary students.

*Prerequisites:* BIO 202; CHE 132; permission of instructor

1 credit

### **HBM 398: Research Project in Microbiology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. Project report required. May be repeated.

*Prerequisites:* U3 or U4 standing; prior laboratory experience; permission of instructor

0-4 credits

### **HBM 399: Research Project in Microbiology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. Project report required. May be repeated.

*Prerequisites:* U3 or U4 standing; prior laboratory experience; permission of instructor

0-4 credits

## **HBP**

### **Pathology**

#### **HBP 310: Pathology**

A study of the basic mechanisms of disease and the pathophysiology of the important human illnesses. Primarily for Health Sciences Center students; others admitted with special permission.

*Prerequisite:* Admission to Undergraduate Health Sciences Center program

3 credits

#### **HBP 393: Special Topics from Pathology Literature**

Tutorial readings in pathology, with periodic conferences, reports, and examinations arranged with the instructor. May be repeated.

*Prerequisites:* U3 or U4 standing; permission of instructor

1-2 credits

#### **HBP 394: Special Topics from Pathology Literature**

Tutorial readings in pathology, with periodic conferences, reports, and examinations arranged with the instructor. May be repeated.

*Prerequisites:* U3 or U4 standing; permission of instructor

1-2 credits

#### **HBP 398: Research Project in Pathology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. May be repeated. *Prerequisite:* Laboratory experience.

*Prerequisites:* U3 or U4 standing; laboratory experience; permission of supervising instructor

0-4 credits

#### **HBP 399: Research Project in Pathology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. May be repeated. *Prerequisite:* Laboratory experience.

*Prerequisites:* U3 or U4 standing; laboratory experience; permission of supervising instructor

0-4 credits

#### **HBP 401: Applied Immunology**

Introduces the principles of immunology for allied health professions students. Emphasizes applications of immunological principles to clinical and laboratory immunology.

*Prerequisite:* Enrollment in School of Health Technology and Management or Biology or Pre Med Major.

*Prerequisite:* Admission to Undergraduate Health Sciences Center program

3 credits

## **HBW**

### **Hebrew**

#### **HBW 101 - S3: Intensive Elementary Hebrew**

An intensive course covering the elementary Hebrew program in one semester, satisfying

the language requirement. This course is designed for students who have no prior knowledge of the language.

6 credits

#### **HBW 111: Elementary Hebrew I**

An introduction to modern Hebrew as currently spoken and written in Israel, stressing pronunciation, speaking, listening comprehension, reading, and writing. The course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Hebrew in high school (or who has otherwise acquired an equivalent proficiency) may not take HBW 111 without written permission from the supervisor of the course.

3 credits

#### **HBW 112 - S3: Elementary Hebrew II**

An introduction to modern Hebrew as currently spoken and written in Israel, stressing pronunciation, speaking, listening comprehension, reading, and writing.

*Prerequisite:* HBW 111

3 credits

#### **HBW 211 - S3: Intermediate Hebrew I**

Intermediate courses in conversation, composition, and the reading of texts in modern Hebrew.

*Prerequisite:* HBW 112

3 credits

#### **HBW 212 - S3: Intermediate Hebrew II**

Intermediate courses in conversation, composition, and the reading of texts in modern Hebrew.

*Prerequisite:* HBW 211

3 credits

#### **HBW 311 - S3: Advanced Hebrew I**

A course in the active use of spoken and written Hebrew. Readings of classics in the Hebrew language. Discussion is conducted mainly in Hebrew.

*Prerequisite:* HBW 212

3 credits

#### **HBW 312 - S3: Advanced Hebrew II**

Readings in modern Hebrew authors. Oral and written reports. Discussion is conducted mainly in Hebrew.

*Prerequisite:* HBW 311

3 credits

#### **HBW 405 - S3: Studies in Hebrew Literature**

May be repeated as the topic changes.

*Prerequisite: HBW 311 or 312*

3 credits

### **HBW 415 - S3: The History of the Hebrew Language**

Readings and discussion (in Hebrew) of selections from Biblical, post-Biblical, and modern literature; lectures and discussion (in English) on the changes of sentence structure, meaning, sound, and style from one period to another. Particular attention is given to classicism, innovation, and restructuring in the rise of modern Hebrew.

*Prerequisite: HBW 311*

3 credits

### **HBW 447 - S3: Directed Readings in Hebrew**

Intensive study of a particular author, period, or genre of Hebrew literature in the original under close faculty supervision. May be repeated.

*Prerequisite: Permission of director*

1-4 credits

### **HBW 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: U3 or U4 standing; permission of instructor*

3 credits, S/U grading

### **HBW 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HBW 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: HBW 475; permission of instructor*

3 credits, S/U grading

## **HBY**

### **Physiology and Biophysics**

#### **HBY 350: Physiology**

The normal functioning of human tissues and organs and their regulation by the nervous and endocrine systems. Special emphasis is given to physiological control systems and the preservation of the constancy of the internal environment. Lectures, conferences, demonstrations. Only for Health Sciences Center students. Only Fall.

*Prerequisite: Admission to Undergraduate Health Sciences Center program or admission to Pharmacology major or permission of instructor*

4 credits

#### **HBY 390: Topics in Physiology**

Seminar in advanced topics taught in conjunction with HBY 350 Physiology. Only Fall.

*Corequisite: HBY 350; permission of instructor*

1 credit

#### **HBY 393: Special Topics from Physiology and Biophysics Literature**

Tutorial readings in physiology and biophysics and periodic conferences, reports, and examinations arranged with the instructor. May be repeated. Only Fall.

*Prerequisites: U3 or U4 standing; permission of instructor*

1-2 credits

#### **HBY 394: Special Topics from Physiology and Biophysics Literature**

Tutorial readings in physiology and biophysics and periodic conferences, reports, and examinations arranged with the instructor. May be repeated. Only Fall.

*Prerequisites: U3 or U4 standing; permission of instructor*

1-2 credits

#### **HBY 398: Research Project in Physiology and Biophysics**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. May be repeated. Only Spring.

*Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor*

0-4 credits

### **HBY 399: Research Project in Physiology and Biophysics**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. May be repeated. Only Spring.

*Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor*

0-4 credits

## **HDH**

### **Dental Medicine**

#### **HDH 301: Independent Readings and Research**

The student conducts his or her research project under the supervision of one or more members of the Department of Dental Health. The student is expected to submit a written report detailing his or her research activities and conclusions. This course is offered for undergraduate students who demonstrate an interest in the health care delivery system of the United States.

*Prerequisites: SOC 392 when topic is Health Care Delivery; approval of department chairperson*

3 credits

## **HDO**

### **Oral Biology and Pathology**

#### **HDO 320: Research: Oral Biology and Pathology**

Fall, Spring or Summer Research: Oral Biology and Pathology

2-4 credits

#### **HDO 321: Oral Biology Research II**

The student conducts an independent research project under the supervision of one or more members of the Department of Oral Biology and Pathology. The student is expected to submit a written report detailing experimental methods, results, and conclusions. A copy of the student's transcript must be submitted with the application to the Department. Fall or Spring research.

*Prerequisites: U3 standing; permission of the Department prior to registration*

*Advisory Prerequisites: BIO 202; CHE 132/134 or CHE 142/144*

2-4 credits

### **HDO 420: Oral Biology Research III**

The student conducts a research project under the supervision of one or more members of the Department of Oral Biology and Pathology. The student is expected to submit a written report detailing experimental methods, results, and conclusions. A copy of the student's transcript must be submitted with the application to the Department. Fall or Spring research.

*Prerequisites: U4 standing; permission of department prior to registration*  
*Advisory Prerequisites: BIO 202; CHE 132/134 or CHE 142/144*

2-4 credits

### **HDO 421: Oral Biology Research IV**

The student conducts a research project under the supervision of one or more members of the Department of Oral Biology and Pathology. The student is expected to submit a written report detailing experimental methods, results, and conclusions. A copy of the student's transcript must be submitted with the application to the Department. Fall or Spring research.

*Prerequisites: HDO 420*

2-4 credits

## **HDP**

### **Periodontics**

#### **HDP 320: Introduction to Periodontal Research**

The student is taught various techniques and procedures used in current periodontal research. The student is expected to undertake a small research project implementing these techniques.

*Prerequisites: CHE 132/134 or CHE 142/144; BIO 202; permission of instructor*

0-4 credits

#### **HDP 321: Introduction to Periodontal Research**

The student is taught various techniques and procedures used in current periodontal research. The student is expected to undertake a small research project implementing these techniques.

*Prerequisites: CHE 132/134 or CHE 142/144; BIO 202; permission of instructor*

0-4 credits

#### **HDP 322: Introduction to Periodontal Research**

The student is taught various techniques and procedures used in current periodontal research. The student is expected to undertake a small research project implementing these techniques.

*Prerequisites: CHE 132/134 or CHE 142/144; BIO 202; permission of instructor*

0-4 credits

#### **HDP 420: Research in the Biology and Pathology of Periodontium**

An independent research project under faculty supervision with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to upper-division students. May be repeated up to a maximum of eight credits.

*Prerequisites: U3 or U4 standing; permission of instructor*

0-4 credits, S/U grading

#### **HDP 421: Research in the Biology and Pathology of Periodontium**

An independent research project under faculty supervision with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to upper-division students. May be repeated up to a maximum of eight credits.

*Prerequisites: U3 or U4 standing; permission of instructor*

0-4 credits, S/U grading

#### **HDP 422: Research in the Biology and Pathology of Periodontium**

An independent research project under faculty supervision with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to upper-division students. May be repeated up to a maximum of eight credits.

*Prerequisites: U3 or U4 standing; permission of instructor*

0-4 credits, S/U grading

## **HDV**

### **Human Development**

#### **HDV 101: Introduction to Stony Brook**

A seminar intended to integrate students into the Undergraduate College of Human Development and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, ACH 101, LDS 101, GLS 101, ITS 101, SSO 101, SBU 101, SCH 101, or LSE 101.

*Prerequisite: Admission to the HDV Undergraduate College*

1 credit, S/U grading

#### **HDV 102: Undergraduate College Seminar: Human Development**

A seminar for all first-year students in the Undergraduate College of Human Development. Seminar topics vary annually by section and cover a variety of subjects under the general scope of Human Development. Required for all first year students. Not for credit in addition to ACH 102, GLS 102, ITS 102, LDS 102, or SSO 102.

*Prerequisite: Admission to the HDV Undergraduate College*

1 credit, ABC/U grading

#### **HDV 275: Undergraduate College Fellows Seminar**

Creates a curricular component for the second year of the Undergraduate College Experience. College fellows will enroll in HDV 275 in the spring semester of their freshman year and HDV 276 in the fall semester of their sophomore year. 275 (spring) engages students in four main content areas: student development theory, scholarship on mentoring and leadership development, concepts of teaching and learning, and programming and event planning. These areas prepare students for supervised learning and teaching experiences that will occur primarily in the fall 276 course.

*Prerequisites: Grade of "S" in HDV 101 and a strong desire to help other students. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

1 credit, S/U grading

#### **HDV 276: Undergraduate College Fellows Practicum**

The second semester in the sequence following HDV 275. Students assume higher responsibility and are given opportunities to apply teaching theories and concepts as learned in HDV 275. Students act as a TA for HDV 101.

*Prerequisites: A grade of "S" in HDV 275. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

*1 credit, S/U grading*

### **HDV 475: Undergraduate College Teaching Practicum**

The purpose of this course is to allow upper-division students the opportunity to work with a faculty member as an assistant in one of the faculty member's scheduled Undergraduate College seminars. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course. May be repeated up to a limit of 2 credits.

*Prerequisite: Permission of the instructor and department*

*1 credit, S/U grading*

### **HDV 488: Undergraduate College Internship**

Students learn about contemporary issues in higher education, community building, and teaching at a research university through hands-on work with faculty mentors. Work assigned will include participation in the planning and operation of events and initiatives sponsored by the Undergraduate Colleges. Students are required to submit written reports on their experiences to the Undergraduate Colleges office and Faculty Directors. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of the instructor and department*

*0-3 credits, S/U grading*

## **HIN**

### **Hindi**

#### **HIN 101 - S3: Intensive Elementary Hindi**

An intensive, 6-credit, elementary-level Hindi language course that provides students with basic skills, including pronunciation, everyday conversational proficiency, script, basic grammatical rules, and basic cultural norms and preferences that govern language use. Using the communicative approach, this course situates oral and written language in real-life contexts and promotes learner-centered, interactive classroom activities. A student will be able to comprehend basic conversations and respond in correct Hindi.

This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Hindi in high school (or who has otherwise acquired an equivalent proficiency) may not take HIN 101 without written permission from the supervisor of the course. May not be taken for credit after any other course in Hindi.

*6 credits*

#### **HIN 111: Elementary Hindi I**

An introduction to spoken and written Hindi, stressing pronunciation, speaking, comprehension, reading, and writing. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Hindi in high school (or who has otherwise acquired an equivalent proficiency) may not take HIN 111 without written permission from the supervisor of the course.

*3 credits*

#### **HIN 112 - S3: Elementary Hindi II**

An introduction to spoken and written Hindi, stressing pronunciation, speaking, comprehension, reading, and writing.

*Prerequisite: HIN 111*

*3 credits*

#### **HIN 211 - S3: Intermediate Hindi I**

Advanced speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. A student who has had more than four years of Hindi in high school (or who has otherwise acquired an equivalent proficiency) may not take HIN 211 without the written permission of the supervisor of the course.

*Prerequisite: HIN 112*

*3 credits*

#### **HIN 212 - S3: Intermediate Hindi II**

Advanced speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. A student who has had more than four years of Hindi in high school (or who has otherwise acquired an equivalent proficiency) may not take HIN 212 without the written permission of the supervisor of the course.

*Prerequisite: HIN 211*

*3 credits*

#### **HIN 311 - S3: Hindi Conversation and Composition I**

An advanced course designed to strengthen students' ability to understand, speak, read,

and write Hindi beyond the intermediate level. Students learn to read and comprehend a variety of selected texts from their textbook which includes samples from Hindi newspapers, TV, films, journals, and classical and modern literature and to appreciate the cultural nuances of language use. They are also trained to write professionally and/or creatively in Hindi. Not intended for international students with native knowledge of written and spoken Hindi, or for native students who have mastered written and spoken Hindi.

*Prerequisite: HIN 212 or placement test*

*3 credits*

#### **HIN 312 - S3: Hindi Conversation and Composition II**

Students continue to strengthen their ability to understand, speak, read, and write Hindi beyond the intermediate level. Students learn to read and comprehend a variety of selected texts from their textbook which includes samples from Hindi newspapers, TV, films, journals, and classical and modern literature and to appreciate the cultural nuances of language use. Students are also trained to write professionally and/or creatively in Hindi. Not intended for international students with native knowledge of written and spoken Hindi, or for native students who have mastered written and spoken Hindi.

*Prerequisite: HIN 311 or placement test*

*3 credits*

## **HIS**

### **History**

#### **HIS 101- F: European History: from Antiquity to Revolution**

An introduction to the ideas and institutions of "the West" from the beginnings of civilization to the French Revolution. Topics include ancient cultures; the rise of Christianity; medieval politics and society, Renaissance art and thought; the Reformation and Counter-Reformation; the new science; absolutism and the modern state; and the Enlightenment.

*3 credits*

#### **HIS 102- F: Modern European History from 1789 to 1945**

An introduction to the revolutionary events in politics and the economy, principally the industrialization of society, and the national, class, ethnic, and gender conflicts that dominated the period, including their cultural and ideological aspects. The course begins with the French Revolution, characterized by

high hopes for the rational mastery of nature and society, and ends with the Second World War, a period of mass destruction and total war.

3 credits

### **HIS 103- F & 4: American History to 1877**

A survey of American history from the Age of Discovery to the end of Reconstruction. Topics include the transplantation of European culture to America, the rise of American nationalism, the democratization of American society, the institution of slavery, and the emergence of an industrial society.

3 credits

### **HIS 104- F & 4: United States Since 1877**

A survey of modern American history from the end of Reconstruction to the present. The course focuses on the impact of industrialization on social, cultural, and political life; the emergence of the United States as a world power; and the adaptation of that power to the crises of the later 20th century.

3 credits

### **HIS 105- F: The Ancient World**

An overview of the cultures and civilizations of the Old World from the emergence of the first cities around 3500 BCE to the fall of the Roman Empire. The primary focus is on the development of the stream of tradition antecedent to modern Europe that begins in the ancient Near East and moves through Greece and the Hellenistic world to Rome. The emergence of the first civilizations in India and China will also be treated. Students will focus on individual and group behavior within society and use historical methods and content as a means to observe and analyze human activity and society.

3 credits

### **HIS 201- J: The Ancient Near East**

An overview of the world's first civilization, from the invention of writing to the conquests of Alexander the Great (d. 323 BCE). Ancient Mesopotamia, in which Sumerians, Akkadians, Babylonians, and Assyrians developed their distinctive cultures, will be the central focus, but other Near Eastern peoples who were deeply influenced by the Mesopotamian tradition, such as the Hittites, Israelites, Phoenicians, and Persians, will be covered as well.

*Advisory Prerequisite: HIS 105*

3 credits

### **HIS 202- I: Ancient Greece**

Basic features of modern life can be traced back to the people of ancient Greece: democracy, philosophy, theater, and more all began among the ancient Hellenes. Who were these people? What enabled them to achieve so much, and why has their influence lasted so long? This course will try to answer these questions.

3 credits

### **HIS 203- I: Ancient Rome**

Important features of modern culture, the legal and religious foundations of our heritage, were shaped by the people of ancient Rome. How could the inhabitants of one city achieve so much, and why has their influence lasted so long? This course will try to answer these questions.

3 credits

### **HIS 204- J: Egypt of the Pharaohs**

An archaeologically informed overview of the history of ancient Egypt, beginning with the introduction of agriculture and concluding with the integration of Egypt into the Roman Empire. Particular attention will be given to the records of the ancient Egyptians themselves, which are transmitted to us through the hieroglyphic writing systems and its derivatives. While political history forms the chronological framework of the presentation, there will be detailed consideration of various aspects of Egyptian culture such as kingship, political institutions, artistic traditions, mortuary practices, religion, historiography, and literature.

*Advisory Prerequisite: HIS 105*

3 credits

### **HIS 208- I: Ireland from St. Patrick to the Present**

A survey of the history of Ireland with emphasis on its colonization and the subsequent emergence of an independent, though troubled and fragmentary, national state.

3 credits

### **HIS 209- I: Imperial Russia**

The political, social, and cultural developments from Peter the Great to the revolutionary era with emphasis on the unique institutional structure of Tsarist Russia and the problem of its relations with the West.

3 credits

### **HIS 210- I: Soviet Russia**

The ideological and social background of the Russian Revolution and the evolution of Soviet rule: the problem of industrialization, the relations with the capitalist West, and totalitarian control over society.

3 credits

### **HIS 212- J: Ancient History of Mesoamerica**

A detailed examination of the Pre-Columbian civilizations of Mesoamerica. Traces the historical development of Mesoamerican populations from transhumant hunter-gatherers to some of the world's most intriguing independent civilizations. Emphasis will be placed on the social, economic, and political trajectories of the Olmec, Teotihuacan, Zapotec, Maya, Toltec, and Aztec peoples. Class will conclude with a discussion of the role of ancient history in the region's modern identity.

3 credits

### **HIS 213- J: Colonial Latin America**

From conquest to independence: Spanish and Portuguese colonialism in the New World and the forging of Latin American societies.

*Advisory Prerequisite: LAC 200*

3 credits

### **HIS 214- J: Modern Latin America**

From independence to the present: the evolution of 19th- and 20th-century Latin America. Emphasis on current social, economic, and political issues. This course is offered as both HIS 214 and POL 214.

*Advisory Prerequisite: LAC 200*

3 credits

### **HIS 216- J: History of U.S.-Latin American Relations**

An examination of the impact of U.S. economic and political relations with Latin America from the mid-19th century to the present. The course considers changes in American policy toward Latin America, as well as the varying responses of Latin American nations to U.S. intervention and influence. This course is offered as both HIS 216 and POL 216.

*Advisory Prerequisite: One HIS course*

3 credits

### **HIS 219- J: Introduction to Chinese History and Civilization**

Introductory survey examining key concepts and significant themes in Chinese history. Topics include Confucianism, popular religion, government, foreign policy, the economy,

Western influence, Chinese revolution, and modernization.

*Advisory Prerequisite: One HIS course*

3 credits

### **HIS 220- J: Introduction to Japanese History and Civilization**

A broad survey of Japan's history since antiquity. Focus is on the broader processes of political, economic, social, and cultural transformation of Japan. Themes include: the role of the emperor, Japan's relationship to Asia and the West, state-societal relations, and the nature of Japanese capitalism.

*Advisory Prerequisite: One HIS course*

3 credits

### **HIS 221- J: Introduction to Modern African History**

Historical themes in 19th- and 20th-century Africa. Topics include social and political relations in African states; slavery and the slave trade in West Africa; the impact of Christianity and Islam on African colonialism; colonialism and its consequences; nationalist movements and de-colonization; pan-Africanism and the politics of African unity; the postcolonial state project; economic planning in postcolonial Africa; and African states and international politics in the Cold War era. This course is offered as both AFS 221 and HIS 221.

*Advisory Prerequisite: One D.E.C. category F course*

3 credits

### **HIS 225- J: The Formation of the Judaic Heritage**

Jewish history and the development of Judaism during the Persian, Hellenistic, and Roman periods (ca. 500 B.C.E.- ca. 500 C.E.). The course begins with the close of the Hebrew Bible, examines the varieties of Judaism which then arose, and ends with the consolidation of rabbinic Judaism on one hand and Christianity on the other. This course is offered as both HIS 225 and JDS 225.

*Advisory Prerequisite: RLS 101 or 110 or one HIS course*

3 credits

### **HIS 226- F: The Shaping of Modern Judaism**

The history of the Jews and of Judaism since the fall of the Roman Empire and the rise of Islam. The course concludes with a study of the Holocaust and the creation of the State of Israel, and includes a survey of the major forms of American Jewish life. This course is offered as both HIS 226 and JDS 226.

*Advisory Prerequisite: RLS 101 or 110 or one HIS course*

3 credits

### **HIS 227- J: Islamic Civilization**

Selected topics in Islamic civilization beginning with the Arabian world at the time of Muhammed and extending to current events. The focus of the course is primarily on history and culture, but the interplay of politics and religion is also examined.

3 credits

### **HIS 235- I: The Early Middle Ages**

A survey of Europe in the Early Middle Ages (300-1100) from the emergence of Christianity and the decline of the Roman Empire in the West through the Investiture Struggle and the early Crusades. The course covers social, political, cultural, and religious developments. Emphasis is placed on the reading of primary sources - literary and religious texts and the public record.

3 credits

### **HIS 236- I: The Late Middle Ages**

A survey of Europe in the Later Middle Ages (1100-1500) from the Crusades and rise of towns and feudal monarchy through the years of war, plague, and the Great Schism and Conciliarism. The course covers social, political, cultural, and religious developments. Emphasis is placed on the reading of primary sources - literary and religious texts and the public record.

3 credits

### **HIS 237- H: Science, Technology, and Medicine in Western Civilization I**

An examination of science, technology, medicine, and their social organization from 1450-1790 (from the Renaissance to the French Revolution) and the origin of those systems in Western cultures. Among the topics covered are experimentation and mathematics, funding of technological development by the state, organizations of scientists, the place of science and technology in cultural life, industrialization, and the character and organization of medical practice.

*Advisory Prerequisite: One D.E.C. category E course*

3 credits

### **HIS 238- H: Science, Technology, and Medicine in Western Civilization II**

An examination of science, technology, medicine, and their social organization from 1790 to the present (from the French Revolution to the end of the Cold War)

and the development of these systems world wide. Among the topics covered are professionalization of medicine, implications of physics for defense industries, growth of biotechnology, and the impact of Darwinism on culture.

*Advisory Prerequisite: HIS 102*

3 credits

### **HIS 241- I: The Holocaust: The Destruction of European Jewry-- Causes and Consequences**

The rise of modern anti-Semitism since the late 18th century and its political application in Nazi Germany. Topics include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. This course is offered as both HIS 241 and JDS 241.

*Advisory Prerequisite: JDS/HIS 226 or HIS 101 or 102*

3 credits

### **HIS 248- I: Europe, 1815-1914**

European history from the Congress of Vienna to the outbreak of the First World War, with emphasis on political and social developments, but also including economic and cultural trends.

*Advisory Prerequisite: HIS 101 or 102*

3 credits

### **HIS 249- I: Modern Europe, 1914-1945**

European history from the outbreak of the First World War to the post-World War II period, with emphasis on political and social developments, but also including economic and cultural trends. Consideration of the historic forces leading up to the events of 1914.

*Advisory Prerequisite: HIS 102*

3 credits

### **HIS 250- F: The Second World War, 1939-1945**

A comprehensive examination of the ordeal of total war. Military history forms the background for a study of how societies mobilized to meet the demands of total war; how people faced foreign occupation and persecution; and how the war changed political, economic, and social institutions, inspired moral reflection and cultural expression, and altered the global balance of power.

*Advisory Prerequisite: HIS 102*

3 credits

### **HIS 251- I: Europe Since 1945**

A study of contemporary Europe against the background of 20th century history,

emphasizing political developments beginning with the Cold War, de-colonization, the problems of postindustrial society, managed capitalism, and intellectual and cultural movements such as existentialism and Marxist humanism.

*Advisory Prerequisite: HIS 102*

3 credits

### **HIS 261- K & 4: Change and Reform in the United States, 1877-1919**

The growth of industrialism, class conflict, and ethnic diversity in America and the rise of social reform movements to address these changing conditions. Includes early 19th-century background and explores implications for the present day.

*Advisory Prerequisite: HIS 104*

3 credits

### **HIS 262- K & 4: American Colonial Society**

Political, economic, social, and cultural characteristics of the American colonies from their founding until their separation from Great Britain. Particular attention is devoted to the interaction of cultures and peoples in the making of colonial societies as reflected in the institution of slavery and ethnic, racial, and provincial identities.

*Advisory Prerequisite: HIS 103*

3 credits

### **HIS 263- K & 4: Age of the American Revolution**

The social, economic, and political history of the period 1763-1787, set against the background of the development of colonial society. The course stresses social and economic changes, the causes and results of the Revolution, the formation of new state and national governments, and the first party system.

*Advisory Prerequisite: HIS 103*

3 credits

### **HIS 264- K & 4: The Early Republic**

Against the background of colonial and revolutionary developments, the course examines the beginnings of modern political, economic, and social institutions in the United States. Areas covered include the conflict between the North and South, economic growth and diversity, political democratization and the rise of the professional politician, changes in the roles of men and women, and the development of American popular culture.

*Advisory Prerequisite: HIS 103*

3 credits

### **HIS 265- K & 4: Civil War and Reconstruction**

An examination of the political and social roots of the conflict between the slave South and free-labor North, going back to the earliest settlements and Constitutional debates. Major themes include how two very different societies fought the war; the political battles over the nature of the reunited nation; the Black Experience during slavery, wartime, and Reconstruction; and changing white racial attitudes throughout this era.

*Advisory Prerequisite: HIS 103*

3 credits

### **HIS 266- K & 4: History of the United States West**

Study of the United States West as both a place and a process, examining the region through its history as the homeland of various Native American peoples; as an object of European imperial designs and then Mexican and U.S. economic, territorial, and cultural expansionism; and finally as a region with particular ties to the United States federal government as well as distinctive patterns of race relations and a unique place in U.S. cultural memory.

*Advisory Prerequisite: HIS 103 or 104*

3 credits

### **HIS 268- K & 4: Recent U.S. History, 1919 - Present**

A survey of recent U.S. history: the 19th and early 20th century social, cultural, and economic developments. Topics include the 1920's, the Great Depression and New Deal, the Cold War, the 1960s and after.

*Advisory Prerequisite: HIS 104*

3 credits

### **HIS 277- K & 4: The Modern Color Line**

An exploration of the significance of race in 19th- and early 20th-century America. Topics include forms of political organization and collective struggle; the social and psychic consequences of racist subjection; the relationship among race, racism, and culture; and the cultural politics of race and gender. This course is offered as both AFS 277 and HIS 277.

*Advisory Prerequisites: AFS 101 and 102; completion of D.E.C. categories I and J*

3 credits

### **HIS 281- H: Global History and Geography**

The ways in which geography has influenced human history, and the ways in which the societal impact on Earth's ecosystems has

grown since the Industrial Revolution.

Additional topics include old and new ideas about history, geography, and climate; the gradual unveiling of the whole face of the Earth through exploration and cartography; and the recent development of Geographical Information Systems (GIS).

*Prerequisite: completion of D.E.C. F*

*Advisory Prerequisite: one D.E.C. E course*

3 credits

### **HIS 300- F: Global History**

Designed for upper-division students, this course provides an in-depth study of a specific topic relating to global history. May be repeated as the topic changes.

*Prerequisites: U3 or U4 standing; one course in 20th-century history*

3 credits

### **HIS 301: Reading and Writing History**

How modern historians have written history, focusing on the methods of three types of history - social, cultural, and political - and how historians have addressed three major problems of historical analysis - causation, motivation, and the significance or meaning of events. Readings include material from U.S., European, and Latin American history.

*Prerequisites: At least six credits in history*

3 credits

### **HIS 302- H: Environmental History in Global Perspective**

An exploration of human-caused transformations in natural environments and in ideas about nature from prehistory to the present. Examining topics from agriculture and deforestation in classical antiquity to the Columbian encounter, from problems of environmental management in imperial India to the emergence of environmentalism as a global movement today, the course focuses on case studies from several regions, including the Mediterranean, the Caribbean, New England, and South Asia.

*Prerequisite: U3 or U4 standing; 1 DEC E course*

3 credits

### **HIS 303- I: The Crusades and Medieval Society**

This course examines the various medieval military conflicts known collectively as The Crusades. We will investigate specific episodes such as the Latin conquest of Jerusalem, the Children's Crusade, the Shepards' Crusade, and the Albigenian Crusade. We will also explore such issues as the origins of the idea of crusade, the

social developments underlying the crusades, crusading culture and propaganda, the European encounter with the Muslim world, and the long term effects of the crusades on European society, politics, culture, and economy.

*Prerequisite: U3 or U4 status*

*Advisory prerequisites: HIS 101 or HIS 236*  
3 credits

### **HIS 304- I: Religion, Magic and Witchcraft in Early Modern Europe**

An exploration of the ways in which, from the late Middle Ages through the Renaissance and Reformation to the Enlightenment, Europeans struggled to define their identity and beliefs. The course will investigate such topics as medieval reactions to magic and heresy, the rise of the witch hunts, the split-up of Christendom into warring Catholic and Protestant empires, and the emergence of modern ideas of skepticism and toleration.

*Prerequisite: HIS 101 or 102 and U3 or U4 standing*

3 credits

### **HIS 305- I: Victorian Britain**

This course explains the social, cultural and political history of Britain in the nineteenth century. It pays particular attention to the impact of empire, industrialization and major constitutional reform and revolution on domestic politics, social attitudes and intellectual and cultural life in Britain. Topics to be explored include industrialization and class; Reform Acts; the gospel of work; the condition of England question; urban anthropology and the discovery of poverty; the cult of true womanhood, feminism and the public sphere; the impact of the Indian Mutiny of 1857; Africa and the Victorians; the regime of sexuality; Jack the Ripper and the others within. We explore these issues through lectures, reading, films, discussion exams and essays.

*Prerequisite: HIS 101 or 102 and U3 or U4 standing*

3 credits

### **HIS 306- I: Post-1945 Britain: Postcolonial Disruptions**

This course on post-1945 Britain will examine the 'great events' of the post World War period and the patterns of social, economic, and political change through the lens of British experience. In particular, we will attend to the impact of decolonization on issues of race, class and gender within British domestic culture. The second half of the twentieth century marked the successes and failures of the twinned projects of socialism and

decolonization, while also producing new kinds of mass cultural exports that continue to shape global culture. These narratives of changing configurations of empire, class, race, gender and politics are the subject of this course.

*Prerequisites: HIS 102 and U3 or U4 standing*  
3 credits

### **HIS 308- I: Britain and France in the Age of Revolution**

This course examines the social, intellectual, cultural and political life of Britain, France and their overseas colonies from the death of the Sun King to the Battle of Waterloo. We will examine the sources and consequences of related developments, focusing on: the structure of the ancient regime states; the impact of war and empire; women, race and public culture in the Enlightenment; Paris and London as global cities; exoticism and exploration; the emergence of popular radicalisms, and the transatlantic circuits of revolution.

*Prerequisites: HIS 102 and U3 or U4 standing*  
3 credits

### **HIS 310- I: Modern France, 1900 to the Present**

The French nation's response to the traumas of world wars, depression, decolonization, and the challenge of industrial society from the Dreyfus Affair to the Fifth Republic.

*Prerequisite: HIS 102*

3 credits

### **HIS 312- I: From Empire to Third Reich: Germany, 1890-1945**

From Bismarck's dismissal through the Wilhelmian Empire, the First World War and Revolution to Germany's unsuccessful experiment with democracy - the Weimar Republic - accompanied by the rise of Hitler's Nazi movement, which culminated in the Third Reich and the Second World War.

*Prerequisite: HIS 102*

3 credits

### **HIS 318- I: Social and Intellectual History of Europe**

An examination of the great movements of ideas in their social and historical contexts in modern European history. Themes may include liberalism, conservatism, romanticism, 19th-century realism, and the discovery of the unconscious.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: HIS 101 or 102*

3 credits

### **HIS 319- J: Assyrians, Babylonians, and Hittites**

History of the great civilizations of the Late Bronze and Iron Age Near East. Babylonians, Assyrians, and Hittites borrowed much from earlier Mesopotamia and created empires that embraced most of the literate world in the period between 2000 and 500BC. Examination of the causes of the rise and fall of these powers and their influence on posterity, including their impact on those who wrote the Bible.

*Prerequisite: HIS 105, HIS 201, or ANT 360*

3 credits

### **HIS 321- K & 4: Long Island History**

An exploration of U.S. history through the lens of Long Island's history from colonial times to the present. Topics include the island's Native Americans, colonial settlement, towns and counties, the Revolution, slavery, whaling, farming, the Long Island Railroad, suburbanization and modern cultural, social, and economic developments.

*Prerequisite: Junior or Senior Standing*

3 credits

### **HIS 324- J: Lost Languages, Ancient Civilizations, and Decipherments**

The early history of writing and its role in the first civilizations, explored through decipherments of texts in which the languages or scripts were initially unknown to modern scholars. Explores first civilizations of the Near East, Egypt, Mediterranean, Indus Valley, China, Mesoamerica and discusses the role of literacy in each. Related questions include the relationship between language and writing, characteristics of the major language families, history of the alphabet, and the application of modern cryptographic techniques to the decipherment of ancient texts.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: HIS 105 or LIN 101*

3 credits

### **HIS 325- K & 4: The Civil Rights Movement**

A detailed study of the movement for civil rights from its origins, examining the establishment of the NAACP, race relations between whites and blacks since 1900, the role of the Supreme Court and the federal government, and the turn to militancy in the 1950s and after. This course is offered as both AFS 325 and HIS 325.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: HIS 104 or AFS 101 or 102*

3 credits

### **HIS 326- K & 4: History of Popular Culture**

The development of popular culture in the United States. The course examines the history of different aspects and genres of popular mentality - 18th century artisanal culture; 19th century commercial culture; and the rise of mass media culture in the 20th century.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* HIS 103 or 104

3 credits

### **HIS 330- J: Topics in Middle Eastern History**

Topics may include titles such as Ancient Near Eastern Culture; Ancient Mesopotamia; and The Politics of the Israeli/Arab Conflict. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes.

*Prerequisite:* HIS 225 or 226 or 227

3 credits

### **HIS 333- K & 4: Women in U.S. History**

An interpretation of the history of women in relation to the major themes in American history such as industrialization and urbanization. Emphasis is placed on topics of special interest to women, i.e., the cult of domesticity, the birth control movement, feminism, women and reform, and changing attitudes toward female sexuality. This course is offered as both HIS 333 and WST 333.

*Prerequisite one of the following:* HIS 103, HIS 104, WST 102 (formerly SSI/WST 102), or WST 103

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **HIS 335- K & 4: Women at Work in Twentieth-Century America**

Women have always worked but as Americans entered the 20th century the conditions of labor--and workers' relationship to their work--changed for both men and women wage-earners. This course will explore the various changes as they directly affected American women economically, socially, and politically and will open up discussions of the impact of race and class as well as gender. This course is offered as both HIS 335 and WST 335.

*Prerequisite:* U3 or U4 status

*Advisory prerequisite:* HIS 104

3 credits

### **HIS 336- I: Women, Work, and Family in Modern European History**

An analysis of the effect of urbanization and industrialization on women and the family in Europe from 1750 to the present. Special emphasis is placed on the development of the ideology of the "angel in the house" and the growth of female participation in the work force. Among the topics covered are domestic work, prostitution, sexual attitudes and mores, child-rearing practices, women and revolutionary movements, and the growth of feminism. This course is offered as both HIS 336 and WST 334.

*Prerequisite:* HIS 102 or WST 102 (formerly SSI/WST 102) or WST 103

3 credits

### **HIS 337- J: History of Korea**

Examines Korean history from ancient to modern times. Korea is one of the many ancient, non-European civilizations claiming a cultural influence on the region and one of the main players in the history of East Asia. Reflecting its unique historical experiences, Korean history has raised diverse debatable issues. The primary goal of this course is to provide an overview of Korean history and, at the same time, through introducing multiple debatable issues of historical significance, the course attempts to enhance students' analytical capability in approaching complicated historical issues. This course is offered as both AAS 337 and HIS 337.

*Prerequisite:* U3 or U4 status

*Advisory Prerequisite:* AAS 217

3 credits

### **HIS 338- K & 4: Asian and Pacific Islanders in American History**

Asian and Pacific Islanders in American History is an examination of the historical factors that have molded Asian and Pacific Islander life in the United States. Strongly emphasized themes include imperialism/colonialism, immigration, gender/sexuality, second generation, and images/mass media.

*Prerequisite:* U3 or U4 status

3 credits

### **HIS 339- K: Recent African American History**

A study of recent African American history. Topics will include the dramatic increase in the number of black elected officials, rise of the black middle-class, the urban crisis, contemporary civil rights struggles, affirmative

action, the decline of black radicalism, and the incorporation of black leadership. Enables students to examine the relationship between African Americans and American society during the past 100 years, particularly since 1970. This course is offered as both AFS 339 and HIS 339.

*Prerequisite:* Successful completion of one D.E.C. category F course.

3 credits

### **HIS 340- J: Topics in Asian History**

Past topics have included titles such as Late Imperial China; The Chinese Diaspora; and Overseas Chinese and Chinatowns. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes. This course is offered as both AAS 340 and HIS 340.

*Prerequisite:* HIS 219 or 220

3 credits

### **HIS 341- J: 20th-Century China**

The history of China from the collapse of the monarchy to the triumph of communism, emphasizing the revolutionary, political, social, and economic changes in China today. Special attention is given to the theory and practice of Chinese communism.

*Prerequisite:* One HIS course

*Advisory Prerequisite:* HIS 219

3 credits

### **HIS 344- J: Modern Japan**

The history of Japan from the beginning of its imperialistic expansion in 1895 to World War II and postwar reconstruction, including such contemporary topics as educational issues, economic policies, and foreign relations.

*Prerequisite:* One HIS course

*Advisory Prerequisite:* HIS 220

3 credits

### **HIS 345- J: Women and Gender in Chinese History**

Exploration of traditional cultural practices and values, and the 20th-century changes in Western and Asian relations in China brought about by nationalism, interaction with Western influences, and socialist rule. This course is offered as HIS 345 and WST 345.

*Prerequisite:* One of the following: HIS 219, HIS 220, CNS 249, CNS 250, or any WST course

3 credits

### **HIS 346- J: Political and Social History of Africa**

An exploration of theoretical perspectives in the historical sociology and comparative politics of Africa. Topics include the crisis of state legitimacy; the patriarchal society; ethnicity, religion, and politics; the politics of modernization; development and the environment; population growth and underdevelopment; globalization, neo-liberal economic policy and the postcolonial state; and the history of state and society relations. This course is offered as both AFS 346 and HIS 346.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two AFS or HIS courses*

3 credits

### **HIS 347- J: South Asia Before Colonialism**

The South Asia region (contemporary India, Pakistan, Bangladesh, Sri Lanka, Nepal and Afghanistan) has been a crossroads of diverse people, ideas and commodities for millennia. This course covers key themes and developments in the subcontinent from antiquity to the rise of British colonialism. We will begin by covering major issues in early South Asia, and proceed to consider closely the medieval and early modern periods. Central themes include pre-modern dimensions of the Hindu-Muslim encounter, emergence of South Asian regions, the subcontinent in global networks, and early presence of European powers. This course is offered as both AAS 347 and HIS 347.

3 credits

### **HIS 348- J: Colonial South Asia**

Colonial South Asia comprised much of what is now India, Pakistan and Bangladesh, and was dubbed 'the jewel in the crown' of the British Empire at its height. The Subcontinent's status as the most populous and lucrative colony of the world's largest empire profoundly shaped the world of both colonized and colonizer there. The readings, lectures and discussions call upon students to consider the political, social, economic and cultural and religious effects of Britain's rule in the South Asia during the period of British colonial domination (from about 1700 to 1950).

*Prerequisite: One of the following: HIS 101, 102, 219, 220 or AAS 201 (or the former SAS 240)*

3 credits

### **HIS 350- J: Topics in African History**

May be repeated as the topic changes.

*Prerequisites: two AFS or two HIS courses*

3 credits

### **HIS 351- J: Revolutionary China: Politics, Culture, and Power**

Explores the history of revolutionary nation-building efforts in 20th century China, examining social, cultural, economic and political developments during the "Republican" and "Maoist" periods. Focuses on key terms and concepts used by agents and analysts of revolutionary change. Draws on interdisciplinary scholarly studies, government documents, media reports, auto-biographical accounts, and popular fiction to assess the consequences of major events on people's lives, livelihoods, worldviews, and personal relationships. This course is offered as both AAS 351 and HIS 351.

*Prerequisite: One AAS or HIS course*

3 credits

### **HIS 352- H: Environmental History of China**

The history of interaction between human activities and the natural environment in China, with special attention to ecological consequences of various paradigms of economic development throughout Chinese history. Focus in on the political ecology of state-level societies, and the relationships between cultural ideas, behavioral practices, human health, and environmental change. This course is offered as both AAS 352 and HIS 352.

*Prerequisites: U3 or U4 standing; completion of D.E.C. category E*

3 credits

### **HIS 353- J: Postwar Japan**

This course provides an in-depth look at post World War II Japanese society, culture, and political-economy. We will take up a number of debates on topics such as the postwar "miracle," technocracy vs. democracy, mass consumer culture, Japanese youth, postwar feminism, US-Japan relations, and war memory.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: HIS 220 or HIS 344*

3 credits

### **HIS 356- I: Zionism Before 1948**

A survey of ideologies that have found expression under the general banner of Zionism. Topics include the origins and development of those ideologies, and the important ideological and conceptual issues

that the Zionist movement has not yet managed to resolve.

*Prerequisite: One course in modern European history (HIS 226 recommended)*

3 credits

### **HIS 357: Topics in History**

May be repeated for credit as the topic changes.

*Prerequisites: U3 or U4 standing and one HIS course*

3 credits

### **HIS 360- I: Women in Premodern Europe**

An examination of the position of women in European society from ancient Greece through the Italian Renaissance. The course examines women's roles in the family and political life; women's economic activities; women and the Christian church; cultural attitudes concerning women; and women's own writing and creativity. This course is offered as both HIS 360 and WST 360.

*Prerequisite: One HIS course or any WST course*

3 credits

### **HIS 361- K: American History/ American Film**

Panorama of American history from Colonial times to the present through the medium of film. Film is viewed as a product of history and a reflection of the social and ideological context in which it is created.

*Prerequisite: Junior or Senior Standing*

3 credits

### **HIS 362- K: Making Peace With the Sixties**

A study of the 1960's, emphasizing conflict within American liberalism between cold warriors and antiwar activists, advocates of the bureaucratic welfare state versus those favoring small-scale community operations, and technocratic liberalism versus a policy of immediacy and moral witness. Special attention is given to the paradigmatic qualities of the civil rights movement, the domestic side of the Vietnam War, and the relationship of liberalism to radicalism.

*Advisory Prerequisite: U3 or U4 standing*

3 credits

### **HIS 363- F: Topics in American History**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Topics may include titles such as American Cars and Highways, Radio and Television, and Disney's America. Designed for upper-division

students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social science discipline(s) studied. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; HIS 103 or 104

3 credits

### **HIS 365- K & 4: Environmental History of North America**

The history of interactions between human beings and their natural environment on this continent, with special attention to the Northeastern region. Transformations of forests, homes, farms, and industrial workplaces will be considered. Cultural, economic, political and technological perspectives on the relationship between humans and nature from pre-Columbian to late 20th-century times.

*Prerequisites:* HIS 103 and 104

3 credits

### **HIS 368- K & 4: Wealth and Inequality in the Modern Corporate Age**

This course delves into the dynamics by which wealth has been created in an American economy dominated by large corporations, and the changing patterns of inequity that have followed. Ever since big companies came to dominate the economy in the late nineteenth century, American affluence has come in spurts or 'booms.' Each period has had its characteristic new technologies and companies and their entrepreneurs, which part of the course will chart, from the robber barons to the dot.com-ers. We will then explore impacts on the work most Americans did, on wealth distribution and political economy, and on the changing ways in which many Americans remained poor.

*Prerequisite:* U3 or U4 standing

*Advisory prerequisite:* HIS 103 or 104

3 credits

### **HIS 369- K & 4: American Social History to 1860**

The development of American society from the 17th century to the beginning of industrialization, with emphasis on changing concepts of class and community relations, work, and family and gender roles. Special attention to how the diversity of the American people shaped the evolution from a traditional

world view to the more modern, competitive society of the 19th century.

*Prerequisite:* HIS 103

3 credits

### **HIS 370- K & 4: U.S. Social History, 1860-1930**

The evolution of American society from the mid-19th century to the Great Depression. An examination of the impact of the Industrial Revolution, urbanization, and mass immigration on concepts of class, community, family, and gender roles. Special emphasis on how increasing class conflict and changing expectations of family life forced the evolution of new, modern social values and institutions.

*Prerequisite:* HIS 104

3 credits

### **HIS 371- K & 4: Law and Society in American History, 1620-1877**

This course examines the interaction between law and society in America from the period of European colonization through the mid 19th century. Some of the themes we will examine are: the clash of native and European legal systems; the adoption and adaptation of European law, particularly English law, to the circumstances of the American colonies; the development of the profession of law; changing definitions of crime and penal practices; shifts in women's legal status and their relationship to everyday practices and opportunities for women; the changing legal status of children; and transformations in the law of servitude, slavery, race, and emancipation. Witches, judges, women, lawyers, bankrupts, laborers, Native Americans, servants and slaves are some of the groups we encounter in assessing the forces that shaped American legal culture and its institutions. No prior knowledge of law is necessary.

*Prerequisite:* U3 or U4 status

*Advisory prerequisite:* HIS 103

3 credits

### **HIS 372- K & 4: U.S. Constitutional History and Civil Rights**

An examination of United States law and constitutional history from colonial times to the present. A particular focus is placed on the history of civil rights and the struggles of women and minorities to be fully included in the interpretation of constitutional protections.

*Prerequisite:* U3 or U4 status

3 credits

### **HIS 373- F: History of Crime and Criminal Justice in the U.S.**

Study of the development of police, courts, prisons, criminal law and crime in the United States from the 17th century to the present. How were the institutions of criminal justice created? How did they change? How have people perceived and responded to crime?

*Prerequisites:* U3 or U4 status; HIS 104

3 credits

### **HIS 375- K & 4: American Politics and Diplomacy to 1898**

The rise of the United States from its origins as a string of dependent settlements along the Atlantic coast to a continent-spanning global power. An examination of the emergence of a distinctively American political system and its interaction with American's foreign relations.

*Prerequisite:* HIS 103 or 104

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **HIS 376- K & 4: American Politics and Diplomacy, 1898-1945**

An examination of the invention of modern, advertising-based politics in the 1890's to the forging of Franklin Roosevelt's New Deal coalition under the twin shocks of the First and Second World Wars.

*Prerequisite:* HIS 104

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **HIS 377- K & 4: American Politics and Diplomacy Since 1945**

The impact of the Cold War upon American politics and diplomacy, with special attention to the challenges of the 1960's to American political and global orders. The collapse of both orders from Reaganism and the end of the Cold War.

*Prerequisite:* HIS 104

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **HIS 378- F: War and the Military**

The causes and origins of wars, and the impact of war on social change, considered in the context of various wars and battles. Topics covered include issues of military organization, recruitment, training, morale, war planning, and the integration of women, gays, and minorities in the military. This course is offered as both HIS 378 and SOC 378.

*Prerequisite:* One HIS course or SOC 105

3 credits

**HIS 379- K: Disease in American History**

An examination of changing disease patterns and their impact on American society from the colonial period to the present. Particular attention is paid first to the great epidemics of the 19th century, and how public health measures brought them under control, and the emergence of chronic ailments such as cardiovascular disease, cancer, and diabetes as the leading causes of death in the 20th century.

*Prerequisite:* U3 or U4 status

*Advisory prerequisite:* HIS 103 or HIS 104

3 credits

**HIS 380- J: Topics in Latin-American History**

May be repeated as the topic changes.

*Prerequisite:* HIS 213 or HIS/POL 214 or HIS/POL 216

3 credits

**HIS 381- J: Latin America and World Commodities (1500-2000)**

A study of world commodities to learn about and reflect on the connections and contributions of Latin America to the world economy and world culture. Students learn about such products as cocoa, sugar, silver, coffee, rubber, bananas, and cocaine, and the special ways their new histories shed light on the history of Latin Americans, world consumption, and globalization from 1500 to the present.

*Prerequisite:* a 200-level course in world or international history

*Advisory Prerequisite:* One World (non-US) History course

3 credits

**HIS 382- J: Politics and Political Change in Latin America**

An examination of revolutionary and reformist movements that have shaped the political, social, and economic contours of 20th-century Latin America. Topics include the Mexican and Cuban revolutions, populism, urban squatter movements, and guerrilla warfare. This course is offered as both HIS 382 and POL 382.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* HIS 213 or HIS/POL 214 or HIS/POL 216 or LAC 200

3 credits

**HIS 383: The World of Jane Austen; Jane Austen in the World**

An examination of the social, political and cultural milieu and legacies of Jane Austen's famous novels, including the contours of

English provincial and gentry society in the Revolutionary, Napoleonic and Regency periods (1792-1820). Topics will include class and sociability; the functions of the country house; gender and family relations; the pleasures and dangers of urban culture; fashion and leisure pursuits, including tourism; women, theatre and print culture; the impact of empire, war and radical politics on social and political relations of the day, and the details of Jane Austen's own life, along the ways in which Austen novels were appropriated and used by subsequent generations and in different cultural contexts, from the Victorian critics to twentieth-century Bollywood film adaptations to twenty-first century blogs.

*Prerequisite:* HIS 102; U3 or U4 status

3 credits

**HIS 385- J: Aztec Civilization**

An introduction to the historical development of the Aztec Civilization in the ancient Mesoamerican World. Combining historical, anthropological, art historical, and literary sources, we will trace the rise and decline of the Aztec empire, as well as its social and cultural achievements and imperial problems on the eve of the European arrival. We will explore the conquest of Mexico from the Aztec point of view, and we will conclude with an examination of the ways in which Aztec culture have survived to this day.

*Advisory prerequisite:* HIS 212

3 credits

**HIS 386- J: The Maya**

For many, the word 'Maya' evokes images of a long dead culture and ruined pyramids. This course uses that familiarity as a starting point and follows the history of the Maya from ancient times to the present. We begin with an overview of what scholars know about the ancient Maya before tracing their experiences since the Spanish conquest, placing emphasis on Spanish colonization in the lowland areas of Mesoamerica, Mexico's War of the Castas, and the diverse experiences of the modern Maya including the Guatemalan Civil War and the Chiapas uprising, the impact of foreign tourism, and the experience of transnational migration. Special attention will be paid to the ways in which environmental and agrarian issues have impacted this diverse group of peoples.

*Advisory prerequisite:* HIS 212

3 credits

**HIS 388- J: Slavery in Latin America and the Caribbean**

The institution of slavery and its impact on plantation societies in the Americas,

with particular attention to Brazil and the Caribbean. Topics include conquest and enslavement, the formation of slave communities, African culture in Latin America, resistance and oppression, the process of emancipation, and race relations. This course is offered as both AFS 388 and HIS 388.

*Prerequisite:* One of the following: AFS 239, AFS 240, AFS 277, HIS 213, HIS 214, or LAC 200

3 credits

**HIS 389- J: Modern Mexico**

The history of Mexico from independence in 1810 to the present crisis. The course explores the relationships among agrarian development, social movements, and state building in Mexican history. Topics include 19th-century instability and liberal reform, and the 20th-century revolution and its legacy for modern Mexican politics.

*Prerequisite:* HIS 213 or HIS/POL 214 or HIS/POL 216

3 credits

**HIS 390- I: Topics in Ancient and Medieval Europe**

Recent topics have included Early and Medieval Christianity; Leaders in Ancient Greece and Rome. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; one European history course

3 credits

**HIS 391- I: Topics in Early Modern Europe**

Recent topics have included Europe in the 16th Century; Before and After the Reformation; Early Modern England. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; one European history course

3 credits

**HIS 392- I: Topics in European History**

Recent topics have included England and France in the 18th Century; 17th Century Europe. May be repeated as the topic changes.

*Prerequisite:* One course in modern European history

3 credits

**HIS 393- I: Topics in Modern European History**

Recent topics have included London, Paris and Berlin from 1900 to 2000; Victorian England

and its legacy; European capitalism from 1900 to the present. May be repeated as the topic changes.

*Prerequisite: HIS 102*

3 credits

### **HIS 394- H: Topics in History of Medicine and Reproduction**

May be repeated as the topic changes.

*Prerequisites: U3 or U4 standing; one HIS course*

3 credits

### **HIS 395- I: Topics in Russian History**

Topics may include Marxism and its aftermath; modern Russian social history, 1750-1921; Russian intellectual history from the 18th to the 20th Century. May be repeated as the topic changes.

*Prerequisite: One course in modern European history*

3 credits

### **HIS 396- K & 4: Topics in U.S. History**

Designed for upper-division students, this course provides an in-depth study of a specific topic relating to American history. With a focus on U.S. history, topics may include the rise of the American corporation in the 19th and 20th centuries; economic history and changing population patterns; and popular music and society. May be repeated as the topic changes.

*Prerequisites: U3 or U4 standing; HIS 103 or 104*

3 credits

### **HIS 397- K & 4: Topics in History of U.S. Immigration and Ethnicity**

Topics may include Asian and Pacific Islanders throughout American history; and Latino immigration from 1848 to the present. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites: U3 or U4 standing; HIS 103 or 104 or AFS 102*

3 credits

### **HIS 398- H: Topics in History of Science and Technology**

May be repeated as the topic changes.

*Prerequisite: HIS 237 or 238*

3 credits

### **HIS 399- K & 4: Topics in U.S. History**

Designed for upper-division students, this course provides an in-depth study of a specific topic relating to American history. With

a focus on U.S. history, past topics have included titles such Race, Religion, and Gender; Disease in Modern America; and Early American Commerce and Culture. Semester supplements to this Bulletin contain specific descriptions when course is offered. May be repeated as the topic changes.

*Prerequisite: HIS 103 or 104*

3 credits

### **HIS 401: Colloquium in European History**

May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 402: Colloquium in European History**

May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 403: Colloquium in European History**

May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 411: Colloquium in American History**

Colloquia considering such topics as the history of New York, the westward movement, American socialism, the Vietnam War, U.S. military history, American utopianism, the urban novel, and women in the professions. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 412: Colloquium in American History**

Colloquia considering such topics as the history of New York, the westward movement, American socialism, the Vietnam War, U.S. military history, American utopianism, the urban novel, and women in the professions. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 413: Colloquium in American History**

Colloquia considering such topics as the history of New York, the westward movement, American socialism, the Vietnam War, U.S. military history, American utopianism, the urban novel, and women in the professions. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 414: Colloquium in American History**

Colloquia considering such topics as the history of New York, the westward movement, American socialism, the Vietnam War, U.S. military history, American utopianism, the urban novel, and women in the professions. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 421: Colloquium in Latin American History**

Colloquia considering such topics as slavery and race relations, culture and ideology, peasant movements and popular rebellion, and 20th-century revolutions. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 422: Colloquium in Latin American History**

Colloquia considering such topics as slavery and race relations, culture and ideology, peasant movements and popular rebellion, and 20th-century revolutions. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 431: Colloquium in Asian History**

Colloquia considering such topics as Japanese nationalism and expansion, Far Eastern diplomatic history, and nationalism in Southeast Asia. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 432: Colloquium in Asian History**

Colloquia considering such topics as Japanese nationalism and expansion, Far Eastern diplomatic history, and nationalism in Southeast Asia. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 441: Colloquium in Global History**

Colloquia considering such topics as the expansion of Europe, theories of imperialism, revolutionary and religious movements, the psychoanalytical interpretation of history, and slavery. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 447: Independent Readings in History**

Intensive readings in history for qualified juniors and seniors under the close supervision of a faculty instructor on a topic chosen by the student in consultation with the faculty member. Semester Supplements to this Bulletin contain description when course is offered. May be repeated.

*Prerequisites: A strong background in history; permission of instructor and department*

1-3 credits

### **HIS 451: Colloquium in Medieval History**

Selected topics in medieval history are studied with attention to primary sources and current hagiographic controversies and developments. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 461: Colloquium in the History of Science**

Colloquium considering such topics as the history of American science, the social history of science, the impact of Darwinism, modern physics, and technology and social change. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: Permission of instructor*

3 credits

### **HIS 475: Undergraduate Teaching Practicum**

Work with a faculty member as assistant in a regularly scheduled course. The student must attend all classes and carry out all assignments; in addition the student will be assigned a specific role to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course.

*Prerequisites: Permission of instructor and undergraduate program director*

3 credits, S/U grading

### **HIS 487: Supervised Research**

Qualified advanced undergraduates may carry out individual research projects under the

direct supervision of a faculty member. May be repeated.

*Prerequisites: Permission of instructor and either department or departmental research coordinator*

0-6 credits

### **HIS 488: Internship**

Participation in local, state, and national public and private agencies and organizations. May be repeated up to a limit of 12 credits.

*Prerequisites: 15 credits in history; permission of instructor and department*

0-6 credits, S/U grading

### **HIS 495: Senior Honors Project in History**

First course of a two-semester project for history majors who are candidates for the degree with honors. Arranged in consultation with the department, the project involves independent study and writing a paper under the close supervision of an appropriate instructor on a suitable topic selected by the student. Students enrolled in HIS 495 are obliged to complete HIS 496. Students receive only one grade upon completion of the sequence.

*Prerequisite: Admission to the history honors program*

3 credits

### **HIS 496: Senior Honors Project in History**

Second course of a two-semester project for history majors who are candidates for the degree with honors. Arranged in consultation with the department, the project involves independent study and writing a paper under the close supervision of an appropriate instructor on a suitable topic selected by the student. Students enrolled in HIS 495 are obliged to complete HIS 496. Students receive only one grade upon completion of the sequence.

*Prerequisite: Admission to the history honors program*

3 credits

## **HNI**

### **Nursing**

#### **HNI 290: Introduction to Nursing**

This course is designed as an introduction to nursing for students who plan a career in nursing but are not yet enrolled in a school of nursing. The student will be oriented to the nature and scope of the profession of nursing and settings where nursing is practiced.

2 credits

## **HON**

### **Honors College**

#### **HON 105: Modes of Knowledge**

An examination of the structure and content of knowledge, as well as the ways in which various kinds of knowledge are constituted. The course examines some classical epistemological and ethical texts and also considers the ways in which modern epistemological theories, as well as knowledge forms characteristic of the natural sciences, social sciences, arts and humanities, have altered and/or affected our understanding of the nature of knowledge.

*Prerequisite: First year Honors College membership*

3 credits

#### **HON 106: Modes of Being**

Examination of the many different modes of being - aspects of the ways in which people think of themselves and behave in the world - through analysis of literary works and through texts that derive from the various social sciences, including psychology.

*Prerequisite: First year Honors College membership; HON 105*

3 credits

#### **HON 110: Honors Topics**

These courses, which use alternative learning modes, are intended to enrich the Honors College experience by introducing students to specific aspects of community, academic, and creative life at the University, on Long Island, and in the New York metropolitan region. Past topics have included: the lives of scientists; current events; Long Island ecology; contemporary art; musical performance at Stony Brook; the language of dance; immigration; cultural diversity; entrepreneurship. Each course culminates in the writing of a short, substantive paper. May be repeated as the topic changes.

*Prerequisite: Acceptance into the Honors College*

1 credit

#### **HON 111: Honors Topics**

These courses, which use alternative learning modes, are intended to enrich the Honors College experience by introducing students to specific aspects of community, academic, and creative life at the University, on Long Island, and in the New York metropolitan region. Past topics have included: the



**HON 201: The Arts and Society**

An exploration of the interconnections between art and society, using the biographies and autobiographies of notable visual artists, performers, and composers when appropriate, but also using other texts that focus on art works by anonymous creators such as the architects and sculptors who designed and created medieval cathedrals or the anonymous lyricists and composers who created the songs and dances of traditional cultures. Close examination of the works themselves is an integral part of the course, generally involving several field trips.

*Prerequisites:* Second year Honors College membership; HON 105 and HON 106

3 credits

**HON 301: Science, Engineering, Medicine, and Society**

An examination of the mutual relations among science, technology, medicine, and society: how the sciences and various technologies affect society and, at the same time, are affected by it. This examination is conducted through the perspectives of disciplines outside the sciences - such as history, philosophy, sociology, and economics--in combination with the natural sciences, applied sciences, clinical medicine, and engineering.

*Prerequisites:* Third year Honors College membership; HON 105, HON 106, and HON 201

3 credits

**HON 401: Global Issues**

Using historical, geographical, sociological, political, and economic perspectives, students examine global issues. This examination may be either topical or regional and may be oriented either toward the past, the present, or the future.

*Prerequisite:* Fourth year Honors College membership; HON 105, HON 106, HON 201, and HON 301

3 credits

**HON 495: Honors College Senior Project**

First course of a two-semester, six-credit, research or creative project to be arranged with and approved by the Honors College Faculty Director and a faculty supervisor. Both the Faculty Director of the Honors College and the selected faculty member provide ongoing project supervision. With the approval of the Faculty Director of the Honors College, students may substitute an appropriate credit-bearing departmental honors project or they may, with the approval of the department, submit their Honors College Senior Project

for departmental honors. Students may not submit the same project for academic credit under two different sets of course numbers and/or designators. At the end of the first term, a progress report is expected; at the end of the second term, the student must make an oral presentation at the Honors College Symposium and must submit an appropriate thesis. Students receive only one grade upon completion of the sequence.

*Prerequisite:* U3 or U4 standing in the Honors College

3 credits

**HON 496: Honors College Senior Project**

Second course of a two-semester, six-credit, research or creative project to be arranged with and approved by the Honors College Faculty Director and a faculty supervisor. Both the Faculty Director of the Honors College and the selected faculty member provide ongoing project supervision. With the approval of the Faculty Director of the Honors College, students may substitute an appropriate credit-bearing departmental honors project or they may, with the approval of the department, submit their Honors College Senior Project for departmental honors. In no case, however, may they submit the same project for academic credit under two different sets of course numbers and/or designators. At the end of the first term, a progress report is expected; at the end of the second term, the student must make an oral presentation at the Honors College Symposium and must submit an appropriate thesis. Students receive only one grade upon completion of the sequence.

*Prerequisite:* U3 or U4 standing in the Honors College

3 credits

## HSQ

### Adapted Aquatics

**HSQ 121: Intermediate Swimming**

Designed to equip swimmers with detailed swimming strokes and water skills.

1 credit, S/F graded

**HSQ 221: Lifeguard Training I**

The first in a two-semester sequence leading to certification as an American Red Cross lifeguard. Course content includes elementary rescue techniques, boating and equipment rescues, and swimming rescues.

2 credits

**HSQ 222: Lifeguard Training II**

Preparation for the Red Cross certification in Lifeguard Training and Waterfront Lifeguarding. The material includes requirements and responsibilities of lifeguards, selection and training, preventive lifeguarding, emergency procedures, records and reports, equipment, health and sanitation, water rescues, search and recovery, and environmental conditions.

2 credits

**HSQ 223: Water Safety Instructor**

A course designed for students to meet the requirements for certification as an American Red Cross Water Safety Instructor.

2 credits

**HSQ 270: Emergency Response, CPR and Personal Safety**

An American Red Cross, American Heart Association, and A.A.O.S. certification course designed to develop skills and knowledge for the immediate care given to an individual who has been injured or taken ill. The course issues certification in emergency response first aid, professional CPR training, and the use of automated external defibrillators. Presentations include legal issues; disease transmission and prevention; wound care; drugs, alcohol, and other substance abuse; cardiovascular and respiratory disease; AIDS and STD education. Certifications issued meet the required standards for admission to undergraduate and graduate health sciences programs. An extra-fee course.

3 credits

**HSQ 271: Instructor of Cardiopulmonary Resuscitation**

Covers the American Red Cross and/or American Heart Association certification requirements for Instructor of CPR for the Professional Rescuer and Instructor of Basic Life Support Cardiopulmonary Resuscitation for the Health Care Provider. The course includes teaching methods and protocols of cardiopulmonary resuscitation, including infant, child, adult and two rescuer procedures and use of bag-valve masks.

*Prerequisites:* HSQ 270 (or the former PEC 270); permission of instructor

2 credits

**HSQ 272: Instructor of First Aid**

Covers the American Red Cross and/or A.A.O.S. certification requirements for Instructor of Responding to Emergencies First Aid. The course includes teaching methods and protocols for effective first-response techniques in various emergencies, including

treatment of bleeding, burns, fractures and dislocations, and sudden illness.

*Prerequisites:* HSQ 270 (or the former PEC 270); permission of instructor

2 credits

### **HSQ 325: Instructor of Adapted Aquatics I**

One course of a two-semester sequence in the adaptation of the aquatic environment and aquatic skills to teach the disabled, leading to instructor and/or aid certification in Adapted Aquatics. Focuses on a wide spectrum of disabilities including physical, mental, emotional, and multiple disorders in children through adults. Consideration of motor movement and learning theories, development of normal versus impaired motor-cognitive skills, hydrodynamics and aquatic adaptation, and related anatomy, physiology, and disease etiologies. Class time is equally divided between lecture/recitation and clinical work in the swimming pool. The sequence may be completed in either order for certification.

2 credits

### **HSQ 326: Instructor of Adapted Aquatics II**

Second course of a two-semester sequence of instructor training in the adaptation of the aquatic environment and aquatic skills for teaching the physically, mentally, emotionally, or multiple challenged, leading to instructor and/or aid certification in Adapted Aquatics. Focus on the general physiological and genetic etiologies of various disabilities as well as the commonly used surgical treatments, drug therapies, and prosthetic devices for the disabled. Class time is equally divided between lecture/recitation and clinical work in the swimming pool. The sequence may be completed in either order for certification.

2 credits

### **HSQ 329: Fieldwork in Adapted Aquatics Instruction**

Provides the Adapted Aquatics Instructor or Aid candidate the possibility of concentrating on a specific disability. Students study full case histories and medical files and prescribed physical, occupational, and/or respiratory therapy regimens for specific disabled individuals. Students develop focused aqua-therapy and instructional aquatic regimens for the individual. May be repeated to a maximum of 3 credits.

1 credit

### **HSQ 475: Adapted Aquatics Teaching Practicum I**

Students assist faculty members teaching Adapted Aquatics and/or Emergency Response classes. In addition to working as tutors during instructional periods, students have regular conferences with a faculty supervisor. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* Advanced skill level; permission of instructor and department

2 credits, S/F graded

### **HSQ 476: Adapted Aquatics Teaching Practicum II**

Advanced students assist faculty members teaching Adapted Aquatics and/or Emergency Response classes. In addition to working as tutors during instructional periods, students have regular conferences with a faculty supervisor. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* Advanced skill level; permission of instructor and department

2 credits, S/F graded

## **HUE**

### **European Literature and Culture Courses in English**

#### **HUE 269- I: Topics in Contemporary Slavic Culture**

Analysis and discussion of contemporary cultural topics dealing with Russia or Eastern and East Central Europe. Attention is paid to the historic political, social, aesthetic, and cultural forces out of which contemporary culture has evolved. Recent topics have included the apocalypse in literature; 20th-century Poland; Yugoslavia, past and present. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

3 credits

#### **HUE 392- I: Topics in Slavic Studies**

Recent topics have included consideration of cultural representations of women and war in film and in literary and biographical writings. Semester supplements to this Bulletin contain a specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

#### **HUE 487: Independent Research**

Intensive study of a special topic undertaken with close faculty supervision. Request for

project approval of undergraduate studies director must be submitted no later than the last week of classes of the prior semester. May be repeated.

*Prerequisites:* U3 or U4 standing; permission of instructor and department

0-6 credits

## **HUF**

### **French Literature and Culture Courses in English**

#### **HUF 211- D: French Cinema**

Introduction to French films as representative of cinematic art. Films are selected to provide a broad historical perspective and range of the director's concerns. Students are taught methods of reading and analyzing filmic works. All films have English subtitles.

3 credits

#### **HUF 216- I: French Civilization through the Ages**

An overview of French civilization seen through its diverse manifestations in various cultural fields. The heritage of French society is analyzed through the arts, philosophy, science, literature, and theatre.

*Advisory Prerequisite:* Completion of D.E.C. category B

3 credits

#### **HUF 219- I: Modern France**

A survey of contemporary France and its political, social, and economic structure, as well as the study of cultural life and institutions within the context of its historical development. Special attention is given to other French-speaking countries and their relations to France.

3 credits

#### **HUF 318- J: Pan-African Literature I**

An examination of the cultural themes of Pan-Africanism and negritude, drawing on a selection of writers from the United States, Africa, and the Caribbean. The course treats the development, diffusion, and significance of these themes. It involves intensive consideration of selected literary works of African and African-American expression. This course is offered as both AFH 329 and HUF 318.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Two courses in literature

3 credits

**HUF 385- J: French Caribbean Literature**

A study of representative texts from the French Caribbean translated into English, focusing on literary manifestations of a search for a specific identity by writers from Martinique, Guadeloupe, French Guiana, and Haiti. This course is offered as both AFH 385 and HUF 385.

*Prerequisite: Junior or Senior Standing*  
3 credits

**HUF 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUF 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. This course does not count toward the major or minor in French.

*Prerequisite: U3 or U4 standing; permission of instructor and language coordinator*  
3 credits, S/U grading

## HUG

**German Literature and Culture Courses in English**

**HUG 221- D: German Cinema Since 1945**

The theory and history of German film as an art form, from filmmakers such as Alexander Kluge, Bernhard Wicki, and the "new filmmakers" Rainer Werner Fassbinder, Volker Schlöndorff, Margarete von Trotta, Werner Herzog, and Wim Wenders. Topics include silent film; New German Cinema, 1962-1985; national cinema and national identity; film as literature and from literary models; problems of authors and their audiences; women's film, film in the former German Democratic Republic; and the influence of American filmmakers, subject matter, and settings.

3 credits

**HUG 229- I: Germany Today**

A survey of contemporary Germany and its political, social, and economic structure, as well as the study of cultural life and institutions, within the context of its historical

development, with comparisons to American models and standards.

3 credits

**HUG 321- G: Topics in the Literature of Germany**

A course given in English on a major German author, genre, or literary movement, designed primarily to give students in other disciplines an opportunity to become acquainted with the German tradition. (German majors are admitted by special permission of their advisors, and do the reading and term papers in German.) Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*  
*Advisory Prerequisites: Two literature courses*  
3 credits

## HUI

**Italian Literature and Culture Courses in English**

**HUI 216- I: Italian Civilization Through the Ages**

The historical development of civilization in Italy with reference to literature and connection to artistic expression such as visual arts, music, and theatre.

*Advisory Prerequisite: Completion of D.E.C. category B*  
3 credits

**HUI 231- D: Sex and Politics in Italian Cinema**

The cinematic representation of gender, class, and sexual politics in post-World War II Italian films and the relationship of these themes to Italian history, society, and culture are discussed. Films by directors such as Bertolucci, Fellini, and Wertmüller are studied. Readings include selected works of film history, criticism, and theory.

3 credits

**HUI 234- G: Introduction to 20th-Century Drama**

A study of avant-garde drama through the analysis of texts by Marinetti, Bontempelli, Pirandello, Betti, Beckett, Ionesco, and Tennessee Williams. Important questions such as identity and diversity are discussed from a variety of perspectives within the social, psychological, sexual, and multicultural context of our time.

*Advisory Prerequisite: Completion of D.E.C. category B or THR 101*

3 credits

**HUI 235- G: Sex, Love, and Tragedy in Early Italian Literature**

A study of the interactions between the sexes in contrast with humankind's spiritual needs in the major works of early Italian literature. Dante's *Inferno* and *Purgatorio*, Boccaccio's *Decameron* and Petrarch's poetry are analyzed. May be used to satisfy English major requirements.

*Advisory Prerequisite: Completion of D.E.C. category B*  
3 credits

**HUI 236- K: The Italian-American Scene**

Exploration of the phenomenon of Italian-American experiences, with emphasis on issues of immigration and ethnicity. Studies in anthropology, history, sociology, literature, and culture provide historical and theoretical backgrounds of the experience of Italians in North and South America and their contributions to American culture.

*Advisory Prerequisite: Completion of D.E.C. category B*  
3 credits

**HUI 237- K: Images of Italian-American Women**

Examination of the role of Italian-American women through literature, film, politics, and music. The specific ways they have contributed artistically and socially to the American cultural scene from the first wave of Italian-American immigration to the present is considered. This course is offered as both HUI 237 and WST 237.

*Advisory Prerequisite: Completion of D.E.C. category B*  
3 credits

**HUI 239- I: Modern Italy**

A survey of contemporary Italy and its political, social, and economic structure, as well as the study of cultural life and institutions, within the context of its historical development, with comparisons to American models and standards.

3 credits

**HUI 306- I: The Early Renaissance in Italy**

Art in Italy from the late 13th through the 15th centuries, with special emphasis on Florence and Siena, and such major figures as Masaccio, Donatello, Piero della Francesca, and Botticelli. This course offered as both ARH 306 and HUI 306.

*Prerequisite: ARH 101 and 102*

3 credits

**HUI 307- I: The Age of Michelangelo in Central Italy**

An exploration of the works of Michelangelo, Da Vinci and other major masters, including Raphael, Bramante and Pontormo, who inspired, were influenced by or rejected the work and ideals of Michelangelo. This course is offered as both ARH 307 and HUI 307.

*Prerequisite:* ARH 101

*Advisory prerequisite:* ARH 306

3 credits

**HUI 310- I: Splendors of Renaissance Art in Venice**

The special qualities of Venetian art, which blends Byzantine, Islamic, and Western traditions, are explored through the works of such major figures as Giovanni Bellini, Giorgione, Titian, Veronese, and Palladio. Course offered as both ARH 310 and HUI 310.

*Prerequisite:* ARH 101 and 102

*Advisory prerequisite:* ARH 307

3 credits

**HUI 331- G: Italian Literature**

A topics course given in English on a major Italian author or literary movement in relation to European or American literature. May be repeated as the topic changes. May be used to satisfy English or comparative literature major requirements with permission of major department.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**HUI 333- K: The Italian-American Experience in Literature**

Literary and historical perspectives on the experience of Italians in America and their contribution to American culture from the earliest wave of Italian immigration to the present day. This course offered as both EGL 333 and HUI 333.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**HUI 336- K: Italian Americans and Ethnic Relations**

An historical and sociological examination of Italian-Americans from colonial America to the present with the major focus on the period from 1870 to the present. Comparative experience with other ethnic and minority

groups within the U.S., including formation, migration, and conflict.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* One D.E.C. category F; completion of D.E.C. categories I and J

3 credits

**HUI 338- K: Images of Italian Americans in Film**

Italian-American ethnicity as represented in mainstream and independent American cinema from the silent era to the present. Particular attention is paid to the origin and existence of the traditional stereotypes associated with these representations, how they reflect the changing role of immigrants from the Industrial Revolution to the present, and how Italian-American filmmakers respond to them.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* HUM 201; HUI 231

3 credits

**HUI 390- G: Italian-American Studies in the Humanities**

May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

**HUI 392- F: Italian-American Studies in the Social and Behavioral Sciences**

May be repeated as the topic changes.

*Prerequisite:* Junior or Senior Standing

3 credits

**HUI 447: Directed Readings in Italian Studies**

Individually supervised readings in Italian studies. Primarily for students who do not have the language proficiency to take ITL 447. May be repeated.

*Prerequisite:* Permission of department

1-6 credits

**HUI 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUI 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the

same course twice. This course does not count toward the major or minor in Italian.

*Prerequisite:* U3 or U4 standing; permission of instructor and language coordinator

3 credits, S/U grading

**HUI 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUI 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. This course does not count toward the major or minor in Italian.

*Prerequisite:* U3 or U4 standing; permission of instructor and language coordinator

3 credits, S/U grading

## HUL

### Romance Languages

**HUL 324- I: Romance Linguistics**

Compares the linguistic evolution and synchronic grammars of the Romance languages in their original form against the backdrop of European culture from ancient times to the present. Examines similarities and differences in the phonology, morphology, syntax, and lexicon of the major Romance Languages (French, Italian, Portuguese, Rumanian, Spanish) and the minor Romance languages (Latin American varieties of Spanish, Catalan, Italian dialects, etc.), as well as the social and cultural implications of major versus minor languages in the western cultural tradition. The course is conducted in English, however, students must complete significant assignments in French, Italian, Spanish, Portuguese, and/or other Romance languages. This course is not a history or translation course.

*Pre- or corequisite:* One of the following: FRN 312, ITL 312, LAT 112, SPN 312

*Advisory Prerequisites:* LIN 101, LIN 201, LIN 211

3 credits

## HUM

### Humanities

**HUM 121- B: Death and Afterlife in Literature**

Through discussion of representative contemporary and classical texts, this course addresses the topic of how human beings have chosen to live with the one certainty of their existence, its eventual conclusion in death, and how various images of afterlife or denial of its possibility have shaped those choices.

3 credits

**HUM 122- B: Images of Women in Literature**

An historical and intercultural examination of selected representations of women in world literature ranging from classical literature to modern evocations of women's changing social roles and the rise of feminine self-consciousness.

3 credits

**HUM 123- B: Sexuality in Literature**

An exploration of the expression and interpretation of sexual experience in literature and culture, through discussion of selections from world literature and art, both classic and contemporary. Themes include temptation and gratification, desire and fulfillment, and how societies shape gender roles and deviance and set limits on sexual representation in literature and art.

3 credits

**HUM 220- G: Cross-Cultural Encounters**

Introduction to the process and effects of the encounter of two or more previously separate cultures, illustrated by study of historical or contemporary instances of such encounters, and drawing from the art, music, theatre, literature, philosophy or religion of the selected cultures. Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisite: Completion of D.E.C. category B*

3 credits

**HUM 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUM 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students

may not serve as teaching assistants in the same course twice.

*Prerequisites: U3 or U4 standing; permission of instructor and chairperson*

3 credits, S/U grading

**HUM 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUM 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. *Prerequisites: HUM 475; permission of instructor and chairperson*

3 credits, S/U grading

**HUM 495: Humanities Honors Project**

A one-semester project for humanities majors who are candidates for the degree with honors. The project involves independent study and the writing of a senior thesis under the close supervision of an appropriate faculty member.

*Prerequisite: Permission of director of undergraduate studies*

3 credits

## HUR

### Russian Literature and Culture Courses in English

**HUR 141- B: The Age of Empire**

A survey in English of major Russian writers of the 19th century, including Pushkin, Dostoevsky, and Tolstoy. A brief history of Russian literary masterpieces in the context of world literature and of major cultural movements such as the Renaissance, the Enlightenment, and Romanticism.

3 credits

**HUR 142- B: Culture and Revolution**

HUR 142-B Culture and Revolution Introduction to the major texts of modern Russian literature. Topics include the social and aesthetic rebellions of writers confronted with political oppression (labor camps, prisons, Stalin's reign of terror) or with outdated literary tradition. Typical cultural modes of rebellion, including avant-garde prose and poetry as well as popular forms of carnival and

folk laughter, are explored in literature, theater, and film.

3 credits

**HUR 231- I: Saints and Fools**

An introduction to literature about the lives of saints and the holy fool tradition in major texts of Russian and English literature. Emphasis is placed on the ways authors have used fundamental religious values of humility, the transcendent irrational, and kenosis to confront their own times. Authors considered range from monks to Dickens, Dumas, Chaucer, Gogol, and Pushkin; films include *Murder in the Cathedral* and *Forrest Gump*. This course is offered as both EGL 231 and HUR 231.

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

**HUR 232- I: Rebels and Tyrants**

An exploration of literary rebels and tyrants central to Russian and Anglo-American traditions. The subversive tactics of such writers as Shakespeare, Dostoevsky, Sir Walter Scott, Solzhenitsyn, and Salinger are appraised in the light of the dominant social, political, and aesthetic systems they confront. This course offered as both EGL 232 and HUR 232.

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

**HUR 235- G: Crime and Punishment in World Literature**

An exploration of the nature of crime and punishment in literature, including readings from Dostoevsky, Dickens, and Nabokov on the depiction of criminals, villains, acts of violence, and the moral code of their time. May be used to satisfy English major elective requirements.

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

**HUR 241- D: Russian Cinema**

Survey of major developments in Soviet and Russian cinema extending from the groundbreaking innovations of Soviet montage to the popular cinema of the post-communist period. Emphasis on situating the works of, among others, Eisenstein, Tarkovsky, Muratova, Balabanov within the context of Russia's tumultuous history and its distinct cultural traditions.

3 credits

**HUR 249- I: Russia Today**

Contemporary cultural trends viewed in terms of their historic social and political context. Recent responses to historical change such as the breakup of the Soviet Union and its relation to the forces that brought about the Russian Revolution, the new economic order, and the search for Russian national identity are explored in literature, the arts, and media.

3 credits

### **HUR 341- G: Russian Literature and the West**

A topics course given in English on a major Russian author or literary movement in relation to European or American literature. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes. May be used to satisfy English or comparative literature major elective requirements with permission of major department.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

### **HUR 393- G: Literary Analysis of Russian Texts**

Selected topics in literary analysis focusing on the work of one or more Russian authors in translation. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: One literature course at the 200 level or higher*

3 credits

### **HUR 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUR 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. This course does not count toward the major or minor in Russian.

*Prerequisite: U3 or U4 standing; permission of instructor and language coordinator*

3 credits, S/U grading

### **HUR 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In HUR 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. This course does not count toward the major or minor in Russian.

*Prerequisite: U3 or U4 standing; permission of instructor and language coordinator*

3 credits, S/U grading

## **HUS**

### **Spanish Literature and Culture Courses in English**

#### **HUS 254- J: Latin America Today**

An introduction to a continental perspective of 20th-century Latin American culture. Latin America's political, historical, and cultural developments of this century are studied.

3 credits

#### **HUS 255- I: Modern Spain**

An examination of major cultural and social developments in Spain throughout the 20th century, with special emphasis on the Spanish Civil War, the Franco era, and the transition to democracy. Presented in English, the course seeks to enhance understanding of Spain through analysis of such issues as national character, change and continuity, and regional diversity.

3 credits

#### **HUS 361- G: Latin American Literature**

A topics course given in English on a major Latin American author or literary movement in relation to European or American literature. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes. May be used to satisfy English or comparative literature major requirements with permission of major department.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

#### **HUS 371- G: United States Latino Literature**

A topics course given in English on a major Latino author or literary movement in relation to European or American literature. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes. May be used to satisfy English or comparative literature major requirements with permission of major department.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: One literature course at the 200 level or higher*

3 credits

#### **HUS 390- J: Latin American Cinema**

A contextual approach to the national cinemas of Latin America. Students develop their skill in film analysis as they examine the specific role of film in re-focusing the terms of ongoing debates on questions of national identity and the function of culture in society.

*Prerequisite: U3 or U4 standing. Advisory*

*Prerequisite: One 200-level course in film or one course in Latin American literature, culture, or history*

3 credits

## **HWC**

### **Social Work**

#### **HWC 210: Introduction to Social Work**

Introduces the student to the field of social work. Provides an overview of the variety of settings in which social workers practice. Describes the knowledge, values, and skills which social workers use in order to help individuals, families, groups, and communities.

1 credit

#### **HWC 300: Introduction to Fields of Practice**

This course exposes students to various social service delivery systems. Field visits, reports, guest speakers, lectures, and small group discussion are included. Agencies such as youth development associations, public schools, criminal justice systems, mental health and health systems will be observed. The social worker's role in such agencies, and identification and utilization of community resources are emphasized.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

4 credits

#### **HWC 301: Field Education I**

Places students in settings conducive to generalist practice. Prepares students to fulfill

social work roles and functions within the social welfare system. Supervision provided by an M.S.W. Students graded S/F. Must be taken concurrently with HWC 306. Prerequisites: HWC 300 and 305

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

6 credits, S/F graded

### **HWC 302: Field Education II**

A continuation of HWC 301. Students will be graded S/F. Must be taken concurrently with HWC 307. Prerequisites: HWC 300, 301, 305 and 306

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

6 credits, S/F graded

### **HWC 304: Contemporary Social Justice Issues**

This course explores the meaning of social justice and its presentation in our society. Examines the impact of social injustice and discusses the individuals, organizations, and communities who fight to combat the presence of injustice. Provides an understanding of social problems and the plight of populations who do not benefit from a socially just society. Analyzes effective methods utilized to eradicate the sources of oppression and organizational responses that address injustice and bring balance to the equitable experiences of individuals, groups, and communities.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 305: Practice Processes in Social Work I**

An overview of the purpose, principles, values, skills and processes in social work. Focuses on the knowledge, values, skills, the roles of the social worker and the elements of the professional relationship. The generalist approach to social work practice with an emphasis on diversity, populations-at-risk and the promotion of social and economic justice are highlighted. This course prepares students for the use of differential assessments and interventions with individuals and families.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 306: Practice Processes in Social Work II**

Builds on HWC 305. This course emphasizes the generalist approach in working with groups and families. It explores a variety of models of group work services available

to practitioners and agencies. Identifying, building and utilizing intervention skills in the group process are focused on. Must be taken concurrently with HWC 301 and 315. Prerequisites: HWC 300 and 305

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 307: Practice Processes in Social Work III**

Builds on HWC 304, 305 and 306. This course emphasizes the generalist approach in working with communities. The nature and application of a variety of community interventive modalities are explored. Must be taken concurrently with HWC 302 and 316. Prerequisites: HWC 300, 301, 302, 304, 305 and 306

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 308: Human Behavior and the Social Environment I**

Introduces a framework for understanding how individuals and families grow, develop and change within their social environment. Interpersonal, intrapersonal and sociostructural theories and their impact on special populations, especially groups that have been historically oppressed, devalued and alienated in society are critiqued.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 309: Human Behavior and the Social Environment II**

A continuation of HWC 308. This course emphasizes an understanding of the life course, the role of time, social events, trauma and the developmental process. Social institutions and their impact on people generally oppressed in society and the role of empowerment are examined. Prerequisite: HWC 308

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 310: The Political Economy of Social Welfare**

This course introduces a political economic framework for viewing social welfare in the United States. Basic political economic determinants of social problems, policies and programs are examined. This course focuses on the role of the state, conflict, power, class structure and ideology as they relate to such

problems as poverty, inequality, racism and sexism.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 311: Social Welfare Policy, Services and Analysis**

This course presents the history and basic concepts underlying the development of social welfare in the United States. Identification and interrelationships of social values and structures, political factors and economic conditions in understanding the evolution of social welfare and the profession of social work are emphasized. Presents an analytical framework which enables students to examine social welfare policy according to a disciplined, systematic process built upon the values of social justice and equality, empowerment and self-determination.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 312: Social Welfare Policy and Institutional Oppression**

Builds upon the foundation provided in HWC 311 and expands the student's understanding of the complex interrelationships characterizing American society which result in social injustice, inequality and oppression. Views the policies and programs of the public welfare, health, mental health, housing and criminal justice systems through the lens of five basic sources of oppression in American society-racism, sexism, classism, ageism and heterosexism. Prerequisite: HWC 311

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 313: Research in Social Work I**

This course provides instruction in introductory concepts and methods of social research. Focuses on examining the various methods researchers use to collect data relevant to social work practice, such as survey, experimental design, field research and unobtrusive design.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 314: Research in Social Work II**

Explicates data analytic procedures used in analyzing data relevant to social work practice. Examines basic descriptive statistics (e.g., frequencies and percentages, mean, median, mode, variance, standard deviation) and

bivariate (e.g., Pearson's r, chi-square, t-test) as the major focus of the course. Prerequisite: HWC 313

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 315: Integrating Seminar I**

Provides an opportunity for the integration, within the framework of the mission of the school, of the knowledge, skills and professional values acquired and developed through course work and field education experience. Taken concurrently with 301 and 306.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 316: Integrating Seminar II**

Builds on HWC 315. Taken concurrently with 302 and 307. Prerequisite: HWC 315

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 317: Issues in Death and Dying; Loss and Separation**

This course provides an overview of the knowledge, values, policy and skills underlying effective entry-level practice with dying and grieving clients. The interrelationship of psychological, interpersonal, family, institutional, community and cultural dynamics of dying and grieving are covered.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 321: Ethnic Sensitive Social Work Practice**

Provides a theoretical framework and focuses on the development of skills necessary to provide effective culturally sensitive social work services to diverse individuals, families, groups and communities. The special problems faced by groups traditionally devalued and oppressed are examined. Skills in working for institutional change and social justice are emphasized. Co-scheduled with HWC 521.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 323: Growing Old in America: The Social Conditions Policy and Practice Implications**

Explores the social, political and economic conditions related to aging in this society.

Identifies social policies and program formats that enhance wellness and support dependencies from a positive perspective. Co-scheduled with HWC 523.

3 credits

### **HWC 324: Children and Adolescents Who Grieve**

Focuses on issues related to bereavement in children and young people. Children and adolescents who struggle with the crisis of loss is a special population that is often overlooked. Students explore the emotional response of young people who grieve. Mental health professionals that provide treatment to this population must acquire specialized knowledge and skills to assist in healing wounded children. Upon completion, students will have an increased understanding of the developmental implications of loss in childhood, assessment of bereavement, and treatment interventions specific to bereaved children and adolescents. Co-scheduled with HWC 524.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 325: Anger Management**

This course presents an overview of concepts of anger management within a holistic context. Students learn how to recognize external manifestations of anger in themselves, clients, organizations and communities. Anger management strategies that can be taught to clients as part of an intervention plan will be introduced. Environmental and societal factors as "igniting events" of anger in individuals, families, groups and communities are examined. Co-scheduled with HWC 525.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 329: Complementary and Alternative Medicine**

Human service workers are often required to discuss issues of health and healing. Many individuals, by virtue of their culture, experiences and/or choice, often adhere to a combination of nontraditional and traditional beliefs regarding health care. This course familiarizes students with those methods and beliefs most often found in specific cultures. Students will develop an appreciation of each practice in order to interact with clients from a strengths perspective and will gain an international perspective on health care modalities. Co-scheduled with HWC 529.

3 credits

### **HWC 330: Case Management in Human Services**

Case management has grown dramatically in the human service field over the last twenty years in response to the growing service needs of individuals and families facing complex life situations and issues. It examines both the macro level and micro level issues facing case managers and agencies as they provide quality services to often oppressed populations. Co-scheduled with HWC 530.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 339: Ancestral Health Practices**

There is an increasing integration of complementary medicine and allopathic medicine. As health professionals, it is important to understand the beliefs and practices of our clients in order to maximize their options and choices. Professionals must be knowledgeable about the healing traditions anchored in different cultures and ethnicity.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

### **HWC 340: Social Issues in Popular Culture**

Movies have been a useful medium that can illustrate current social issues and family dynamics, as well as policy and research dilemmas. Each week, a film with a central practice/research/policy issue provides the basis for a lecture and class discussion. Topics focus on a variety of social issues such as family dynamics, bereavement, adoption, domestic violence, abuse, residential placement, policy and research. Co-scheduled with HWC 540.

3 credits

### **HWC 343: Working with Children of Alcoholics and Substance Abusers**

Deals with children of alcoholic parents, how parents illnesses affect the social, emotional and educational development of their children, and the survival roles children assume in order to live in troubled, alcoholic families. It emphasizes identification and intervention strategies with children who suffer from parental alcoholism when they are seen in settings other than home or social service agencies, such as school and youth programs.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 344: Overview of Substance Abuse**

This course is an examination of the history and development of alcohol and substance abuse problems in the United States. It focuses on the etiology, psychopharmacology and legal ramifications of the use of licit and illicit substances in our culture. The course provides information on a variety of services available to drug abusers, addicted individuals and their families in the fields of prevention, education and treatment. Co-scheduled with HWC 544.

3 credits

**HWC 349: Overview of Social Work with Special Populations**

This course examines the issues that social workers must consider when working with traditionally disenfranchised populations. Emphasis will include micro and macro issues when intervening with gay and lesbian individuals, members of diverse racial and ethnic groups, and women, as well as others. The historic as well as contemporary experiences of these individuals interactions with the health and human service delivery system will be explored. Co-scheduled with HWC 549.

3 credits

**HWC 351: Law and Social Change**

This course introduces students to the interrelationship of the legal process in the United States and the profession of social work. Focuses on the legal process in general, social welfare law, in particular, and the implications for effective social work practice. Co-scheduled with HWC 551.

3 credits

**HWC 361: Implications of Racism for Social Welfare**

This course examines personal and institutional racism in the United States and the effect racism has on the delivery of services to individuals who do not fit the traditional "American model". It examines the historical relationship between racism and social welfare policies, programs and practice, as well as contemporary strategies for change. Co-scheduled with HWC 561.

3 credits

**HWC 362: Implications of Child Abuse and Maltreatment**

Introduces child maltreatment via its history and how its recognition progressed to spur many to become advocates for the prevention of child abuse. Topics include identification, reporting and interviewing.

Social and economic pressures on the family are examined.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 363: Homelessness, Politics and Public Health**

This course analyzes homelessness as an issue of social policy, including its history, recent causes and current demographics. Emphasizes the political and economic context that has made homelessness a major social problem. Co-scheduled with HWC 563.

3 credits

**HWC 364: The Impact of Sexual Assault**

Introduction to the incidence and prevalence of childhood sexual abuse. Covered are definition issues, family dynamics, symptoms, assessment techniques, treatment modalities and strategies utilized with the survivor. Issues related to offenders and offender treatment are addressed, as well as ethical and legal dilemmas. Cultural dynamics in sexual abuse related to childhood sexual trauma will be emphasized. Students should develop an understanding and ability to critically analyze current research.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 369: Youth and Violence**

This course examines the etiology of youth at risk for violence, using ecological and interpersonal perspectives. Family, school and community risk factors are outlined as well as assessment, intervention and treatment issues. Successful prevention programs are highlighted. Co-scheduled with HWC 541.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 375: Child Welfare: An Overview**

This course covers the impact of historical and contemporary developments within the field of child welfare. It examines the evaluation of child welfare services and the role of child care workers. Examines out-of-home care, foster care, group home care and institutional care within the context of traditional public/voluntary structure of services and the social/political context. Services in relation to the changing roles of the family and emergence of child care are covered. Co-scheduled with HWC 575.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 379: Special Topics in Social Welfare**

These courses examine significant timely issues confronting the profession. Topics include violence as a public health problem, issues of aging, racism, gender, AIDS, the media, and others. Topics vary each term as faculty develops specific modules that address one or more of these issues. Co-scheduled with HWC 579 when offered as an enrichment elective.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1-3 credits

**HWC 380: Overview of Family Violence**

This course is an overview of the phenomenon of family violence in the United States including child abuse, intimate partner violence (IPV) and elder abuse. Incidence and prevalence regarding each form of family violence will be reviewed as well as etiology, current evidence-based treatment modalities and competing political ideologies. Particular focus will be on the current research for each type of family violence and policy directives that emanate. This course also explores theories of etiology, including patriarchy, intergenerational family dynamics and substance abuse. It examines programmatic approaches and programs for batterers and prevention strategies. Co-scheduled with HWC 580.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 390: HIV / AIDS**

This course focuses on the central aspects of the HIV/AIDS Pandemic, including the state of medical knowledge, HIV/AIDS and the law, prejudice and discrimination, AIDS activism and organizing, grief/death/dying, psychosocial issues, redefining the medical model, homophobia, racism, sexism and ableism in research, treatment and policy, IV drug use, drug treatment and other related issues. Upon completion of this course, students will have met the educational requirements established by the HIV Primary Care Medicaid Provider Agreement. This requirement is needed to conduct HIV pre- and post-test counseling in hospitals and clinic settings. Co-scheduled with HWC 590.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

3 credits

**HWC 395: Independent Study**

Independent study with an individual faculty member.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1-3 credits

**HWC 399: Maintenance of Matriculation**

For students who are maintaining matriculation while engaging in consultation with faculty regarding completion of courses. Students will be graded S/F.

*Prerequisite: Admission to Undergraduate Health Sciences Center program*

1 credit, S/F graded

# IAP

## International Academic Programs

**IAP 390: American History and Society**

Overview of U.S. history from the time of European arrival on the North American continent to the present day, followed by an examination of crucial issues of American society and culture. Readings and discussions consider the social, economic, political, and cultural developments that have shaped the United States, and are crucial for the understanding of contemporary America. International students who participate in their university's Junior Year abroad program hosted and administered by IAP may take this course.

*Prerequisite: Participation in the Junior Year Abroad program*

3 credits

**IAP 391: American Society and Culture**

The interplay between social structure and culture that produces and reproduces American society is the main focus of this course. Students will consider selected social institutions such as the family, immigration, media, markets and social movements in American society. Reflections on these institutions, will employ a sociological analyses derived from documentary films/movies as well as journal articles and book chapters.

*Prerequisite: Participation in the Junior Year Abroad program*

3 credits

**IAP 488: Internship**

May be repeated to a limit of 6 credits.

*Prerequisites: Permission of instructor and department*

0-6 credits, S/U grading

# INT

## International Studies

**INT 201: Democracy and Capitalism**

Introduction to the two major ideologies and structures shaping the world today: democracy and the interstate political system, and capitalism and the world-economy. How they came into being, how they have been transformed over time, and how and whether they continue to be transformed. The course seeks to understand global connections between democracy and capitalism, and how the workings of the interstate system and the world-economy combine to impact power, culture, and social change at both the global and local level.

2 credits

**INT 302: Colloquium in International Studies**

A colloquium on international studies involving guest experts who discuss particular world topics or regional specialties. Students also contribute class discussions, oral presentations, and a substantial essay on themes drawn from various topics and regions. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for as the topic changes.

*Prerequisite: Junior or Senior Standing*

1 credit

**INT 401: Global Social Problems**

The consequences of the "globalization" of social, economic, and political life around the world. Topics include economic inequality and poverty; environmental degradation; AIDS epidemics; gender inequality and patriarchy; racism; human rights issues; migration and immigration and how they have shaped and been shaped by the social, political and economic dynamics underlying them. Consideration of the possibilities of global-local activism and social change. Conducted as part seminar and part practicum.

*Prerequisites: INT 201; U3 or U4 standing*

3 credits

**INT 487: Independent Study in International Studies**

Independent research projects on international studies by upper-division students in the minor under the supervision of an instructor. May be repeated twice.

*Prerequisites: INT 201; U3 or U4 standing; permission of director of the minor*

0-6 credits

# ISE

## Information Systems

**ISE 102: Introduction to Web Design and Programming**

An introduction to the design of Web pages, specifically the development of browser and device independent HTML, with an emphasis on the XHTML standards. Includes the use of style sheets (CSS) and tools for page layout and verification. HTML is presented as a mark-up language, exploring the rules of HTML elements and attributes. Students learn the separation of page viewing information from the HTML through CSS style sheets as well as the use of block layout without using HTML tables. Addresses HTML display properties including text, color, image, and graphic elements as well as approaches to HTML validation and techniques.

*Advisory Prerequisite: CSE 101 or basic computer skills*

3 credits

**ISE 108: Introduction to Programming**

Introduces computer programming at a level suitable for those with no prior programming experiences, including liberal arts and humanities majors. Programming exercises involve state-of-the-art visual applications. Topics include problem-solving techniques, object-oriented design, and programming concepts such as conditionals, iteration, arrays, and modularity.

3 credits

**ISE 208: Intermediate Programming**

Teaches programming and system design techniques with an emphasis on applications to business. Topics include object-oriented design techniques, testing and debugging, data structures, recursion, and exception-handling. Uses the Java programming language.

*Prerequisite: ISE 108*

3 credits

**ISE 215: Foundations of Computer Science**

Introduction to the logical and mathematical foundations of computer science. Topics include functions, relations, and sets; recursion and functional programming; elementary logic; and mathematical induction and other proof techniques.

*Prerequisite: AMS 151 or MAT 125 or MAT 131*

3 credits

**ISE 218: Introduction to Computer Organization**

This course introduces computer organization to students interested in the relationship between computer hardware and information systems. The course examines components found in high use computing devices such as desktop computers, smart phones and navigation systems. The course explores the underlying technology of each component, along with price/performance curves, competing technologies, and integration into larger systems. Upon completion of the course, students should be proficient in reading device specifications, particularly the functional and performance implications of system components. Students should be able to use that knowledge to compare competing devices.

*Prerequisite:* Level 4 or higher on the mathematics placement examination; U2 standing or higher

3 credits

**ISE 300: Technical Communications**

Principles of professional technical communications for Computer Science and Information Systems majors. Topics include writing business communications, user manuals, press releases, literature reviews, and research abstracts. Persuasive oral communications and effective presentation techniques, to address a range of audiences, will also be covered. This course satisfies the upper-division writing requirement for CSE and ISE majors.

*Prerequisites:* WRT 102, CSE or ISE major, U3 or U4 standing

3 credits

**ISE 301- H: History of Computing**

A study of the history of computational devices from the early ages through the end of the 20th century. Topics include needs for computation in ancient times, development of computational models and devices through the 1800's and early 1900's, World War II and the development of the first modern computer, and early uses in business. Creation of programming languages and the microchip. Societal changes in computer usage due to the microcomputer, emergence of the Internet, the World Wide Web, and mobile computing. Legal and social impacts of modern computing. Cannot be used as a technical elective for the CSE major or minor. This course is offered as both CSE 301 and ISE 301.

*Prerequisite:* U2 standing or higher  
*Advisory Prerequisite:* one course in computing

3 credits

**ISE 305: Database Design and Practice**

The design of database applications including Entity-Relationship data modeling, the relational data model, the SQL database query language, application development, and database administration. Students will complete a project that includes designing a database application and implementing it using database development tools.

*Prerequisite:* ISE 208 or CSE 114 or CSE 230  
3 credits

**ISE 311: Systems Administration**

This course covers practical techniques to manage information systems, also known as IT Systems Administration. Students will learn how to install computers for assorted hardware and software platforms (Windows, Unix/Linux, OS-X). Install networking equipment and configure it. Install server software on several systems (e.g. web, database, mail) and configure it. Secure the network, hosts, and services, and apply system patches. Set up redundant computing services, virtual machines/services, and hardware so that services can survive some hardware/software failures. Evaluate the performance, reliability, and security of the overall system.

*Prerequisites:* CSE 214 or CSE 230 or CSE 260 or ISE 208

3 credits

**ISE 312: Legal, Social, and Ethical Issues in Information Systems**

This course deals with the impact of computers on us as individuals and on our society. Rapid changes in computing technology and in our use of that technology have changed the way we work, play, and interact with other people. These changes have created a flood of new social and legal issues that demand critical examination. For example, technologies such as Gmail, Facebook, MySpace, along with music sharing sites and wikis create new social, ethical, and legal issues. This course is offered as both CSE 312 and ISE 312.

*Prerequisites:* U3 or U4 standing, one D.E.C. E course

3 credits

**ISE 315: Database Transaction Processing Systems**

Theory and practice of design for applications involving transactional access to a database. Transaction design, schema design, restart and recovery, journaling, concurrency control, distributed databases. Student groups perform design and implementation of significant database application.

*Prerequisite:* CSE or ISE 305

3 credits

**ISE 316: Introduction to Networking**

This course introduces the principles of computer networks, including network architectures, algorithms, and performance, with the TCP/IP based Internet as an example. It examines various networking protocols at different layers of the Internet protocol stack, including those at the application, transport, network, and the data link layers, respectively. May not be taken for credit in addition to CSE 310 and CSE 346/ESE 346.

*Prerequisite:* CSE 114 or ISE 208; Level 4 or higher on the mathematics placement exam or MAT 123

3 credits

**ISE 320: Information Management**

The course presents the relationship between information technology and the systems that use the technology. The emphasis is on business systems with a high information technology components (e.g. software developments, communications, financial management, etc.). Topics include infrastructure management, information management, security, and communications. Emphasis is given to case studies relating to information management.

*Prerequisite:* U2 Standing

3 credits

**ISE 321: Introduction to Network Administration**

The course introduces students to the fundamentals of network management, primarily for TCP/IP networks. Students are introduced to networking protocols, hardware, architecture, media, and software and experience hands-on management of typical network components. Various network protocols are examined, including Internet routing protocols. Network security is introduced in the overall context of network management.

*Prerequisite:* ISE 316 or CSE 310

3 credits

**ISE 323: Human-Computer Interaction**

A survey course designed to introduce students to Human-Computer Interaction and prepare them for further study in the specialized topics of their choice. Students will have the opportunity to delve deeper in the course through a course project, and through a two-three week special topic selected at the instructor's discretion. Course is cross-listed as CSE 323, EST 323 and ISE 323.

*Prerequisites:* CSE 214 or CSE 230 or CSE 260 or ISE 208

3 credits

### ISE 325: Computers and Sculpture

This multidisciplinary class surveys how computer science and computer technology are used in sculpture. Case studies with slides, videos, and software demonstrations illustrate a range of approaches of sculptors incorporating computers in their creative process. Various state-of-the-art fabrication technologies are studied (with site visits if available on campus). Mathematical foundations are emphasized so students can recognize them when analyzing sculpture and choose the right tool when designing. In the weekly laboratory, these ideas are reinforced with projects using a range of available software and inexpensive construction materials, e.g., paper, cardboard, and foamcore.

*Prerequisite:* CSE 110 or permission of instructor

3 credits

### ISE 332: Introduction to Visualization

Visualization of scientific, engineering, medical, and business data sets. Mechanisms to acquire sampled, computed, or synthetic data and methods to transform symbolic into the visual. Topics include classic visualization process; visual perception; volume and surface visualization; methods for visualizing sampled, simulated, and geometric objects; and visualization systems. Emphasis on applications and case studies. This course is offered as both CSE 332 and ISE 332.

*Prerequisites:* CSE 219 or CSE 260; MAT 211 or AMS 210

3 credits

### ISE 334: Introduction to Multimedia Systems

Survey of technologies available for user interfaces. Discussion of hypertext; voice, music, and video together with tools and models for capturing, editing, presenting, and combining them. Capabilities and characteristics of a range of peripheral devices including devices based on posture, gesture, head movement, and touch. Case studies of academic and commercial multimedia systems including virtual reality systems. Students participate in laboratory exercises and build a multimedia project. This course is offered as both CSE 334 and ISE 334.

*Prerequisite:* U2, U3 or U4 standing

3 credits

### ISE 340: Design of Computer Games

Fundamental ideas underlying the design of games, which occurs before the programming

stage. How games function to create experiences, including rule design, play mechanics, game balancing, social game interaction and the integration of visual, audio, tactile and textual elements into the total game experience. Game design documentation and play testing. Students will design their own game during the semester. This course is offered as both EST 310 and ISE 340.

*Advisory Prerequisite:* Basic Computer Skills

3 credits

### ISE 364: Advanced Multimedia Techniques

Digital media production techniques for high-bandwidth applications such as electronic magazine illustration, broadcast television, and motion picture special effects. Students explore techniques such as 3D modeling and character animation, video compositing, and high-resolution image processing in a state-of-the-art multimedia computing laboratory. High-capacity multimedia storage, high-speed networks, and new technologies such as DVD, HDTV, and broadband will be reviewed. This course is offered as both CSE 364 and ISE 364.

*Prerequisites:* CSE/ISE 334 and permission of the instructor

3 credits

### ISE 377: Introduction to Medical Imaging

An introduction to the mathematical, physical, and computational principles underlying modern medical imaging systems. Covers fundamentals of X-ray computer tomography, ultrasonic imaging, nuclear imaging, and magnetic resonance imaging (MRI), as well as more general concepts required for these, such as linear systems theory and the Fourier transform. Popular techniques for the visualization, segmentation, and analysis of medical image data are discussed, as well as applications of medical imaging, such as image-guided intervention. The course is appropriate for computer science, biomedical engineering, and electrical engineering majors.

*Prerequisites:* AMS 161 or MAT 127 or 132 or 142; AMS 210 or MAT 211

3 credits

### ISE 378: Introduction to Robotics

Introduces basic concepts in robotics including coordinate transformation, kinematics, dynamics, Laplace transforms, equations of motion, feedback and feedforward control, and trajectory planning. Covers simple and complex sensors (such as cameras), hybrid and behavior based control and path planning.

Concepts are illustrated through laboratories using the LEGO Robot Kit.

*Prerequisites:* AMS 161 or MAT 127 or 132 or 142; AMS 210 or MAT 211 or MEC 262

3 credits

### ISE 390: Special Topics in Information Systems

Lecture or seminar course on a current topic in information systems. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy ISE major requirements.

*Prerequisite:* ISE major or ISE minor

3 credits

### ISE 391: Special Topics in Information Systems

Lecture or seminar course on a current topic in information systems. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy ISE major requirements.

*Prerequisite:* ISE major or ISE minor

3 credits

### ISE 392: Special Topics in Information Systems

Lecture or seminar course on a current topic in information systems. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes, but cannot be used more than twice to satisfy ISE major requirements.

*Prerequisite:* ISE major or ISE minor

3 credits

### ISE 475: Undergraduate Teaching Practicum

Students assist faculty by conducting a recitation or laboratory section that supplements a lecture course. The student receives regularly scheduled supervision from the faculty advisor. May be repeated once, but only one completion of the course will count towards the ISE upper division elective requirement.

*Prerequisites:* U4 standing as an undergraduate CEAS major; a minimum g.p.a. of 3.00 in all Stony Brook courses; grade of B or better in the course in which the student is to assist; or permission of department

3 credits

### ISE 487: Research in Information Systems

An independent research project with faculty supervision. Only three credits of research

electives (AMS 487, BME 499, CSE 487, ESE 499, ESM 499, EST 499, ISE 487, MEC 499) may be counted toward technical elective requirements. May not be taken for more than six credits.

*Prerequisites: Permission of instructor and department*

0-6 credits

### **ISE 488: Information Systems Internship**

Participation in local, state, national, or international private enterprises, public agencies, or nonprofit institutions. Students are required to submit a written proposal, progress reports, and a final report on their experience to the client and to the department. May be repeated up to a limit of 12 credits but only 3 credits of CSE or ISE 488 may be used as an elective to satisfy ISE major requirements.

*Prerequisites: ISE major; U3 or U4 standing; permission of faculty sponsor and department*  
3 credits, S/U grading

## **ITL**

### **Italian**

#### **ITL 101 - S3: Intensive Elementary Italian**

An intensive course covering the elementary Italian program (ITL 111, 112) in one semester. ITL 101 is designed for students who have no prior knowledge of the language. A student who has had two or more years of Italian in high school (or who has otherwise acquired an equivalent proficiency) may not take this course without written permission from the supervisor of the course. May not be taken for credit after any other course in Italian.

6 credits

#### **ITL 111: Elementary Italian I**

An introduction to spoken and written Italian, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts are read. Practice in language laboratory supplements class work. ITL 111 is designed for students who have no prior knowledge of the language. A student who has had two or more years of Italian in high school (or who has otherwise acquired an equivalent proficiency) may not take ITL 111 without written permission from the supervisor of the course. May not be taken for credit in addition to ITL 101.

4 credits

#### **ITL 112 - S3: Elementary Italian II**

An introduction to spoken and written Italian, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts are read. Practice in language laboratory supplements class work. May not be taken for credit in addition to ITL 101.

*Prerequisite: ITL 111*

4 credits

#### **ITL 201 - S3: Intensive Intermediate Italian**

An intensive course covering the intermediate Italian program (ITL 211, 212) in one semester. May not be taken for credit in addition to ITL 211, 212.

*Prerequisite: ITL 101 or 112*

6 credits

#### **ITL 211 - S3: Intermediate Italian I**

Intermediate courses in the reading and discussion of selected Italian texts. Completion of grammatical and syntactic points not covered in Elementary Italian. Extensive practice in conversational ability. May not be taken for credit in addition to ITL 201.

*Prerequisite: ITL 101 or 112*

3 credits

#### **ITL 212 - S3: Intermediate Italian II**

Intermediate courses in the reading and discussion of selected Italian texts. Completion of grammatical and syntactic points not covered in Elementary Italian. Extensive practice in conversational ability. May not be taken for credit in addition to ITL 201.

*Prerequisite: ITL 211*

3 credits

#### **ITL 311 - S3: Italian Conversation and Composition**

A course in spoken and written Italian, with emphasis on precision and fluency in the spoken form.

*Prerequisite: ITL 201 or 212*

3 credits

#### **ITL 312 - S3: Italian Conversation and Composition**

Reading of selected short passages of prose and poetry in class, with emphasis on improved writing skills, oral expression, and increased mastery of Italian syntax and techniques of literary analysis.

*Prerequisite: ITL 201 or 212*

3 credits

#### **ITL 313 - S3: Italian Vocabulary**

A course designed to increase the vocabulary and oral comprehension of students of Italian

through media such as television commercials, popular music, folk songs, etc. The particular theme changes each semester. May be repeated twice for credit as the topic changes.

*Prerequisite: ITL 201 or 212*

1 credit

#### **ITL 395- G & 3: Readings in Italian Literature I**

Literary analysis and its application to representative short stories and novels chosen from the various periods of Italian literature. Readings, writings, and discussions are in Italian.

*Prerequisite: ITL 311*

*Pre- or Corequisite: ITL 312*

3 credits

#### **ITL 396- G & 3: Readings in Italian Literature II**

Literary analysis and its application to representative plays and poems chosen from the various periods of Italian literature. Readings, writings, and discussions are in Italian.

*Prerequisite: ITL 311*

*Pre- or Corequisite: ITL 312*

3 credits

#### **ITL 410 - S3: Business Italian**

A course designed for students who wish to become more proficient in reading, writing, and translating Italian. Students are also trained in the use of Italian in business, in administration, and in everyday professional life. Emphasis is placed on the idiomatic peculiarities of the Italian language and the relation of Italian to the structure of English.

*Prerequisites: ITL 311 and 312*

3 credits

#### **ITL 411 - S3: Advanced Conversation and Composition**

A course designed to develop fluency and accuracy in the use of the spoken language through intensive practice, exposition, class discussion, and the use of the language laboratory.

*Prerequisites: ITL 311 and 312*

3 credits

#### **ITL 412 - S3: Advanced Conversation and Syntax**

A course designed to acquaint students with the subtleties of Italian grammar and style. Extensive practice in composition and in translation from English to Italian.

*Prerequisites: ITL 311 and 312*

3 credits

**ITL 424 - S3: History of the Italian Language**

A study of the history of the Italian language from Latin to its present form.

*Prerequisites: ITL 311 and 312*

3 credits

**ITL 425 - S3: Italian and Its Dialects**

An examination of the Italian dialects within the larger framework of Romance language development, particularly through primary texts (medieval to modern) in various Italian dialects.

*Prerequisite: ITL 311; ITL 312; HUL 324; or permission of instructor*

3 credits

**ITL 426 - S3: Italian Linguistics**

An examination of the linguistic evolution and the synchronic structures (phonology, morphology, and syntax) of standard Italian and some Italo-Romance dialects.

*Prerequisite: ITL 311; ITL 312; HUL 324; or permission of instructor*

3 credits

**ITL 431 - S3: Studies in 13th- and 14th-Century Literature**

May be repeated as the topic changes.

*Prerequisites: ITL 311, 312, 395, and 396*  
3 credits

**ITL 432 - S3: Studies in 15th- and 16th-Century Literature**

May be repeated as the topic changes.

*Prerequisites: ITL 311, 312, 395, and 396*  
3 credits

**ITL 434 - S3: Studies in 19th-Century Literature**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites: ITL 311, 312, 395, and 396*  
3 credits

**ITL 435 - S3: Studies in Contemporary Literature**

Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisites: ITL 311, 312, 395, and 396*  
3 credits

**ITL 436: Special Topics in Italian Cinema**

A topics course given in Italian on Italian cinema. Topics may include films of a

particular actor or director, genre, theme, or historical period. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Pre- or Corequisites: ITL 311 and 312*  
*Advisory Prerequisite: HUI 231*

3 credits

**ITL 440- I & 3: The Italian Scene**

The reality of Italy and the Italian people through a study of the evolution of the historical, cultural, political, and social character of the nation.

*Prerequisites: ITL 311 and 312*  
3 credits

**ITL 441 - S3: Topic Seminar**

A seminar built around a theme such as "Cities in Italian Literature," "Women in Italian Literature," "Death and Resurrection in Contemporary Italian Literature," or "Sin and Sensuality in the Italian Short Story." A detailed description of the seminar may be obtained from the department for each semester it is offered. May be repeated as the topic changes.

*Prerequisites: ITL 311 and 312*  
3 credits

**ITL 447 - S3: Directed Readings in Italian**

Individually supervised readings in selected topics in Italian language and literature or, alternatively, for the purpose of developing Italian vocabulary in a secondary field, in selected topics in the humanities, social sciences, or natural sciences. May be repeated.

*Prerequisite: Permission of instructor*  
1-6 credits

**ITL 475 - S3: Undergraduate Teaching Practicum I (in Italian)**

Each student conducts a regular problem or tutorial section that supplements a regular language course under the guidance of a master teacher. Responsibilities may include preparing materials for discussion and helping students with problems. Not for major or minor credit.

*Prerequisites: Fluency in Italian; permission of instructor and department*  
3 credits, S/U grading

**ITL 476 - S3: Undergraduate Teaching Practicum in Italian II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading

discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisites: Fluency in Italian; permission of instructor and department*  
3 credits, S/U grading

**ITL 488 - S3: Internship**

Participation in local, state, national, and international public and private agencies and organizations to apply and reinforce language skills and knowledge of social and cultural institutions.

*Prerequisites: ITL 410; permission of instructor and department*  
0-6 credits, S/U grading

**ITL 495 - S3: Senior Honors Project in Italian**

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

*Prerequisite: Permission of department*  
3 credits

## ITS

### Information and Tech Studies

**ITS 101: Introduction to Stony Brook**

A seminar intended to integrate students into the Undergraduate College of Information and Technology Studies and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, ACH 101, LDS 101, GLS 101, HDV 101, SSO 101, SBU 101, SCH 101, or LSE 101.

*Prerequisite: Admission to the ITS Undergraduate College*  
1 credit, S/U grading

**ITS 102: Topics in Information and Technology Studies**

A seminar for students in the College of Information and Technology Studies. Various topics within the scope of information, technology, and engineering studies. Required for all first year students. Not for credit in addition to ACH 102, GLS 102, HDV 102, LDS 102, or SSO 102.

*Prerequisite: Admission to the ITS Undergraduate College*

*1 credit, ABC/U grading*

### **ITS 275: Undergraduate College Fellows Seminar**

Creates a curricular component for the second year of the Undergraduate College Experience. College fellows will enroll in ITS 275 in the spring semester of their freshman year and ITS 276 in the fall semester of their sophomore year. 275 (spring) engages students in four main content areas: student development theory, scholarship on mentoring and leadership development, concepts of teaching and learning, and programming and event planning. These areas prepare students for supervised learning and teaching experiences that will occur primarily in the fall 276 course.

*Prerequisites: Grade of "S" in ITS 101 and a strong desire to help other students. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

*1 credit, S/U grading*

### **ITS 276: Undergraduate College Fellows Practicum**

The second semester in the sequence following ITS 275. Students assume higher responsibility and are given opportunities to apply teaching theories and concepts as learned in ITS 275. Students act as a TA for ITS 101.

*Prerequisites: A grade of "S" in ITS 275. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

*1 credit, S/U grading*

### **ITS 475: Undergraduate College Teaching Practicum**

The purpose of this course is to allow upper-division students the opportunity to work with a faculty member as an assistant in one of the faculty member's scheduled Undergraduate College seminars. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course. May be repeated up to a limit of 2 credits.

*Prerequisite: Permission of the instructor and department*

*1 credit, S/U grading*

### **ITS 488: Undergraduate College Internship**

Students learn about contemporary issues in higher education, community building, and teaching at a research university through hands-on work with faculty mentors. Work assigned will include participation in the planning and operation of events and initiatives sponsored by the Undergraduate Colleges. Students are required to submit written reports on their experiences to the Undergraduate Colleges office and Faculty Directors. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of the instructor and department*

*0-3 credits, S/U grading*

## **JDH**

### **Judaic Studies: Humanities**

#### **JDH 230- G: Judaism**

A survey of the great texts of the Judaic heritage, with the aim of learning the contribution of each to the Jewish tradition. The course includes an examination of characteristic Jewish beliefs, practices, and attitudes. This course is offered as both JDH 230 and RLS 230.

*3 credits*

#### **JDH 261- B: The Bible as Literature**

A literary approach to the Bible that explores the characteristic principles of the Bible's narrative and poetic art. This course is offered as both EGL 261 and JDH 261.

*Prerequisite: Completion of D.E.C. category A*  
*3 credits*

#### **JDH 390- G: Humanities Topics in Judaic Studies**

An examination of a selected topic in Judaic studies within the humanities area. May be repeated as the topic changes.

*Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230*

*3 credits*

#### **JDH 415- G: Judaic Response to Catastrophe**

The response of Judaic thinkers, from the Bible to the Second World War, to the problem of historical disaster and the need to understand and respond to it. Particular attention is given to the question of long-term continuity and the appearance of innovation in such responses. This course is offered as both JDH 415 and RLS 415.

*Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230*

*3 credits*

### **JDH 447: Readings in Judaic Studies**

Qualified juniors and seniors may read independently in the areas of Jewish religion, philosophy, and literature in an approved program under the supervision of a faculty member. May be repeated.

*Prerequisite: Permission of instructor*

*1-6 credits*

## **JDS**

### **Judaic Studies: Social and Behavioral Sciences**

#### **JDS 225- J: The Formation of the Judaic Heritage**

Jewish history and the development of Judaism during the Persian, Hellenistic, and Roman periods (ca. 500 B.C.E.- ca. 500 C.E.). The course begins with the close of the Hebrew Bible, examines the varieties of Judaism which then arose, and ends with the consolidation of rabbinic Judaism on one hand and Christianity on the other. This course is offered as both HIS 225 and JDS 225.

*Advisory Prerequisite: RLS 101 or 110 or one HIS course*

*3 credits*

#### **JDS 226- F: The Shaping of Modern Judaism**

The history of the Jews and of Judaism since the fall of the Roman Empire and the rise of Islam. The course concludes with a study of the Holocaust and the creation of the State of Israel, and includes a survey of the major forms of American Jewish life. This course is offered as both HIS 226 and JDS 226.

*Advisory Prerequisite: RLS 101 or 110 or one HIS course*

*3 credits*

#### **JDS 241- I: The Holocaust: The Destruction of European Jewry-- Causes and Consequences**

The rise of modern anti-Semitism since the late 18th century and its political application in Nazi Germany. Topics include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. This course is offered as both HIS 241 and JDS 241.

*Advisory Prerequisite: JDS/HIS 226 or HIS 101 or 102*

*3 credits*

#### **JDS 356- I: Zionism Before 1948**

A survey of ideologies that have found expression under the general banner of Zionism. Topics include the origins and development of those ideologies, and the important ideological and conceptual issues that the Zionist movement has not yet managed to resolve.

3 credits

### **JDS 390- F: Social Sciences Topics in Judaic Studies**

An examination of selected topics within the social and behavioral sciences area to be announced whenever the course is offered. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* JDS/HIS 225 or 226

3 credits

### **JDS 447: Readings in Judaic Studies**

Qualified juniors and seniors may read independently in the areas of Jewish history, culture, and society, in an approved program under the supervision of a faculty member. May be repeated.

*Prerequisites:* Two JDS courses, or one course each in JDS and JDH; permission of director

1-6 credits

## **JPN**

### **Japanese Language**

#### **JPN 101 - S3: Intensive Elementary Japanese**

An intensive, 6-credit, elementary-level Japanese language course that provides foundational knowledge and skills including pronunciation, basic everyday conversational proficiency, principles of character formation, basic grammatical rules, and basic cultural norms and preferences that govern language use. Drawing upon a communicative approach, this course situates oral and written language in real-life contexts and promotes learner-centered, interactive classroom activities. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Japanese in high school (or who has otherwise acquired an equivalent proficiency) may not take JPN 101 without written permission from the supervisor of the course. May not be taken for credit after any other course in Japanese.

6 credits

#### **JPN 111: Elementary Japanese I**

An introduction to spoken and written Japanese with equal attention to speaking,

reading, and writing. Linguistic analysis of the characters provides cultural and historical background of the language. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Japanese in high school (or who has otherwise acquired an equivalent proficiency) may not take JPN 111 without written permission from the supervisor of the course.

4 credits

#### **JPN 112 - S3: Elementary Japanese II**

An introduction to spoken and written Japanese with equal attention to speaking, reading, and writing. Linguistic analysis of the characters provides cultural and historical background of the language. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Japanese in high school (or who has otherwise acquired an equivalent proficiency) may not take JPN 112 without written permission from the supervisor of the course.

*Prerequisite:* JPN 111

4 credits

#### **JPN 201 - S3: Intensive Intermediate Japanese**

An intensive, 6-credit, Intermediate-level Japanese language course that offers foundational knowledge and skills at the intermediate level, including conversational proficiency, orthography, grammatical rules, and essential cultural norms and preferences that govern language use. Drawing upon a communicative approach, this course situates oral and written language in real-life contexts and promotes learner-centered, interactive classroom activities. May not be taken for credit in addition to JPN 211 or JPN 212.

*Prerequisite:* JPN 101, JPN 112, or placement test

6 credits

#### **JPN 211 - S3: Intermediate Japanese I**

An intermediate course in Japanese language to develop audiolingual skills and reading and writing ability. Selected literary texts serve as the basis for practice in reading comprehension and composition. A student who has had three or more years of Japanese in high school (or has otherwise acquired an equivalent proficiency) may not enroll in JPN 211 without written permission from the supervisor of the course.

*Prerequisite:* JPN 112

4 credits

#### **JPN 212 - S3: Intermediate Japanese II**

An intermediate course in Japanese language to develop audiolingual skills and reading and writing ability. Selected literary texts serve as the basis for practice in reading comprehension and composition. A student who has had three or more years of Japanese in high school (or has otherwise acquired an equivalent proficiency) may not enroll in JPN 212 without written permission from the supervisor of the course.

*Prerequisite:* JPN 211

3 credits

#### **JPN 311 - S3: Advanced Japanese I**

An advanced course designed to strengthen students' ability to understand and speak the Japanese language. Students are required to prepare selected texts and to read and translate them in class. They also write essays based on the texts as well as on Japanese videos.

*Prerequisite:* JPN 212

3 credits

#### **JPN 312 - S3: Advanced Japanese II**

An advanced course designed to strengthen students' ability to understand and speak the Japanese language. Students are required to prepare selected texts and to read and translate them in class. They also write essays based on the texts as well as on Japanese videos.

*Prerequisite:* JPN 311

3 credits

#### **JPN 331- F: Social Sciences Topics in Japanese Studies**

An investigation of a specific area of Japanese studies in the social and behavioral sciences. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes. Previously offered as JNS 331.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Two courses in Asian studies

3 credits

#### **JPN 332- G: Humanities Topics in Japanese Studies**

An investigation of a specific area of Japanese studies in the humanities. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Two courses in Asian studies

3 credits

#### **JPN 410 - S3: Business Japanese**

A course designed for students who wish to expand their Japanese communication skills in a business context and understand socio-economic situations as well as socio-cultural values in Japan. Upon completing this course, students will be able to hold conversations with correct business vocabulary and with culturally appropriate manners, read authentic materials related to business and economics in Japan, and write business correspondence in proper styles and formats.

*Prerequisite: JPN 312 or equivalent*

3 credits

### **JPN 411 - S3: Advanced Japanese III**

An advanced course designed for the fourth-year students of Japanese to strengthen their ability to understand, speak, read, and write Japanese. Students will read a variety of Japanese texts including newspaper/magazine articles, biographies, and literary works and write creatively and/or professionally using sophisticated vocabulary and advanced kanji characters. Students will also be trained to comprehend authentic spoken Japanese, using a variety of audio-visual materials and to communicate in Japanese, applying appropriate socio-cultural norms. Not intended for international students from Japan who are part of a two-plus-two or exchange program.

*Prerequisite: JPN 312 or placement test*

3 credits

### **JPN 412 - S3: Advanced Japanese IV**

An advanced course designed for the fourth-year students of Japanese to strengthen their ability to understand, speak, read, and write Japanese. Students will read a variety of Japanese texts including newspaper/magazine articles, biographies, and literary works and write creatively and/or professionally using sophisticated vocabulary and advanced kanji characters. Students will also be trained to comprehend authentic spoken Japanese, using a variety of audio-visual materials and to communicate in Japanese, applying appropriate socio-cultural norms. Not intended for international students from Japan who are part of a two-plus-two or exchange program.

*Prerequisite: JPN 411 or placement test*

3 credits

### **JPN 426 - S3: Structure of Japanese**

The study of phonology, morphology, syntax, semantics, lexicon, and writing systems of the Japanese language as well as the use and functions of the language in relation to the social structures and interpersonal relationships.

*Prerequisite: JPN 312 or permission of instructor*

3 credits

### **JPN 447: Independent Study**

Directed reading and research in Japanese studies. Limited to Japanese studies minors or upper-division students working on advanced problems in Japanese studies. May be repeated. Previously offered as JNH and JNS 447.

*Prerequisites: U3 or U4 standing; permission of instructor*

1-6 credits

### **JPN 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: Fluency in Japanese; U4 standing; permission of instructor*

3 credits, S/U grading

### **JPN 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: JPN 475; permission of instructor*

3 credits, S/U grading

### **JPN 487: Independent Research**

An individual research project in Japanese, such as translation, analysis of documents or literature, etc., in consultation with the instructor. Students are expected to meet at regular intervals and to present the completed project at the end of the semester. May be repeated.

*Prerequisites: Interview; permission of instructor*

0-3 credits

### **JPN 488: Internship**

Participation in a local, state, or federal governmental agency or community organization. Students are required to submit progress reports to their department sponsor and a final report on their experience to the

department faculty. May be repeated up to a limit of 12 credits.

*Prerequisites: Permission of instructor and undergraduate program director*

0-6 credits, S/U grading

## **JRN**

### **Journalism**

#### **JRN 101- B: News Literacy**

How do you know if you're getting the truth from the news media? This course is designed to prepare students to become more discriminating news consumers. It will examine standards of reliability and accuracy in news gathering and presentation, and seek to establish the differences between news and propaganda, assertion and verification, bias and fairness, and infotainment and journalism. Students will be encouraged to critically examine news broadcasts, newspaper articles and Web sites. Visiting journalists will be questioned about the journalistic process and decision-making. JRN 101 and JRN 103 are mutually exclusive; JRN 101 cannot be taken for credit in addition to JRN 103 or vice versa.

*Pre- or corequisite: WRT 101 or higher or equivalent, or permission of department*

3 credits

#### **JRN 103- G: News Literacy**

How do you know if you're getting the truth from the news media? This course is designed to prepare students to become more discriminating news consumers. It will examine standards of reliability and accuracy in news gathering and presentation, and seek to establish the differences between news and propaganda, assertion and verification, bias and fairness, and infotainment and journalism. Students will be encouraged to critically examine news broadcasts, newspaper articles and Web sites. Visiting journalists will be questioned about the journalistic process and decision-making. JRN 101 and JRN 103 are mutually exclusive; JRN 101 cannot be taken for credit in addition to JRN 103 or vice versa.

*Pre- or corequisite: WRT 101 or higher or equivalent, or permission of department*

3 credits

#### **JRN 105: The Mind of a Reporter**

The first of three courses in the School of Journalism's Fundamentals of Reporting and Writing sequence. It is designed, through the introduction of critical exercises, applied assignments and exposure to outstanding models and examples, to introduce journalism students to key values and skills of great

reporters: keen observational skills; the tools to conduct analytical research; the ability to ask probing questions; an unflagging devotion to accuracy and fairness, and a passion for the public interest. Students are expected to demonstrate an ongoing engagement with current events and to refine their "nose for news."

*Pre- or Corequisite: WRT 101 or higher or equivalent; JRN 101 or JRN 103*

3 credits

### **JRN 108- F: The History and Future of the American Press**

This course traces the history of the American press from pre-American Revolution to post-Internet revolution. It examines the political, economic and technological forces that shaped the news media and how the press, in turn, influenced American government, politics and society. Topics will include freedom of the press, the rise of the popular press, war and the press, the press and presidents, the impact of investigative journalism, the evolution of radio and TV news, and the advent of 24/7 online news.

*Pre- or corequisite: WRT 101 or higher or equivalent, or permission of department*

3 credits

### **JRN 111: Grammar and Editing Lab**

To progress in the major and minor program, students must pass a grammar proficiency test as part of JRN 111, a grammar course that is co-requisite with JRN 110. The grammar course includes an eight-week immersion lab in grammar, punctuation, and sentence structure. In the ninth week, all students take a proficiency test. Those who pass are excused from the lab for the rest of the semester. All other students must continue attending the lab and will be required to take a second test on the last day of class. Satisfactory/Unsatisfactory grading only. Students must receive a Satisfactory grade in JRN 111 in order to continue in journalism skills courses.

*Prerequisite: Completion of writing requirement* *Mandatory Corequisite: JRN 115*  
*S/U grading*

### **JRN 115: News Reporting & Writing I**

The second of a three semester sequence in the School of Journalism's Fundamentals of Reporting and Writing sequence. Students sharpen their ability to find and frame a well-focused story idea, apply advanced interviewing skills, learn the effective use of attribution and quotations, craft effective leads and "nut graphs," and become disciplined in writing to length and meeting deadlines. In this course, students write basic professional-

level news ledes, news updates and live blogs on deadline and by the conclusion of the semester complete several news stories that are well-reported, well-written and stylistically acceptable, with an emphasis on accuracy and verification. Students are expected to maintain an ongoing engagement with current events.

*Prerequisite: WRT 102; JRN 101 or JRN 103; JRN 105*

*Corequisite: JRN 111*

3 credits

### **JRN 205: News Reporting & Writing II**

The final course in the School of Journalism's Fundamentals of Reporting and Writing sequence. Telling an effective story often means going beyond the basics and adding additional layers of reporting, including "color" and compelling anecdotal material, additional sources, independent verification of competing accounts, background and context, as well as providing a narrative organizational structure and the deployment of a variety of story approaches. In this course, students report and write more complex news stories, news feature stories, profiles and news trend stories, several of which are based on their own story ideas. In addition, students add multi-media elements to at least one story, employing the tools they have learned in the corequisite Introduction to Multimedia Skills lab.

*Prerequisite: C or higher in JRN 115 and grade of Satisfactory in JRN 111* *Corequisite: JRN 215*

3 credits

### **JRN 210: News II: Advanced Reporting and Writing**

This course is a continuation of JRN 110, with an emphasis on developing advanced reporting and newswriting skills. Students move beyond the basic wire-service type breaking-news report (speech story, obituary, crime report) and begin writing using more advanced forms: the news feature, the profile, the news analysis, the trend story. Classroom drills include scene-setters and human-interest stories. Emphasis is placed on improving reporting skills, developing story ideas, researching, interviewing, expanding the number and type of sources used and using numbers and statistics accurately and effectively. Students are required to write in Associated Press style.

*Prerequisite: C or higher in JRN 110 and grade of satisfactory in JRN 111* *Mandatory Corequisite: JRN 211*

3 credits

### **JRN 211: Digital Photojournalism Lab**

In this lab, which must be taken in conjunction with JRN 210, students will develop an appreciation for news photography and fundamental digital photography skills, including learning how to operate a digital camera, photo composition, lighting, approaches to subject matter and other aspects of news photography. The goal is for students to be able to illustrate and enhance the stories they write. Students are required to illustrate at least one story they do for JRN 210. Details will be spelled out. In this required lab, students will acquire the ability to apply these extremely important skills in their subsequent print, broadcast and online journalism courses and careers.

*Mandatory Corequisite: JRN 210*

*S/U grading*

### **JRN 215: Introduction to Multimedia Skills Lab**

Images and sound are critically important to journalists. In this lab, students will explore and apply basic skills in audio, video and photography. This lab will be divided into three sections: Four weeks of audio, five weeks of photography and five weeks of video. Students demonstrate proficiency with digital audio recorders, video and still cameras as well as proficiency in basic editing in all mediums.

*Prerequisite: JRN 111 and JRN 115*

*Corequisite: JRN 205*

1 credit

### **JRN 220: Media Law and Ethics**

Examines the legal issues that are encountered by journalists and other media professionals, including the First Amendment, libel, invasion of privacy, copyright law, and trademarks. Students also will examine ethical codes that guide journalists, including independence, truth-telling, accountability and protecting sources.

*Prerequisite: C or higher in JRN 110 or JRN 115 and a grade of satisfactory in JRN 111*

3 credits

### **JRN 288: Campus Media Workshop**

Designed to provide students with experience in journalism at the campus level. Students will work for a campus news outlet on a schedule approved by the School of Journalism. The work will involve journalistic skills related to the educational goals of the School of Journalism. The internship coordinator will determine whether the work meets appropriate journalistic standards. This internship is required of all journalism majors and may be repeated once.

*Prerequisite: C or higher in JRN 210 or JRN 205 and grade of satisfactory in JRN 211 or JRN 215; 12 credits of JRN*

*Pre- or corequisite: JRN 310 if broadcast or online*

*1 credit, S/U grading*

### **JRN 301: The Business of News**

This course examines the rapidly evolving media landscape and the implications for journalism and journalists. Students examine the revolutionary changes in digital technology, dramatically shifting patterns of media consumption, rise of non-traditional competition, challenges of serving a more diverse audience, and accelerating media consolidation, and explore alternative visions for the impact on content, standards, business models, and jobs in the next decade.

*Prerequisites: C or higher in JRN 108; C or better in JRN 110 or JRN 115; grade of satisfactory in JRN 111*

*3 credits*

### **JRN 310: Multimedia Newsroom I / Visual**

Students are introduced to the skills needed to report and write news stories for television and radio. Students will become familiar with the proper use of pictures and sound in broadcast journalism, and become comfortable writing news reports in a variety of broadcast formats. Students also are expected to become familiar with a variety of broadcast production tools, including the basics of Final Cut Pro and video photography. Course includes a lecture and a weekly three-hour lab. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: C or higher in JRN 210 or JRN 205 and a grade of satisfactory in JRN 211 or JRN 215*

*3 credits*

### **JRN 320: Multimedia Newsroom II / Web**

Examines the challenges presented by the explosion of journalism on the Internet and assesses the role of the journalist in an online society. Students are exposed to both practical skills and a broader understanding of issues. Topics include how journalists add value to information online, writing and editing for the Web, the use of interactive tools, blogs and podcasts, and an elementary understanding of Web design. At the same time, students explore issues of privacy, the Internet's potential threat to traditional journalistic standards, and how online publishing is creating new audiences. Students will critique

news Web sites, participate in a blog and podcast, create a news Web page, and produce an online story package. Course includes a lecture and a weekly three-hour lab.

*Prerequisite: C or higher in JRN 210 or JRN 205 and a grade of satisfactory in JRN 211 or JRN 215*

*3 credits*

### **JRN 333: Business Reporting**

This course provides practical training for journalism students interested in a possible career in business reporting. It seeks to provide the basic understanding and skills to report on business and consumer news and economic trends. Goals include learning how to read and understand financial statements, how to identify and access relevant public documents, and how to interpret basic economic data and statistics. Students profile a public company on Long Island or in New York City, and learn how to write a business story that conforms to standards of accuracy and context. They will be encouraged to visit major financial institutions, public markets, and regulatory agencies in New York City. Students will also examine business stories and controversies in the news from the perspective of the business community and journalists.

*Prerequisite: C or higher in JRN 310*

*Advisory Prerequisites: ECO 108 and BUS 110*

*3 credits*

### **JRN 334: Science and Health Reporting**

Students will examine methods of evaluating and reporting science and health news with accuracy and context. Among the topics to be covered: how to read a medical journal article; how to understand simple statistical data; how to develop and interview expert sources; how to deal with conflicting claims. Drawing on the resources of the Health Sciences Center, the course also will provide information on how research and health care are organized and funded. Students will report and write several stories for print, broadcast or the Web. They also will spend a day shadowing a health care professional.

*Prerequisites: C or higher in JRN 210 or JRN 205 and a grade of satisfactory in JRN 211 or JRN 215; 1 DEC E and 1 DEC F*

*3 credits*

### **JRN 335: Reporting in New York City-Print**

This course, which is offered mainly in winter and summer sessions, provides students with an overview of how reporters cover the major institutions in New York City:

City Hall, the United Nations, the police department, the courts, Wall Street, etc. The course offers a blend of classroom instruction, talks with officials and journalists, and hands-on reporting. On reporting days, the class will be run as a newsroom. It is offered at the university's Manhattan extension.

*Prerequisite: C or higher in JRN 210 or JRN 205 and a grade of satisfactory in JRN 211 or JRN 215; permission of the department*

*3 credits*

### **JRN 336: Sports Reporting**

This course is designed to prepare students to report, write and produce sports stories in print, broadcast and online, from sports news to behind-the-scenes issues that resonate in the world of sports. Upon completion of this course, students should be as comfortable covering a government hearing on steroids in professional sports as covering a basketball game.

*Prerequisite: C or higher in JRN 310*

*3 credits*

### **JRN 337: Introduction to Narrative Journalism**

Building on students' experiences in newswriting, this course examines the reporting and writing of longer stories and more textured feature stories. There will be an emphasis on focus, structure, and storytelling, including the rudiments of developing style and a narrative voice. Students will be expected to write several original enterprise stories. They will also explore the similarities and differences in telling stories in print, online, and in broadcast formats.

*Prerequisite: C or higher in JRN 205 or JRN 210 and grade of satisfactory in JRN 211 or JRN 215*

*3 credits*

### **JRN 340: Beat Reporting**

This course is designed to develop the ability of students to cover a specific area of news coverage, a beat. Emphasis is placed on developing sources, finding stories, organizing a beat and covering a variety of beat stories from breaking news to profiles and in-depth, enterprise stories. Students will select a beat to follow throughout the semester.

*Prerequisite: C or higher in JRN 310*

*3 credits*

### **JRN 350: Journalistic Judgment**

Journalistic judgment-how and why decisions are made in the newsroom-examines the fundamentals of the editor or news director's role in print, broadcast and online news with

emphasis on their impact on critical thinking, decision-making, maximizing accuracy, removing bias and providing diversity and context. Students will discuss journalistic judgment in print, broadcast and online news. The semester case studies and project will address fundamental judgment issues.

*Prerequisite: C or higher in JRN 310*

*Pre- or corequisite: JRN 320*

*3 credits*

### **JRN 355: Reporting in New York City - Broadcast**

Offered mainly in winter and summer sessions, the course provides students with an overview of how broadcast journalists cover the major institutions in New York City: City Hall, the United Nations, the police department, the courts, Wall Street, etc. The course offers a blend of classroom instruction, talks with officials and journalists, and hands-on reporting. On reporting days, the class will be run as a newsroom. It is offered at the university's Manhattan extension.

*Prerequisite: C or higher in JRN 310 and permission of the department*

*3 credits*

### **JRN 361: News Editing and Presentation/Print**

Editors are the last line of defense. Their job is to catch and correct mistakes, make stories readable if they are not, write engaging headlines and captions, design pages that invite the reader, protect the publication's credibility, avoid libel, and otherwise exercise good news judgment. This course focuses on developing students' copyediting and page design skills. Mastery of grammar and of The Associated Press Stylebook are goals. The course will cover the art of photo selection, placement and cropping, and the use of graphics and other elements to enhance storytelling. Students will use Adobe InDesign to create attractive pages.

*Prerequisites: C or higher in JRN 350 or permission of the department*

*Pre- or corequisite: JRN 364*

*3 credits*

### **JRN 363: Magazine Writing**

This course builds on JRN 337, advancing the exploration of long-form magazine stories. Students will learn how to develop ideas and craft them into sophisticated pieces with protagonists and strong narrative drive. They will learn to bring their stories to life using novelistic techniques such as character development, voice, mood and theme, conflict and resolution, scene-setting, foreshadowing and dialogue. Required reading assignments, group discussions of works-in-progress

and roundtable meetings with professional narrative journalists will inspire students to develop their own writer's eye and voice. The culminating goal of the course is for each student to produce a 2,500-to-3,000-word story for publication. Students will also learn how to select a market for their stories and write a query letter.

*Prerequisites: B or higher in JRN 337 and permission of department*

*3 credits*

### **JRN 364: Advanced Reporting**

Designed to prepare student journalists to get to the bottom of complex stories through probing reporting that will seek rich detail and context. All stories will be part of an overall subject that students will choose as a group for publication as a special report. Students must choose a subject they consider underreported. This will be done by class vote after discussion. Students will work independently under the supervision of a #City Editor# to produce one in-depth story of approximately 1,500 words during the semester. These stories will delve deeply into the subject matter. Students will meet regularly with the "City Editor" in a seminar setting to discuss procedures, ideas, progress, to brainstorm and to share their experiences. They also will work independently on all aspects of developing their stories. Students will be graded on a number of benchmarks such as story proposal, revised proposal, reporting outlines, quality of research and reporting, drafts of the story, adding value and the final story. It is the goal that the stories be published. This is an interactive class with regular class discussions and group critiques. Participation in the weekly discussions is vital for each student journalist. Students should be prepared to contribute voluntarily or when called upon.

*Prerequisite: C or higher in JRN 310*

*Pre- or corequisite: JRN 350 or permission of the department*

*3 credits*

### **JRN 370: Advanced Visual Reporting and Storytelling**

This course builds on the work of JRN 310 and is offered in a workshop/production environment. There is focus on mastering the reporting of breaking news, live reporting and developing story ideas. Emphasis also will be on shooting techniques. Students will produce longer-form reports.

*Prerequisite: C or higher in JRN 310*

*Pre- or corequisite: JRN 350 or permission of the department*

*3 credits*

### **JRN 371: Weekly Broadcast**

Designed to introduce students to planning, assembling, producing and performing the elements of a newscast. Students will be exposed to the roles of key members of a newscast team, including producers, assistant producers, reporters, writers, anchors and video photographers and editors. There will be emphasis on developing decision-making and on-air skills, as students complete mini-newscasts and segments for broadcast. Students will be expected to meet strict deadlines and manage critical air time. Newscast segments will be showcased on JRN Web sites.

*Prerequisite: C or higher in JRN 370*

*3 credits*

### **JRN 380: Multimedia Photojournalism**

This course, designed for students interested in specializing in online news, will focus on content management and the presentation of news on the Web. Students will have the opportunity to manage a news Web site in real time, with emphasis on around-the-clock news judgment and presentation. Students will learn how to enhance online news through multi-media integration and reader/viewer interactivity. Students also will study information architecture, eye-tracking studies and different ways of making the Web more accessible for readers, including layering information. The course builds on the skills learned in JRN 320. After completion of course overview material, students will move through three phases designed to simulate a key role in current online newsrooms. The phases include real-time content management, multi-media integration and harvesting original video. There will be emphasis on building critical thinking skills and developing team work. By the end of this course, students are to produce a complete multimedia project and integrate its production into a real-time online news site.

*Prerequisite: C or higher in JRN 320*

*Pre- or corequisite: JRN 350 or permission of the department*

*3 credits*

### **JRN 381: Web Presentation**

Students will combine their advanced journalistic skills in reporting, writing and producing with advanced multimedia techniques to create an online "microsite" devoted to one major story, combining text with video, photos, blogs and interactive features. This course builds on skills acquired in JRN 380. Significant computer use will be required outside of class time.

*Prerequisite: C or higher in JRN 380*

3 credits

### **JRN 390: Special Topics: Issues in Contemporary Journalism**

This special topics course will deal with timely and contemporary issues that affect journalists and journalism. The issues could range from the press in wartime, an examination of the role of the press covering war from World War II to the current war in Iraq, and how the press covers presidential campaigns. May be repeated as the topic changes.

*Prerequisite: C or higher in JRN 101 or JRN 103; may vary by topic*

3 credits

### **JRN 391: Journalism Workshops**

This 1-credit workshop course is designed to assist students in developing skills that will be useful in various journalism courses. Topics will rotate. Anticipated topics include On-Air Presentation, Audio Journalism, Digital Photography, Databases, FOIL and Sunshine Laws, On-Air Performance, Editing Software.

*Prerequisite: Varies by topic, permission of the department*

1 credit

### **JRN 392: Special Topics: Issues in Contemporary Journalism-Journalism Without Walls Prep**

This 1-credit workshop is designed to assist students in preparing in advance if they are interested in taking JRN 435 Journalism Without Walls, a course in which students travel with journalism faculty to a location and spend several weeks reporting, writing and broadcasting from and about it. Before going to China to report on "Modern China and Its Media," for example, students would examine the complex world of China's media market, the world's largest, over which the Chinese government exercises strict control of news and entertainment at the same time as journalists and bloggers are using digital technology to get out their message. Each Journalism Without Walls Prep would be tailored to the specific locale and coverage issues.

*Prerequisite: To be taken before JRN 435*  
1 credit

### **JRN 411: Television Practicum**

This is a capstone course for students specializing in video. This day-long workshop class meets on Fridays from 9 am to 6 pm, with an hour break for lunch. Each week, students will produce and broadcast a half-hour, live newscast that will be broadcast on the Web and on a campus news channel. The class will experience the working conditions

of a professional TV newsroom. Over the course of the semester, students will have the opportunity to work in each of the key jobs necessary for a successful newscast: broadcast producer, news director, anchor, field producer, reporter, video editor and member of the studio crew. Following each newscast, the news team will gather for a "post-mortem" meeting. At this meeting, work will be critiqued and plans will be made for follow-up stories and the next week's newscast. The post mortem will serve as a weekly assessment for the students.

*Prerequisite: C or higher in JRN 370 and permission of the instructor*

*Pre- or co-requisite: JRN 371*

3 credits

### **JRN 435: Journalism Without Walls**

Offered only during winter or summer sessions, this course is designed for experienced and energetic journalism students. Students will be assigned as part of a team to travel to a location and using only mobile technology, transmits stories and video from the field. Their work product is published via a special Web site. Students will have one week to research a topic or location before leaving for their destination. (Teams of students, for example, have gone to China, Russia, Cuba and the U.S. Gulf Coast.) While on assignment, students file blogs, gather multimedia and video, write and edit stories, produce a Web site and establish a "mobile news-room." One or several instructors accompany the students. This course combines students' journalistic skills, judgment and enterprise with knowledge of emerging technology. May be repeated as the topic changes.

*Prerequisites: permission of the department, additional prerequisites announced by topic. Passport may be required.*

3 credits

### **JRN 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled courses. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course. Not for major or minor credit.

*Prerequisites: U3 or U4; Permission of instructor and undergraduate program director*

3 credits, S/U grading

### **JRN 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled courses. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that already have been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously participated. Not for major or minor credit.

*Prerequisites: grade of satisfactory in JRN 475; permission of instructor and undergraduate program director*

3 credits, S/U grading

### **JRN 487: Independent Study**

Intensive study of a special topic undertaken with close faculty supervision. May be repeated with a different topic.

*Prerequisite: Permission of director of undergraduate studies*

0-6 credits, S/U grading

### **JRN 488: Internship**

Students work at local, state, and national news organizations. The work must involve journalistic skills related to the educational goals of the department.

*Prerequisites: C or higher in JRN 210 or 205 and a grade of 'S' in JRN 211 or 215; C or higher in JRN 310 if broadcast or online; grade of 'S' in JRN 288; 12 JRN credits; permission of internship coordinator. Recommended GPA: 2.5 overall and 3.0 in JRN*

0-6 credits, S/U grading

### **JRN 489: Specialized Internship**

This is an advanced internship. Students will spend 2 days a week at the internship site. In addition, this specialized internship includes a weekly lecture designed to prepare students to report, write and produce stories that benefit from a greater knowledge of a subject. Examples of Specialized Internships include Hyperlocal Reporting, Police and Court Reporting, Governmental Reporting, Culture and the Arts. The work must involve journalistic skills related to the educational goals of the department.

*Prerequisite: C or better in JRN 340 and permission of instructor*

4 credits, S/U grading

### **JRN 490: Senior Project**

This is a capstone course and a requirement for all majors. In a culminating activity, students produce a major story of professional quality,

first in their area of journalistic concentration, and then adapt the story for two additional media platforms. Students attend a weekly seminar and work independently under the supervision of a faculty sponsor. Students will submit their Upper-Division Writing Requirement in this course.

*Prerequisite: C or higher in JRN 364 or JRN 370*

*Pre or corequisites: One of the following: JRN 361, JRN 371, or JRN 381*

3 credits

## KOR

### Korean

#### **KOR 101 - S3: Intensive Elementary Korean**

An intensive, 6-credit, elementary-level Korean language course that provides foundational knowledge and skills including pronunciation, basic everyday conversational proficiency, principles of character formation, basic grammatical rules, and basic cultural norms and preferences that govern language use. Drawing upon a communicative approach, this course situates oral and written language in real-life contexts and promotes learner-centered, interactive classroom activities. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Korean in high school (or who has otherwise acquired an equivalent proficiency) may not take KOR 101 without written permission from the supervisor of the course. May not be taken for credit after any other course in Korean.

6 credits

#### **KOR 111: Elementary Korean I**

An introduction to spoken and written Korean with equal attention to speaking, reading, and writing. Fundamental communication skills are acquired through intensive study of basic grammar and pronunciation. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Korean in high school (or who has otherwise acquired an equivalent proficiency) may not take KOR 111 without written permission from the supervisor of the course.

4 credits

#### **KOR 112 - S3: Elementary Korean II**

An introduction to spoken and written Korean with equal attention to speaking, reading, and writing. Fundamental communication skills are acquired through intensive study

of basic grammar and pronunciation. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Korean in high school (or who has otherwise acquired an equivalent proficiency) may not take KOR 112 without written permission from the supervisor of the course.

*Prerequisite: KOR 111*

4 credits

#### **KOR 211 - S3: Intermediate Korean I**

Intermediate courses in Korean language to develop audiolingual skills and reading and writing ability. Through the introduction of complex grammatical structures and idioms, speaking, reading, and writing ability in Korean language is further developed.

*Prerequisite: KOR 112 or placement test*

3 credits

#### **KOR 212 - S3: Intermediate Korean II**

Intermediate courses in Korean language to develop audiolingual skills and reading and writing ability. Through the introduction of complex grammatical structures and idioms, speaking, reading, and writing ability in Korean language is further developed.

*Prerequisite: KOR 211 or placement test*

3 credits

#### **KOR 311 - S3: Advanced Korean**

An advanced course designed for students who wish to enhance reading comprehension and writing ability in Korean. Reading materials are selected from modern Korean literature, journals, and newspapers. Students are trained in samples of various writing styles. Emphasis is also placed on the idiomatic usage of Korean language and the relation of Korean to Chinese characters.

*Prerequisite: KOR 212 or placement test*

3 credits

#### **KOR 312 - S3: Advanced Korean II**

Advanced Korean II is designed for students who have completed at least two years of Korean instruction at the undergraduate level or who already possess a sufficiently high level of fluency. Classes are conducted in Korean. Reading materials, including excerpts from modern Korean literary works, journals, magazines and newspapers, will be explored and discussed. Other topics such as ancient Korean literature will also be discussed. Through this course students are expected to enhance their ability to grasp the import of literary and academic texts by learning to identify essential points and lines of argument as well as enhance

their vocabulary, particularly Sino-Korean terms, and knowledge of idiomatic usage of Chinese-Korean graph dictionaries, including a knowledge of the basic structure of graphs and of the most common component radicals, in their original and abbreviated forms. Students will also learn to research in Korean for their term paper.

*Prerequisite: KOR 311 or approval of instructor*

3 credits

#### **KOR 331- F: Social Science Topics in Korean Studies**

An investigation of a specific area of Korean studies in the social and behavioral sciences. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in Asian studies*

3 credits

#### **KOR 332- G: Humanities Topics in Korean Studies**

An investigation of a specific area of Korean studies in the humanities. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisites: Two courses in Asian studies*

3 credits

#### **KOR 411 - S3: Advanced Korean III**

An advanced course designed for the fourth-year students of Korean to strengthen their ability to understand, speak, read, and write Korean. Students will read a variety of Korean texts including newspaper/magazine articles, biographies, and literary works and write creatively and/or professionally using sophisticated vocabulary and advanced hanja characters. Students will also be trained to comprehend authentic spoken Korean, using a variety of audio-visual materials and to communicate in Korean, applying appropriate socio-cultural norms. Students will also learn to research in Korean for their term paper.

*Prerequisite: KOR 312 or placement test*

3 credits

#### **KOR 412 - S3: Advanced Korean IV**

An advanced course designed for the fourth-year students of Korean to strengthen their ability to understand, speak, read, and write Korean. Students will read a variety of Korean texts including newspaper/magazine articles, biographies, and literary works and write creatively and/or professionally using sophisticated vocabulary and advanced hanja characters. Students will also be trained

to comprehend authentic spoken Korean, using a variety of audio-visual materials and to communicate in Korean, applying appropriate socio-cultural norms. Not intended for international students from Korea who are part of a two-plus-two or exchange program.

*Prerequisite:* KOR 411 or placement test

3 credits

### **KOR 426: Structure of Korean**

This course is an introduction to phonology, morphology, syntax, semantics, lexicon, and writing systems of the Korean language as well as the use and functions of the language in relation to the social structures of Korea at large. The goal of this course is to analyze Korean in ways that might be of most use to a KFL (Korean as a foreign language) teacher and KFL student.

*Prerequisite:* KOR 312

3 credits

### **KOR 447: Independent Study**

Directed reading and research in Korean studies. Limited to Korean studies minors or upper-division students working on advanced problems in Korean studies. May be repeated. Previously offered as KRH and KRS 447.

*Prerequisites:* U3 or U4 standing; permission of instructor

1-6 credits

### **KOR 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites:* U3 or U4 standing; permission of instructor

3 credits, S/U grading

### **KOR 476 - S3: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* KOR 475; permission of instructor and director of Korean Studies minor

3 credits, S/U grading

### **KOR 487: Supervised Research in Korean Studies**

Independent research under the supervision of a faculty member. May be repeated to a limit of 6 credits.

*Prerequisites:* U3 or U4 standing; permission of instructor

0-3 credits

### **KOR 488: Internship**

Participation in a local, state, or federal governmental agency or community organization. Students are required to submit progress reports to their department sponsor and a final report on their experience to the department faculty. May be repeated up to a limit of 12 credits.

*Prerequisites:* Permission of instructor and undergraduate program director

0-6 credits, S/U grading

## **LAC**

### **Latin American and Caribbean Studies**

#### **LAC 200- J: Introduction to Latin American and Caribbean Societies**

Introduction to social science, historical, and cultural perspectives on Latin America and the Caribbean, as well as on Latino communities in the United States. The goal is to develop a critical and broad understanding of Latin America's social and historical problems and challenges and an appreciation of the region's economic and cultural contributions.

*Advisory Prerequisites:* One D.E.C. category F course; one D.E.C. category B or G course

3 credits

#### **LAC 380- J: Topics in Latin American Studies**

Semester supplements to this Bulletin contain specific descriptions when course is offered. Topics may include titles such as Literature of the Dominican Republic; and Latinas: History, Society, and Culture. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-Western world civilizations. Students will be expected to demonstrate either a knowledge of a broad outline of world history, or the distinctive features of the history, institutions, economy, society, and culture of one non-Western civilization. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing  
*Advisory Prerequisite:* LAC 200

3 credits

### **LAC 487: Independent Research in Latin American and Caribbean Studies**

Supervised research with faculty in the Latin American and Caribbean Studies program. Students develop their own research projects under the supervision of a faculty member or assist with a faculty member's own research. May be repeated to a limit of 6 credits.

*Prerequisites:* 15 credits toward the Latin American and Caribbean studies minor; permission of instructor

0-6 credits

### **LAC 488: Internship**

Volunteer work in community, research organizations, or cultural centers relating to Latin American or Latino affairs, arranged in consultation with the LACC director. Current list of intern opportunities available at the LACC, Social and Behavioral Sciences building, N-333.

*Prerequisites:* 15 credits in LAC studies; permission of instructor and director

0-6 credits, S/U grading

## **LAN**

### **Uncommonly Taught Languages**

#### **LAN 111: Uncommonly Taught Language (Elementary) I**

An introduction to a language not offered elsewhere in the University; speaking, comprehension, reading, and writing. Selected texts are read. Practice in the language laboratory supplements class work. May be repeated for different languages. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may not take LAN 111 in that language without written permission from the supervisor of the course.

3 credits

#### **LAN 112 - S3: Uncommonly Taught Language (Elementary) II**

An introduction to a language not offered elsewhere in the University; speaking, comprehension, reading, and writing. Selected texts are read. Practice in the language laboratory supplements class work. May be repeated for different languages. No student who has had two or more years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for LAN 112 in that language

without written permission from the supervisor of the course.

*Prerequisite: LAN 111*

3 credits

### **LAN 211 - S3: Uncommonly Taught Language (Intermediate) I**

Continued study of a language not offered elsewhere in the University; advanced speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. May be repeated for different languages. A student who has had four years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may not take LAN in that language without written permission from the supervisor of the course.

*Prerequisite: LAN 112*

3 credits

### **LAN 212 - S3: Uncommonly Taught Language (Intermediate) II**

Continued study of a language not offered elsewhere in the University; advanced speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. May be repeated for different languages. A student who has had four years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may not take LAN in that language without written permission from the supervisor of the course.

*Prerequisite: LAN 211*

3 credits

### **LAN 447 - S3: Directed Readings in Uncommonly Taught Languages**

Intensive study of an uncommonly taught language arranged in consultation with a faculty member.

*Prerequisite: Permission of instructor*

1-6 credits

### **LAN 475 - S3: Practicum in Language Teaching I**

Proficient speakers of selected languages have an opportunity to learn techniques of language teaching or linguistic analysis by assisting a master teacher in small tutorial sections. Students meet at least weekly with their faculty supervisors to discuss teaching strategies and problems encountered.

*Prerequisites: LIN 101; fluency in the language being taught; U3 or U4 standing; permission of instructor.*

3 credits, S/U grading

### **LAN 476 - S3: Practicum in Language Teaching II**

Proficient speakers of selected languages have an opportunity to learn techniques of language teaching or linguistic analysis by assisting a master teacher in small tutorial sections. Students meet at least weekly with their faculty supervisors to discuss teaching strategies and problems encountered.

*Prerequisites: LAN 475; fluency in the language being taught; permission of instructor.*

3 credits, S/U grading

## **LAT**

### **Latin**

#### **LAT 111: Elementary Latin I**

Designed to prepare the beginning student to translate Latin that may be needed for use in undergraduate or graduate study. Focus of the course is on the fundamentals of grammar and techniques of translation. LAT 111 is designed for students who have no prior knowledge of the language. A student who has had two or more years of Latin in high school (or who has otherwise acquired an equivalent proficiency) may not take LAT 111 without written permission from the course supervisor.

3 credits

#### **LAT 112 - S3: Elementary Latin II**

Designed to prepare the beginning student to translate Latin that may be needed for use in undergraduate or graduate study. Focus of the course is on the fundamentals of grammar and techniques of translation.

*Prerequisite: LAT 111*

3 credits

#### **LAT 251 - S3: Readings in Latin Literature I**

Readings in classical Latin literature of the Republic. The course includes a brief intensive review of grammar, Latin prose composition, and the sampling of a number of authors including Catullus, Cicero, Virgil, and Livy.

*Prerequisite: LAT 112*

3 credits

#### **LAT 252 - S3: Readings in Latin Literature II**

Readings in classical Latin literature of the Republic. The course includes a brief intensive review of grammar, Latin prose composition, and the sampling of a number of authors including Catullus, Cicero, Virgil, and Livy.

*Prerequisite: LAT 251*

3 credits

### **LAT 353 - S3: Literature of the Roman Republic**

Selected works of Cicero, Lucretius and Catullus are translated and examined in their social and historical context. The reading of critical works in English may also be required.

*Prerequisite: LAT 252*

3 credits

### **LAT 354 - S3: Literature of the Roman Empire**

Selected works of Virgil, Horace, Petronius, Tacitus, and Juvenal are translated and examined in their social and historical context. The reading of critical works in English is also required.

*Prerequisite: LAT 252*

3 credits

### **LAT 355 - S3: Early Medieval Latin**

Translation and discussion of Christian and secular Latin literature from the 4th to the 12th century. The course includes an intense review of Latin grammar and an outline of the changes in the language that took place during early medieval times. Selections from the Vulgate and the writings of Jerome, Augustine, Bede, and others are translated and discussed.

*Prerequisite: LAT 252*

3 credits

### **LAT 356 - S3: Late Medieval Latin**

Translation and discussion of Latin literature from the 12th to the 16th century. Authors include the Archpoet, Thomas Aquinas, Petrarch, Erasmus, and Thomas More.

*Prerequisite: LAT 252*

3 credits

### **LAT 447 - S3: Directed Readings in Latin**

Intensive study of a particular author, period, or genre of Latin literature in the original under close faculty supervision. May be repeated.

*Prerequisite: Permission of director of the classics minor*

1-6 credits

### **LAT 475 - S3: Undergraduate Teaching Practicum**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters

relating to the course. The student will be available to students in the class who may need more explanations than class time allows.

*Prerequisites:* U3 or U4 standing; permission of instructor and department  
3 credits, S/U grading

## LCR

### Living/Learning Center: Community Service Learning

#### LCR 200- F: The Nature of Community

The course examines the nature of human communities, their conceptualization, definition, and dynamics while providing an introduction to service learning strategies. Exploring issues such as organization and leadership, hierarchy and stratification, students examine the notion of community formation through processes of exchange and reciprocity, institutionalization, alienation and solidarity, marginalization, and empowerment.

3 credits

#### LCR 201: Methods for Social Action Research

An introduction to basic methods of community action research. Students develop a fundamental set of "fieldwork" skills, learning to apply their academic knowledge in the service of community-based initiatives for social change. Covering theoretical, methodological, ethical, and legal issues, students conduct a series of field assignments to master key concepts in research design, implementation, and analysis.

3 credits

#### LCR 487: Directed Research in Community Service Learning

Independent research projects under the supervision of a faculty member. May be repeated once.

*Prerequisite:* Permission of instructor and program director  
0-6 credits

#### LCR 488: Internship in Community Service Learning

Student teams work in specific communities, applying their academic, intellectual, and technical skills to address community concerns. Working with local community members to develop effective plans for community action, students engage in service learning. May be repeated to a limit of 12 credits.

*Prerequisites:* LCR 200; LCR 201; permission of director of the minor  
0-6 credits, S/U grading

#### LCR 490: Senior Seminar in Community Service Learning

A capstone seminar for the minor in Community Service Learning. The course is designed to bring together students completing the minor and relevant community members to reflect on the nature of the research projects carried out and their expected consequences. An independent project is developed with the faculty director.

*Prerequisites:* LCR 488; permission of director of the minor  
3 credits

## LDR

### LLC: Leadership Development

#### LDR 210: Principles of Leadership

Students will be introduced to the theory and practice of leadership. Classes will focus on the concepts of leadership and how students can incorporate these into their experiences as student leaders as well as in non-university programs.

3 credits

#### LDR 310: Case Studies in Leadership

This course will focus on concepts integral to effective leadership. Historical and contemporary case studies will be utilized to highlight examples of both ineffective and effective leadership. Students will gain an understanding of both positive and negative leadership as well as formal and informal leadership models.

*Prerequisites:* LDR 210 or SOC 268; U3 or U4 standing  
3 credits

#### LDR 410: Leadership Exploration and Practicum

This course will synthesize the content of LDR 210 and LDR 310, and explore the relationship of related interdisciplinary concepts from elective courses and discuss the on-going learning taking place during the simultaneous practicum component.

*Prerequisites:* LDR 210 or SOC 268; LDR 310; U4 standing; declaration of LDR minor  
3 credits

## LDS

### Leadership and Service

#### LDS 101: Introduction to Stony Brook

A seminar intended to integrate students into the Undergraduate College of Leadership and Service and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, ACH 101, GLS 101, HDV 101, ITS 101, SSO 101, SBU 101, SCH 101, or LSE 101.

*Prerequisite:* Admission to the LDS Undergraduate College  
1 credit, S/U grading

#### LDS 102: Undergraduate College Seminar: Leadership and Service

A seminar for all first-year students in the Undergraduate College of Leadership and Service. Seminar topics vary annually by section and cover a variety of subjects under the general scope of Leadership and Service. Required for all first year students. Not for credit in addition to ACH 102, GLS 102, HDV 102, ITS 102, or SSO 102.

*Prerequisite:* Admission to the LDS Undergraduate College  
1 credit, ABC/U grading

#### LDS 275: Undergraduate College Fellows Seminar

Creates a curricular component for the second year of the Undergraduate College Experience. College fellows will enroll in LDS 275 in the spring semester of their freshman year and LDS 276 in the fall semester of their sophomore year. 275 (spring) engages students in four main content areas: student development theory, scholarship on mentoring and leadership development, concepts of teaching and learning, and programming and event planning. These areas prepare students for supervised learning and teaching experiences that will occur primarily in the fall 276 course.

*Prerequisites:* Grade of "S" in LDS 101 and a strong desire to help other students. Enrollment in the corresponding Undergraduate College; permission of the instructor.

1 credit, S/U grading

#### LDS 276: Undergraduate College Fellows Practicum

The second semester in the sequence following LDS 275. Students assume higher responsibility and are given opportunities to apply teaching theories and concepts as learned in LDS 275. Students act as a TA for LDS 101.

*Prerequisites: A grade of "S" in LDS 275. Enrollment in the corresponding Undergraduate College; permission of the instructor.*

*1 credit, S/U grading*

### **LDS 475: Undergraduate College Teaching Practicum**

The purpose of this course is to allow upper-division students the opportunity to work with a faculty member as an assistant in one of the faculty member's scheduled Undergraduate College seminars. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course. May be repeated up to a limit of 2 credits.

*Prerequisite: Permission of the instructor and department*

*1 credit, S/U grading*

### **LDS 488: Undergraduate College Internship**

Students learn about contemporary issues in higher education, community building, and teaching at a research university through hands-on work with faculty mentors. Work assigned will include participation in the planning and operation of events and initiatives sponsored by the Undergraduate Colleges. Students are required to submit written reports on their experiences to the Undergraduate Colleges office and Faculty Directors. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of the instructor and department*

*0-3 credits, S/U grading*

## **LHD**

### **Living/Learning: Human Sexual & Gender Development**

#### **LHD 101: Human Development Seminar**

An introduction to human sexual and gender development issues. The course focuses on topics relevant to the campus experience - e.g., male and female roles in the classroom, college students and the crisis of AIDS and sexually transmitted diseases, and sexual orientation. These issues are examined from an interdisciplinary perspective. Prerequisite: Permission of minor coordinator required for students who do not reside in Eisenhower College

*1 credit*

#### **LHD 301: Human Sexual and Gender Development Issues**

An examination of the human life cycle - infancy and childhood, youth and adolescence, mid-life and aging-with regard to gender and sexual self-concepts. Semester Supplements to this Bulletin contain description when course is offered. May be repeated once as the topic changes.

*1 credit*

#### **LHD 302: Colloquium in Human Sexual and Gender Development**

Sexual and gender development issues such as sexual orientation, gender development in children, and the childbirth experience. Semester Supplements to this Bulletin contain description when course is offered. May be repeated once as the topic changes.

*1 credit*

#### **LHD 305: HIV Reduction in the Campus Context**

First course of a two-semester sequence addressing issues of HIV transmission and risk reduction, including identifying opportunities to discuss risk and promote risk reduction, and supporting the process of behavior change. Examination of the history of the AIDS epidemic in the U.S. and around the world.

*Prerequisite: Permission of instructor*

*Corequisite: LHD 307*

*2 credits*

#### **LHD 306: HIV Reduction in the Campus Context**

Second course of a two-semester sequence addressing issues of HIV transmission and risk reduction, including identifying opportunities to discuss risk and promote risk reduction, and supporting the process of behavior change. Examination of the history of the AIDS epidemic in the U.S. and around the world.

*Prerequisites: LHD 305 and 307; permission of instructor*

*Corequisite: LHD 308*

*2 credits*

#### **LHD 307: Laboratory in HIV Reduction in the Campus Context**

A forum for discussion of the application of material learned in LHD 305 and 306. The course focuses on the development of skills necessary to accomplish education and behavior changes among the peers of course participants, and monitors individual progress toward that end.

*Prerequisite: Permission of instructor*

*Corequisite: LHD 305*

*1 credit, S/U grading*

#### **LHD 308: Laboratory in HIV Reduction in the Campus Context**

A forum for discussion of the application of material learned in LHD 305 and 306. The course focuses on the development of skills necessary to accomplish education and behavior changes among the peers of course participants, and monitors individual progress toward that end.

*Prerequisites: LHD 305 and 307; permission of instructor;*

*Corequisite: LHD 306*

*1 credit, S/U grading*

#### **LHD 401: Advanced Seminar in Human Sexual and Gender Development**

Consideration of human sexual and gender development issues through examination of primary source material. Semester Supplements to this Bulletin contain description when course is offered. May be repeated once as the topic changes.

*1 credit*

#### **LHD 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: LHD 487; U3 or U4 standing; permission of instructor and director of the minor*

*3 credits, S/U grading*

#### **LHD 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: LHD 475; permission of instructor and director of the minor*

*3 credits, S/U grading*

#### **LHD 487: Independent Study in Human Sexual and Gender Development**

The completion of an individual project by one student or a group of students on human sexual

and gender development and the life course. Projects must include both library and field research, or a literary or artistic endeavor. May be repeated once.

*Prerequisites: LHD 101 or 301; LHD 302; permission of director of the minor*

0-3 credits

#### **LHD 488: Internship**

Participation in public and private agencies and organizations. May be repeated up to a limit of 6 credits.

*Prerequisite: Permission of director of the minor or instructor*

0-6 credits, S/U grading

## **LHW**

### **Living/Learning Center in Health and Wellness**

#### **LHW 102: Introductory Seminar to the Health Professions**

An exploration of the scope of practice for selected health professions. The course includes seminars by invited speakers in the health professions. Students are required to actively investigate several similar professions in order to better understand similarities and differences. Professions explored include medicine, nursing, dentistry, physical therapy, occupational therapy, clinical laboratory sciences, respiratory care, and physician assistant. Not for credit in addition to HAS 190.

1 credit

#### **LHW 301: Issues in Health and Wellness**

An investigation of selected topics in health and wellness, chosen by the class as a whole. Students are required to actively investigate their chosen area and present their findings to the class. Topics are determined through class discussion, individual investigation, and mutual consent.

3 credits

#### **LHW 488: Internship in Health and Wellness**

An experience in health and/or wellness promotion, prevention, and/or education. Students learn about contemporary issues in health and wellness through hands-on work with faculty mentors and on- and off-campus health and wellness professionals. May be repeated up to a limit of 6 credits.

*Prerequisites: LHW 301; permission of director of the minor*

0-6 credits, S/U grading

## **LIA**

### **Living/Learning Center: Interdisciplinary Arts**

#### **LIA 101- D: Introduction to the Interdisciplinary Arts**

An exploration of the interdisciplinary and collaborative nature of the fine arts. The course traces the general development of the arts from their common practical origins in basic communication, ritual, and decoration to the present, and examines how these factors unify the arts in modern culture and society. Students develop in-class presentations using multiple art forms.

3 credits

#### **LIA 102: Opportunities in the Arts**

An introductory seminar concerning career opportunities in the arts. Students meet once a week for discussion, networking, establishing career strategies, career planning, and investigations of continued study. Guest lecturers discuss their area of expertise in relation to career opportunities for students entering the field.

1 credit

#### **LIA 401: Senior Seminar**

An intensive investigation of theatre theorists with particular emphasis on the application of theory to practice. This course is offered as both LIA 401 and THR 401.

*Prerequisites: U4 standing; permission of instructor*

3 credits

#### **LIA 487: Independent Research in Interdisciplinary Arts**

The completion of a group-generated or individual creative project under the supervision of an instructor. May be repeated to a limit of 6 credits.

*Prerequisites: LIA 101; any 200-level art, dance, music, or theatre course; permission of instructor and director of the minor*

0-6 credits

#### **LIA 488: Internship in Arts Management**

Study of the field of arts management, including public relations, scheduling, resource coordination, and community interaction. Practical work with management of the annual Shirley Strum Kenny Student Arts Festival.

*Prerequisite: Permission of director of the minor*

0-6 credits, S/U grading

## **LIN**

### **Linguistics**

#### **LIN 101- F: Human Language**

An introduction to the fundamental areas and concepts of modern linguistics. Sounds and their structure, word structure, and sentence structure are discussed. Other topics may include historical linguistics (how languages change over time), dialects, writing systems, language and the brain, and psycholinguistics (especially the question of how children acquire a language).

3 credits

#### **LIN 110: The Anatomy of English Words**

An introduction to the analysis of complex words in English, especially those based on Latin and Greek models that comprise the majority of the vocabulary in the written language. Students will be introduced to Latin and Greek roots and the processes by which complex words are built by affixing material to these roots and modifying their structure. Students will acquire general analytical tools that will allow them to understand complex words that they may not have previously encountered. The course will introduce students to principles of linguistic morphology that extend beyond English to all human languages.

3 credits

#### **LIN 200- K: Language in the United States**

Survey of the languages and language-related issues in the United States. Topics include Native American languages; immigrant languages; dialectal variations (e.g., Black English); the domains in which these languages were and are used; maintenance and loss of minority languages; language contact and its effects; the use of Spanish; language attitudes and politics including bilingual education; and official language movements. Particular attention is paid to the evolution of American English from colonial times to its present world-wide status; the use and impact of Spanish; language attitudes and politics including bilingual education; and official language movements.

*Advisory Prerequisites: Completion of D.E.C. categories I and J*

3 credits

**LIN 201- F: Phonetics**

Introduction to the sounds used in human language. Topics include articulatory phonetics, phonetic transcription, the sound structure of English, sounds and sound patterns in languages of the world, the acoustic properties of sounds, speech perception, and speech technology. Includes work in the phonetics laboratory on computer analysis of speech.

*Prerequisite: C or better in LIN 101*

4 credits

**LIN 211- F: Syntax**

An introduction to generative grammar: the formal theory of sentence structure.

*Prerequisite: C or better in LIN 101*

4 credits

**LIN 250- K: Languages and Cultures of Asian Americans**

Study of language use and cultural accommodation in selected Asian American communities in relation to the changing roles of Asians in U.S. society from the early democracy to the present. Issues include linguistic and cultural diversity of Asia and Asian Americans; comparison of Asian and European immigration patterns; struggle for equality and acceptance; cultural factors in assimilation; patterns of Asian language use and maintenance in various domains; the role of language in ethnic identity; attitudes toward English and bilingualism; bilingualism as a problem and as a resource. This course is offered as both AAS 250 and LIN 250.

*Prerequisite: Completion of D.E.C. category A*

3 credits

**LIN 300: Writing in Linguistics**

Majors in linguistics refine their skills in writing for the discipline by critiquing successive revisions of previously written work.

*Prerequisites: Major in linguistics; U3 or U4 standing*

2 credits

**LIN 301: Phonology**

An introduction to the sound systems of languages focusing on the mental representation of sound structure: how speakers use knowledge of their language to assign meaning to different combinations of sounds. We will examine data from a number of languages to explore the differences and similarities among the sound patterns of different languages, and will consider the question of whether there are universal

preferences for specific types of sounds and sound sequences.

*Prerequisite: C or better in LIN 201*

4 credits

**LIN 307- K: Sociolinguistics**

An examination of the interaction between language and society, focusing on diversity in American English as it relates to differences in gender, geography, social class, ethnicity, and national origin. Study of the development of dialects including African-American Vernacular English, and pidgins and creoles such as Hawaiian Pidgin English and Chinook Trade Jargon, within the context of historical developments in the U.S. from colonial times to the present.

*Prerequisite: C or better in LIN 101*

3 credits

**LIN 308: Language Variation and Change**

An introduction to the quantitative study of language variation and language change.

*Prerequisite: LIN 101 and LIN 201*

3 credits

**LIN 320: English Grammar**

This course is a systematic survey of English grammar: its major structures, their interaction, and their use. It will also briefly examine some related areas connected to writing like punctuation and spelling.

*Prerequisite: C or better in LIN 101*

3 credits

**LIN 330: Language Acquisition**

Introduction to the field of language acquisition. Issues include cognitive processes, role of innate ability and environment, developmental stages, individual variation, universal tendencies, interaction of language and cognition, bilingualism, similarities and differences between first- and second-language acquisition, and language disorders.

*Prerequisite: C or better in LIN 201 and LIN 211*

3 credits

**LIN 340: Historical Linguistics**

The application of linguistic theory to the ways in which sound systems, word structure, and sentence structure change. Students learn how linguists establish that certain languages are related, and how they reconstruct prehistoric parent languages.

*Prerequisite: C or better in LIN 211 and LIN 301*

3 credits

**LIN 344: Literacy Development**

An introduction to the theories of literacy and their application in education. Students acquire knowledge about the complex nature of academic literacy; how literacy skills can be taught and assessed across all disciplines, and how literacy and language skills develop among diverse learners, including students with special needs and English Language Learners. Attention is given to the integration of technology into the development of literacy skills. Not for major credit.

*Prerequisite: Admission to a teacher education program*

3 credits

**LIN 345- J: Writing Systems of the World**

A survey of the major types of writing including (but not limited to) alphabetic, syllabic, and logographic systems; the invention of writing; changes in writing systems over time and the decipherment of ancient writing. Special attention is given to modern English spelling, including both its regular, systematic properties and the historical background of its irregularities.

*Prerequisite: C or better in LIN 101*

3 credits

**LIN 346- F: Language and Meaning**

An exploration of semantics, the study of linguistic meaning. The course examines fundamental issues including the nature of meaning, its relation to word and sentence form (morphology and syntax), its relation to systems of mental representation (cognition), and the interaction between meaning and use (pragmatics). Recent research into the way that linguistic meaning is acquired and how it is deployed in speech and understanding is discussed.

*Prerequisite: C or better in LIN 101*

3 credits

**LIN 347: Pragmatics**

A study of those aspects of natural language meaning that arise from, or are dependent upon, use. Core topics include implicatures, presupposition, speech acts, deixis, their interaction with semantics and syntax, and their implications for certain discourse phenomena, including politeness, turn taking, and verbal abuse.

*Prerequisite: LIN 101*

*Advisory pre- or co-requisites: LIN 211 and LIN 346*

3 credits

**LIN 355- J: Language and Life in a Selected Area of the World**

Study of the languages of a selected country or region outside of Europe in relation to its society, culture, history, and politics. Topics include language family, social varieties, status and attitudes, language policies, and cultural patterns reflected in language use. May be repeated as the topic changes. LIN 355 and/or LIN 356 may be taken a total of two times for the major.

*Advisory Prerequisite: LIN 101*

3 credits

**LIN 356- I: Topics in Language and Life in Europe**

Focus will be on the language of a particular country or region in Europe and the relationship between language and the society, culture, history, and politics of the country or region. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to Western civilization. Students will be expected to demonstrate knowledge of the development of the distinctive features of the history, institutions, economy, society, and culture of Western civilization, and relate it to that of other regions in the world. May be repeated as the language examined changes. May be repeated as the topic changes. LIN 355 and/or LIN 356 may be taken a total of two times for the major.

*Prerequisite: One LIN course or satisfaction of Entry Skill 3 foreign language proficiency*

3 credits

**LIN 370- J: Intercultural Communication**

Through combination of theory and research from discourse linguistics and linguistic anthropology, this course examines (i) how culture shapes ways of speaking; (ii) how language constructs identities, dispositions, role relations; and (iii) what challenges people from different cultures may face when they communicate with each other. The following analytical perspectives will be presented: speech act theory, ethnography of communication, linguistic politeness, and sequential organization of turn taking. This course is offered as both AAS 370 and LIN 370.

*Prerequisite: One previous course in D.E.C. J or one previous course in Linguistics*

3 credits

**LIN 375: TESOL Pedagogy: Theory and Practice**

Introduction to language and literacy instruction, instructional approaches, and

assessment models for the teaching of speaking, listening, reading, and writing. Students design standard-based lessons and evaluate resources and technologies.

*Prerequisites: Declared major in Linguistics; C or higher in LIN 101, 201, or 211; g.p.a. of 2.75 or higher; for non-native speakers of English, a SPEAK test score of 57 or TOEFL-*

*iBT Speaking Component score of 28*

*Corequisite: LIN 449*

3 credits

**LIN 378: Content-Based Language and Literacy Development**

Introduction to language and literacy development across disciplines and to assessment, cooperative learning, and reflective practices. Students will develop standard-based interdisciplinary thematic units, integrate technologies, and explore collaborative practices.

*Prerequisite: LIN 375 and LIN 449*

*Corequisite: LIN 450*

3 credits

**LIN 380: Anatomy and Physiology of Speech and Hearing**

A study of the anatomy and physiology of the speech, swallowing, and hearing mechanisms, including the phonatory, articulatory, respiratory, and resonatory subsystems and the neural control.

*Prerequisite: LIN 101 and LIN 201*

3 credits

**LIN 381: Language and Speech Disorders**

Overview of developmental and acquired communication disorders across the lifespan, including language delay, developmental apraxia of speech, phonological disorders, stuttering, acquired aphasia, craniofacial anomalies, and voice disorders.

*Prerequisite: LIN 101 and LIN 201*

3 credits

**LIN 382: Audiology**

Survey of the field of audiology, including the physics of sound, the physiology of hearing, the nature and causes of hearing impairment.

*Prerequisite: LIN 101 and LIN 201*

3 credits

**LIN 425: Special Topics in Linguistics**

Seminars for advanced linguistics students. May be repeated as the topic changes.

*Prerequisite: Varies with subject matter*

3 credits

**LIN 426: Special Topics in Linguistics**

Seminars for advanced linguistics students. May be repeated as the topic changes.

*Prerequisite: Varies with subject matter*

3 credits

**LIN 427: Special Topics in Linguistics**

Seminars for advanced linguistics students. May be repeated as the topic changes.

*Prerequisite: Varies with subject matter*

3 credits

**LIN 431: The Structure of an Uncommonly Taught Language**

An investigation of the phonology and syntax of either a language or a family of languages. May be repeated if a different language is covered.

*Prerequisite: C or better in LIN 211 and LIN 301*

4 credits

**LIN 447: Directed Readings in Linguistics**

Qualified juniors and seniors in linguistics are offered an opportunity to do independent work on topics in linguistics under guidance of a faculty member. May be repeated to a limit of six credits.

*Prerequisite: Permission of department*

1-6 credits

**LIN 449: Field Experience, Grades N-12**

Observation, inquiry, and practice in language and literacy development across disciplines for learners from linguistically and culturally diverse backgrounds. Students are placed in variety of educational settings in elementary and secondary schools for 50 hours of fieldwork.

*Prerequisites: Declared major in Linguistics; C or higher in LIN 101, 201, or 211; g.p.a. of 2.75 or higher; for non-native speakers of English, a SPEAK test score of 57 or TOEFL-*

*iBT Speaking Component Score of 28*

*Corequisite: LIN 375*

1 credit, S/U grading

**LIN 450: Field Experience, Grades N-12**

Observation, inquiry, and practice in language and literacy development across disciplines for learners from linguistically and culturally diverse backgrounds. Students are placed in variety of educational settings in elementary and secondary schools for 50 hours of fieldwork.

*Corequisite: LIN 378*

1 credit, S/U grading

**LIN 451: Supervised Teaching -- English as a Second Language: Primary Grades N-6**

Supervised practice teaching in English as a second language by arrangement with selected Boards of Cooperative Educational Services and primary, middle, and secondary schools. Applications must be filed in the academic year preceding that in which the student plans to take the course.

*Prerequisites:* Linguistics major; 3.00 g.p.a. in major; 2.75 g.p.a. overall; NY teacher certification exam LAST

*Corequisite:* LIN 452 and 454

6 credits, S/U grading

**LIN 452: Supervised Student Teaching in English as a Second Language: Secondary Grades 7-12**

Supervised practice teaching in English as a second language by arrangement with selected Boards of Cooperative Educational Services and middle and secondary schools. Applications must be filed in the academic year preceding that in which the student plans to take the course.

*Prerequisites:* Linguistics major; 3.00 g.p.a. in major; 2.75 g.p.a. overall; NY teacher certification exam LAST

*Corequisites:* LIN 451 and 454

6 credits, S/U grading

**LIN 454: Managing Instruction, Assessment, and Resources**

Examination of effective practices, assessments, and technologies for developing language and literacy across content areas in multi-level classrooms. Collaboration with colleagues, parents, and communities is explored.

*Prerequisites:* C or higher in LIN 378; New York teacher certification examination LAST

*Corequisites:* LIN 451 and 452

3 credits

**LIN 464: Morphology and Word Formation**

The internal structure of complex words. A variety of analytical methods is introduced, together with examples from English and many other languages.

*Prerequisite:* C or better in LIN 211 and LIN 301

3 credits

**LIN 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required

to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Not for major credit.

*Prerequisites:* Linguistics major; U3 or U4 standing; permission of instructor.

3 credits, S/U grading

**LIN 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Not for major credit.

*Prerequisite:* LIN 475; permission of instructor

3 credits, S/U grading

**LIN 487: Directed Research in Linguistics**

Qualified advanced undergraduates in linguistics may carry out individual research projects under the direct supervision of a faculty member. May be repeated up to a limit of six credits.

*Prerequisite:* Permission of department

1-6 credits

**LIN 488: Internship**

Participation in local, state, and national public and private agencies and organizations. May be repeated up to a total of 12 credits. Not for major credit.

*Prerequisites:* 15 credits in linguistics; permission of department

0-6 credits, S/U grading

**LIN 495: Senior Honors Project in Linguistics**

First course of a two-semester sequence for linguistics majors who are candidates for the degree with honors. The project involves independent readings or research and the writing of a thesis. Students enrolled in LIN 495 are obliged to complete LIN 496 the next semester. Students receive only one grade upon completion of the sequence. Not for major credit.

*Prerequisite:* Admission to the Linguistics Honors Program

3 credits

**LIN 496: Senior Honors Project in Linguistics**

Second course of a two-semester sequence for linguistics majors who are candidates for the degree with honors. The project involves independent readings or research and the writing of a thesis. Students enrolled in LIN 495 are obliged to complete LIN 496 the next semester. Students receive only one grade upon completion of the sequence. Not for major credit.

3 credits

## LSE

### Living/Learning Center: Science and Engineering

**LSE 201: Opportunities in Science and Engineering**

A survey of the various science and engineering disciplines. Guest speakers describe their respective fields of research and study and the opportunities for students entering the field today. Other topics include ethics, intellectual property and entrepreneurship. The interdisciplinary nature of science and technology is emphasized.

1 credit

**LSE 310- H: Current Issues in Science and Engineering**

A study of the issues and events that confront scientists and engineers today. Student presentations and student-led discussions cover such topics as ethics, social responsibilities, the environmental impact of technology, and the economics of research and technology.

3 credits

**LSE 320- H: Future Trends in Science and Engineering**

A study of forecasts for developments in science and engineering in the 21st century and their predicted effects on society. Predictions about science and engineering from the early 20th century and their accuracy today. Readings and student-led discussion on essays written by leading scientists and engineers concerning predictions in their fields during the next century. Includes several presentations made by science and engineering faculty on their current research, focusing on the long-term effects of their research on their discipline and on society. Several research papers by students will be required.

*Prerequisites:* U3 or U4 standing; one course in science or engineering

3 credits

**LSE 475: Undergraduate Teaching Practicum**

Students work with the instructor in an LSE course in leading discussion sections, helping students improve research skills, or assisting with the educational program presented as part of coursework. Students meet regularly with the supervising instructor.

*Prerequisites:* U3 or U4 standing; permission of instructor and director of the minor  
3 credits, S/U grading

## MAE

### Mathematics Teacher Preparation

#### MAE 301: Foundations of Secondary School Mathematics

A re-examination of elements of school mathematics, including topics in algebra, geometry, and elementary functions. Competence in basic secondary-level ideas and techniques are tested.

*Prerequisites:* MAT 200 and 211; admission to mathematics or applied mathematics secondary teacher preparation program  
*Corequisite:* MAE 311

3 credits

#### MAE 302: Methods and Materials for Teaching Secondary School Mathematics

The goals of mathematics education, learning theories, mathematics curricula, lesson planning, evaluation and teaching strategies. Lesson plans are drawn up and presented to the group.

*Prerequisites:* MAE 301 and C or higher in MAE 311

*Pre- or Corequisite:* MAE 312

3 credits

#### MAE 311: Introduction to Methods of Teaching Secondary School Mathematics

Aspects of teaching mathematics on the secondary school level, including lesson designs based on the NCTM standards, cooperative learning, and technology in mathematics education. Students observe classes in middle school and high school settings.

*Prerequisites:* MAT 211; admission to mathematics or applied mathematics secondary teacher preparation program; department consent

*Corequisite:* MAE 301

3 credits

#### MAE 312: Micro-Teaching

Twice-weekly supervised classroom experience, tutoring, or working with small groups of students as a teacher's aide.

*Prerequisite:* C or higher in MAE 311

*Pre- or Corequisite:* MAE 302

2 credits

#### MAE 330: Technology in Mathematics Education

Introduces students in the secondary mathematics teacher preparation program to techniques and requirements for effective use of technology in the mathematics classroom. Emphasis on projects. Use of graphing calculators and computer software such as Geometer's Sketchpad.

*Prerequisites:* MAE 301 and 311

3 credits

#### MAE 412: Issues in Teaching and Learning in Collegiate Mathematics

Investigation of the issues involved in the teaching and learning of introductory collegiate mathematics. A supervised teaching internship of undergraduate mathematics accompanies this seminar.

*Prerequisite:* MAE 302

4 credits

#### MAE 447: Directed Readings in Mathematics Education

Tutorial studies concerning current issues in mathematics education, including recent research and topics in the history of mathematics and their relation to teaching practice.

*Pre- or Corequisite:* MAE 312

1 credit

#### MAE 451: Supervised Teaching - Middle School Level Grades 7-9

Intensive supervised teaching in secondary schools. Students work in the school under the supervision of an experienced teacher.

*Prerequisites:* MAE 312; MAT 312, 319 and 360; AMS 310; permission of director of mathematics teacher education program  
*Corequisites:* MAE 452 and 454

6 credits, S/U grading

#### MAE 452: Supervised Teaching - High School Grades 10-12

Intensive supervised teaching in secondary schools. Students work in the school under the supervision of an experienced teacher.

*Prerequisites:* MAE 312; MAT 312, 319 and 360; AMS 310; permission of director of mathematics teacher education program  
*Corequisites:* MAE 451 and 454

6 credits, S/U grading

#### MAE 454: Student Teaching Seminar

Weekly discussions of teaching techniques and experiences, learning theory, curriculum content, and classroom problems.

*Corequisites:* MAE 451 and 452

3 credits

## MAP

### Mathematics Proficiency

#### MAP 101: Fundamentals of Arithmetic and Algebra

Arithmetic: fractions, decimals, and percent. Algebra: signed numbers, monomials, linear equations in one unknown, and word problems. This course is intended for students who have never studied algebra. Does not satisfy the entry skill in mathematics requirement or the D.E.C. category C requirement. Students who have otherwise satisfied D.E.C. category C may not register for this course. Overqualified students as determined by a placement test may be deregistered and directed to transfer to another course. Does not count toward graduation. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used.

3 credits

#### MAP 103 - S1: Proficiency Algebra

An intensive review of high school algebra as preparation for calculus and other mathematics. Facility with exponents, basic graphing, solving linear and quadratic equations in one variable, solving linear systems in two variables, polynomials, factorization of algebraic expressions, binomial theorem, and inequalities. Algebraic manipulations, analytic geometry of lines. Does not count toward graduation. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite:* Level 2 on the mathematics placement examination or MAP 101

3 credits

## MAR

### Marine Sciences

#### MAR 101- E: Long Island Sound: Science and Use

An introduction to one of the region's most important coastal marine environments - Long Island Sound. The course traces the origin and development of the Sound; presents an overview of the natural physical, biological, chemical, and geological processes that characterize it; explores its importance to society and assesses how society's uses of the Sound have affected it; evaluates attempts to manage it; and looks at the future of the Sound. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

#### **MAR 104- E: Oceanography**

An examination of the World Ocean and the chemical, geological, biological, and physical processes that control its major features and the life that inhabits it. Students will also explore human interactions with the marine environment. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

3 credits

#### **MAR 301: Environmental Microbiology**

Microbiological mediation of natural processes in marine, freshwater, soil, and groundwater habitats, as well as public health issues and microbial potential for remediation of pollutants. Lectures include a survey of taxonomic and metabolic diversity, elementary cell biology, nutrition, environmental controls on physiology and adaptations, biogeochemical cycles, and modern methods of sampling and analysis. Labs introduce students to fundamental microbiological methods currently used in environmental, public health, and clinical settings. Not for credit in addition to MAR 302. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 202; CHE 131 or 141  
4 credits

#### **MAR 302: Marine Microbiology and Microbial Ecology**

Introduction to the evolution, diversity, and importance of micro-organisms in the sea. Lectures highlight the phylogenies, physiologies and ecological functions of each major microbial group (viruses, bacteria, fungi, protozoans, algae). Particular emphasis is placed on the role of these micro-organisms in many of the elemental (geochemical) cycles of the oceans. Course explores the microbial ecology of most major marine habitats. Not for credit in addition to MAR 301.

*Prerequisites:* BIO 201 and BIO 202; CHE 132 or CHE 142

3 credits

#### **MAR 303: Long Island Marine Habitats**

The study of six representative marine environments around Long Island. Students visit the sites on weekly field trips, measuring environmental parameters and identifying common plants and animals. Using qualitative and quantitative methods in the field and in laboratory sessions, the class determines major factors that control the biological community in each habitat. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* U3 or U4 standing; BIO 201  
*Advisory Prerequisites:* AMS 110 or other statistics course; MAR 101 or 104 or 333

4 credits

#### **MAR 304- E: Waves, Tides, and Beaches**

A survey of water waves and tides, including both a description of the phenomena and the basic theory of waves and sediment transport. This background forms the basis for a description of shore processes including beaches, and coastal erosion. The variety of the world's coastal environments will be differentiated in terms of physical processes. The behavior of beaches also will be examined. This course is suitable for non-science majors as well as providing students majoring in geology, engineering or other sciences with the foundation for more advanced study.

*Prerequisites:* U3/U4 status or MAR 101 or MAR 104

*Advisory prerequisites:* MAR 101, MAR 104, or MAR 333

3 credits

#### **MAR 305: Experimental Marine Biology**

Students design and conduct experiments in the laboratory and at local field sites, collect and analyze data, and use scientific literature to interpret and present results in papers and oral presentations. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* U3 or U4 standing; BIO 201.

*Advisory Prerequisites:* CHE 131 or 141; AMS 110 or other statistics course; MAR 101 or 104 or 333

3 credits

#### **MAR 308: Environmental Instrumental Analysis**

The development of familiarity in the laboratory with the techniques and instrumentation used in environmental analytical chemistry, emphasizing determination of trace inorganic species. Primary emphasis on applications utilizing the absorption of emission of electromagnetic radiation. Topics include metal determinations in sediment and in river water using molecular ultraviolet-visible and atomic absorption spectrometry. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* CHE 132/134 or 142/144

3 credits

#### **MAR 315- H: Marine Conservation**

The fundamental concepts of Conservation Biology, a new synthetic field that incorporates principles of ecology, biogeography, population genetics, systematics, evolutionary biology, environmental sciences, sociology, anthropology, and philosophy toward the conservation of biological diversity. Examples drawn from the marine environment emphasize how the application of conservation principles varies from terrestrial, aquatic, and marine realms.

*Prerequisite:* BIO 351 or 353

3 credits

#### **MAR 318: Engineering Geology and Coastal Processes**

Fundamental concepts of soil, sediment, and rock mechanics and the physics of surficial processes. Application is made to problems of geotechnical and coastal engineering. Topics include consolidation, loose boundary hydraulics, slope stability, underground excavations and beach and tidal inlet stability, and channel sedimentation. This course is offered as both GEO 318 and MAR 318.

*Prerequisites:* GEO 122 or GEO 102 and 112; MAT 127 or 132 or 142 or 171 or AMS 161

3 credits

#### **MAR 320: Limnology**

The physical, chemical, and biological aspects of lakes and ponds. The morphology of lake basins, physics of water movement, water chemistry, and ecology of organisms are explored through lecture and laboratory instruction. The laboratory portion of the course includes field sampling to investigate temporal variation in water chemistry and plankton biology, and laboratory experiments to demonstrate important concepts. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 201; CHE 131 or 141

4 credits

### **MAR 333- H: Coastal Oceanography**

Aspects of physical, biological, chemical, and geological processes that characterize coastal marine environments. Topics include such natural phenomena as upwelling, particle transport, benthic/pelagic coupling, and barrier island processes, as well as the impacts of society on the Coastal Ocean. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* MAT 125 or 131 or 141 or AMS 151; completion of D.E.C. category E

3 credits

### **MAR 334- E: Remote Sensing of the Environment**

A study of the theory of remote sensing and its application in the fields of atmospheric science and oceanography. A discussion of the interaction of electromagnetic radiation with rough surfaces and the atmosphere is followed by a treatment of sensors and platforms. The remainder of the course is devoted to data processing techniques involved in remote sensing.

*Prerequisite:* One of the following: ENS/PHY 119, PHY 127, PHY 132/134, or PHY 142

3 credits

### **MAR 336: Marine Pollution**

A review of the sources, transport, and fate of toxic and non-toxic contaminants in the ocean. The interactions of biological, chemical, and physical processes that control the cycling and toxicity of contaminants are considered. Contaminants include metals, oil, halogenated hydrocarbons, radioactive wastes, excess nutrients, plastics, and solid wastes.

*Prerequisites:* BIO 201; CHE 131 or CHE 141  
*Advisory Prerequisite:* MAR 104 or MAR 333

3 credits

### **MAR 340- H: Environmental Problems and Solutions**

A detailed examination of the scientific, social, and legal aspects of important environmental problems, including global climate change, the depletion of atmospheric ozone, acid rain, rain forests and the loss of biodiversity, and energy conservation, as well as case histories of problems such as the use of DDT, environmental carcinogens, and lead poisoning.

*Prerequisites:* U3 or U4 standing; one course in chemistry or biology

3 credits

### **MAR 346: Marine Sedimentology**

A study of sedimentology in the marine environment, including an introduction to fluid mechanics, sediment transport theory, quantitative models of sedimentation, and dynamic stratigraphy.

*Prerequisites:* GEO 102 or 122; PHY 126 or 132/134 or 142

3 credits

### **MAR 349: Introduction to Biological Oceanography**

An examination of the processes which produce and maintain the abundances, composition, and temporal variations of organisms in the ocean. The roles of biological processes in global cycles and the food chain, beginning with microbes and progressing through fisheries, are also covered. Weekly three-hour laboratory or field sessions present methods used in observational and experimental studies. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* CHE 131 and 132; BIO 201

4 credits

### **MAR 350: Introduction to Ocean Physics**

An introduction to hydrodynamics, contemporary ideas on ocean circulation, and the application of acoustics and optics to ocean technologies. Not for credit in addition to MAR 352.

*Prerequisites:* ENS/PHY 119 or PHY 121/123 or 125 or 131/133 or 141; MAT 127 or 132 or 142 or 171 or AMS 161

2 credits

### **MAR 351: Introduction to Ocean Chemistry**

Chemical principles applied to the study of the oceans. How chemical tracers are used to determine the geological, physical, and biological characteristics of present and past oceans. Other topics include physical marine chemistry, nutrient and carbon cycling, organic geochemistry, isotope geochemistry, sediment chemistry and diagenesis, air-sea exchange and controls on carbon dioxide, and estuarine geochemistry.

*Prerequisite:* CHE 132 and one MAR course

3 credits

### **MAR 352: Introduction to Physical Oceanography**

An introduction to the physical properties, motion of, and forces that drive the movement of fluids (air and water) on the earth. Physical oceanographic processes that range in scale

from several mm to 1000s of km will be studied. This course will introduce the student to the physics of the marine environment and the tools (physical, mathematical, scientific) to study these waters. Environments ranging from pelagic to estuarine will be examined. Not for credit in addition to MAR 350. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* MAT 126, MAT 132, or MAT 142; PHY 119, PHY 121, PHY 125, PHY 131 or PHY 141

3 credits

### **MAR 355: Coastal Cultural Experience**

An experiential learning course designed to introduce students to the rich coastal marine culture of New York and the northeastern United States. Through targeted readings and participation in weekly faculty-led field trips in the greater Long Island area, students will develop an understanding of how the coastal environment and maritime traditions have shaped the region's culture. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Pre- or corequisite:* MAR 356

*Advisory Prerequisite:* Enrollment in the Semester by the Sea Program

2 credits

### **MAR 356- K: Maritime Traditions of New England**

This class will survey the traditions and historical development of the sea, with an emphasis on the fishing, whaling, and seafaring history and rich contemporary coastal culture of the Northeastern United States. Students will examine how we have understood our roles in connection with the ocean by reading and discussing selections from numerous historical journals, books and primary sources as well as literature in which seafaring traditions are discussed and/or demonstrated. Excursions in the co-required Coastal Cultural Experience course allow students to explore the maritime setting of the works discussed in the course.

*Pre- or corequisite:* MAR 355

3 credits

### **MAR 366: Plankton Ecology**

An introduction to the biology of the plant and animal plankton present in the sea. Techniques of collection, enumeration, and identification of phytoplankton and zooplankton are described. Life histories are studied and factors that influence seasonal changes in species and biomass are examined.

*Prerequisites:* BIO 201 and 202

3 credits

### **MAR 370: Marine Mammals**

The biology of the major groups of marine mammals, including cetaceans, pinnipeds, and sirenians. Topics include evolutionary history and adaptation, thermoregulation, locomotion and foraging, diving physiology and behavior, communication and sensory systems, social behavior, reproduction, energetics, distribution patterns, exploitation, and conservation. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 201; BIO 203

3 credits

### **MAR 373: Marine Apex Predators: Ecology and Conservation**

The removal of apex predators is one of the most pervasive impacts of humans on Earth's ecosystems. In the past few decades we have started to recognize how the loss of these species has caused substantial changes in terrestrial ecosystem diversity and function, mediated by changes in prey population dynamics and behavior. It is only recently that we have realized that changes in the abundance of apex predators in the ocean (e.g., sharks, marine mammals, tuna and other large predatory bony fish) may be causing similar changes in coastal and pelagic marine ecosystems. In this course we will (1) review the biology of key marine apex predators, (2) explore how 'top down' processes (predation and intimidation of prey) can influence marine ecosystems and (3) review the status of marine apex predators and how this relates to the current state of ocean ecosystems. We will draw from the primary literature, from both the terrestrial and marine realms, and host outside speakers who study these animals in the field.

*Prerequisite:* BIO 201 and either BIO 202 or BIO 203

3 credits

### **MAR 375: Marine Mammal and Sea Turtle Rehabilitation**

An intensive hands-on course designed to introduce students to the topics of marine mammal and sea turtle biology as they relate to rehabilitation and research. Students will be exposed to marine mammal and sea turtle ecology, conservation issues, management, and research in the context of wildlife rehabilitation. Through active participation in the rehabilitation activities at the New York State's only marine mammal rescue facility, instructive lectures, writing, reading assignments, quizzes, tests, and research,

students will be offered the opportunity to be thoroughly immersed in the field of marine mammal and sea turtle rehabilitation. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* BIO 201 or permission of instructor

3 credits

### **MAR 376: Biology and Conservation of Sea Turtles**

This course provides an overview of the biology of sea turtles, and highlights different solutions to challenges these organisms face while living in the marine environment. We begin by discussing biological adaptations and ecological processes, and will then examine these concepts in relation to conservation and management issues facing different sea turtle species. This course will be primarily lecture-based, although we will take advantage of additional learning opportunities, such as necropsies conducted with the Riverhead Foundation. MAR 376 may not be taken for credit in addition to MAR 371.

*Prerequisite:* BIO 201

*Advisory prerequisite:* BIO 203

3 credits

### **MAR 377: Biology and Conservation of Seabirds**

This course provides an overview of the biology of seabirds, covering basic and applied aspects of seabird biology. We examine specific biological adaptations (e.g., morphological and physiological adaptations for diving and flying) in the first third of the course, and review population-level processes and behavioral patterns (e.g., population ecology and migration) in the second part of the course. The last third of the course applies this knowledge of seabird biology and ecology to current conservation issues and management efforts, both within the United States and internationally. MAR 377 may not be taken for credit in addition to MAR 371.

*Prerequisite:* BIO 201

*Advisory prerequisite:* BIO 203

3 credits

### **MAR 380: Ichthyology**

The biology of fishes. This course focuses on the diversity of fishes and the physiological, anatomical, ecological, and behavioral adaptations that allow them to populate a wide range of niches and environments. Field and laboratory work provide students with practical experience in collecting, identifying, and studying fish. This course has an associated

fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* U3 or U4 standing; BIO 201 and BIO 203

3 credits

### **MAR 384: Diseases of Aquatic Organisms**

Fundamental and current issues pertaining to host/pathogen interactions in the aquatic environment. By the end of this course, students should have a basic understanding of disease processes in aquatic organisms; knowledge of the tools used for disease diagnosis; and an appreciation of disease management tools available today. This course will emphasize the role of the environment as an important player in infectious and non-infectious diseases. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 202 and 203

3 credits

### **MAR 385: Principles of Fishery Biology and Management**

The theory, techniques, history, and practical problems of fishery management, with emphasis on Long Island fisheries. Three field trips outside regularly scheduled class meetings are required. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* BIO 201; MAT 125 or 131 or 141 or AMS 151

3 credits

### **MAR 388: Tropical Marine Ecology**

This travel course surveys organisms (invertebrates, fishes and algae) and habitats (coral reefs, sea grass meadows and mangrove forests) within tropical marine coral reef ecosystems. The course consists of formal lectures, demonstrations and instructor-led field trips and involves snorkeling, SCUBA diving, reefwalking and underwater photography. Students will develop individual research projects requiring field observations and collecting data and will write a research proposal and final research papers.

*Prerequisites:* BIO 201 and permission of instructor

4 credits

### **MAR 392- H: Waste Management Issues**

Conventional and innovative approaches to waste reduction, recycling, and reuse.

The environmental impacts of waste on the terrestrial and marine environment are introduced as are the complex social, political, and scientific issues of making sound policy decisions.

*Prerequisites: GEO 101; CHE 131 or ENS/PHY 119*

3 credits

### **MAR 393: Waste Treatment Technologies**

This course examines technologies such as wastewater management, solid waste practices, and drinking water treatments that minimize the effects of human wastes. Pollution prevention, especially for marine environments, is also discussed.

*Prerequisites: EST 202; or MAT 123 and one D.E.C. category E course*

3 credits

### **MAR 394- H: Environmental Toxicology and Public Health**

Principles of toxicology are presented and problems associated with major classes of toxic chemicals to human and environmental health are examined. Case studies dealing with current waste management issues are also discussed. This course is offered as both BCP 394 and MAR 394.

*Prerequisites: BIO 201; CHE 131 or 141*  
*Advisory Prerequisite: CHE 321*

3 credits

### **MAR 395: Topics in Marine Environmental Sciences**

May be repeated as the topic changes. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: One upper-division MAR course*  
3 credits

### **MAR 447: Readings in Marine Science**

Tutorial readings in the marine sciences. These courses may be repeated but no more than 3 credits may be used toward Marine Science or Marine Vertebrate Biology major requirements.

*Prerequisite: Permission of instructor and SoMAS undergraduate director*

1-3 credits, S/U grading

### **MAR 475: Undergraduate Teaching Practicum**

A practicum in the techniques of teaching marine sciences courses. Each student assists a faculty member in a regularly scheduled class. The student may be required to attend all classes and meets with the faculty member

at regularly scheduled times. Students may assist in laboratories, hold recitation or review sessions, propose questions for examinations, and review already graded assignments.

*Prerequisites: U3 or U4 standing; permission of instructor and SoMAS Undergraduate Programs Director*

3 credits, S/U grading

### **MAR 487: Research in Marine Sciences**

A student may conduct research for credit. May be repeated.

*Prerequisite: Permission of instructor and SoMAS Undergraduate Programs Director*  
0-6 credits

### **MAR 488: Internship**

Participation in research at off-campus laboratories or in the activities of public and private agencies and organizations. May be repeated up to a limit of 12 credits.

*Prerequisites: Permission of instructor and SoMAS Programs Director*

0-6 credits, S/U grading

## **MAT**

### **Mathematics**

#### **MAT 118- C: Mathematical Thinking**

Development of quantitative thinking and problem solving abilities through a selection of mathematical topics: logic and reasoning; numbers, functions, and modeling; combinatorics and probability; growth and change. Other topics may include geometry, statistics, game theory, and graph theory. Through their engagement in problem solving, students develop an appreciation of the intellectual scope of mathematics and its connections with other disciplines.

*Prerequisite: C or better in MAP 103 or level 2+ or higher on the mathematics placement examination*  
*(Prerequisite must be met within one year of beginning this course.)*

3 credits

#### **MAT 122- C: Overview of Calculus with Applications**

The basics of calculus in a self-contained, one-semester course. Properties and applications of polynomial, exponential, and logarithmic functions. Derivatives: slopes, rates of change, optimization, integrals, area, cumulative change, and average. The fundamental theorem of calculus. Emphasis on modeling examples from economics. Students who subsequently wish to enroll in MAT 125 or 131 will be required to take MAT 130 as a pre-

or corequisite to either course or to score level 4 on the mathematics placement examination before taking either course. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or better in MAP 103 or level 3 on the mathematics placement exam*  
*(Prerequisite must be met within one year prior to beginning the course.)*

3 credits

#### **MAT 123- C: Introduction to Calculus**

Comprehensive preparation for the regular calculus sequences, with introduction to derivatives. Careful development of rational, exponential, logarithmic, and trigonometric functions, and their applications. Asymptotics and limits. Linear approximations, slope and derivatives, detailed curve sketching. General modeling examples. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or better in MAP 103 or level 3 on the mathematics placement exam*  
*(Prerequisite must be met within one year prior to beginning the course.)*

3 credits

#### **MAT 125- C: Calculus A**

Differential calculus, emphasizing conceptual understanding, computations and applications, for students who have the necessary background from 12th-year high school mathematics. Differentiation of elementary algebraic, trigonometric, exponential and logarithmic functions; graphing; modeling; and maximization. May not be taken for credit in addition to MAT 131 or 141 or AMS 151. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in MAT 123; or level 4 on the mathematics placement examination; or MAT 122 and coregistration in MAT 130*

3 credits

#### **MAT 126- C: Calculus B**

A continuation of MAT 125, covering integral calculus: the fundamental theorem, symbolic and numeric methods of integration, area under a curve, volume, applications such as work and probability, complex numbers. May not be taken for credit in addition to MAT 142 or AMS 161. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA

courses for the first time will have priority to do so.

*Prerequisite: C or higher in MAT 125 or 131 or 141 or AMS 151 or level 6 on the mathematics placement examination*

3 credits

### **MAT 127- C: Calculus C**

A continuation of MAT 126, covering: improper integrals and l'Hospital's rule, sequences, series, Taylor series, differential equations and modeling. May not be taken for credit in addition to MAT 132, MAT 142, MAT 171, or AMS 161. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in MAT 126 or level 8 on the mathematics placement examination*

3 credits

### **MAT 130: Functions**

Inverse functions, exponential and logarithmic functions, radian measure of angles and trigonometric functions. Open to prospective students in engineering, physical sciences, and mathematics who need to bridge the gap between MAT 122 and 125 or MAT 131 or AMS 151. May not be taken for credit in addition to MAT 123.

*Advisory Prerequisite: C or higher in MAT 122*

*Advisory Corequisite: MAT 125 or 131 or AMS 151*

1 credit

### **MAT 131- C: Calculus I**

The differential calculus and integral calculus, emphasizing conceptual understanding, computations and applications, for students who have the necessary background from 12th-year high school mathematics. Differentiation of elementary algebraic; trigonometric, exponential, and logarithmic functions; graphing; modelling and maximization; the Riemann integral; and the fundamental theorem. May not be taken for credit in addition to MAT 125 or 141 or AMS 151. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: B or higher in MAT 123, or level 5 on the mathematics placement examination, or B or higher in MAT 122 and concurrent registration for MAT 130*

4 credits

### **MAT 132- C: Calculus II**

A continuation of MAT 131, covering symbolic and numeric methods of integration; area under a curve; volume; applications such as work and probability; improper integrals and l'Hospital's rule; complex numbers; sequences; series; Taylor series; differential equations; and modelling. May not be taken for credit in addition to MAT 127, MAT 142, MAT 171, or AMS 161. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in AMS 151 or MAT 131 or 141, or level 7 on the mathematics placement examination*

4 credits

### **MAT 141- C: Honors Calculus I**

The topics of MAT 131 treated with additional attention to the underlying theory as a means of understanding why the processes of calculus work. May not be taken for credit in addition to MAT 125 or 131. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: Level 5 on the mathematics placement examination; priority given to students in the University's honors programs*

4 credits

### **MAT 142: Honors Calculus II**

A continuation of MAT 141 in the same spirit, covering the topics of MAT 132. May not be taken for credit in addition to MAT 126, MAT 127, MAT 171, MAT 132 or AMS 161. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in MAT 141, or B or higher in MAT 131 or AMS 151, or level 7 on the mathematics placement examination*

4 credits

### **MAT 160: Mathematical Problems and Games**

Intended for students interested in sharpening their problem-solving skills and in developing their ability to express mathematical ideas.

1 credit, S/U grading

### **MAT 171: Accelerated Single-Variable Calculus**

A single semester, honors-level, course which reviews the material in MAT 131 in a few weeks, then concentrates on the topics covered in MAT 132, with additional attention paid to

the underlying theory. Primarily intended for students who have had calculus in high school. May not be taken for credit in addition to MAT 126, MAT 127, MAT 132, MAT 142, or AMS 161.

*Prerequisites: Level 5 on the AB Calculus AP exam, Level 3 on the BC Calculus exam, A or A- in MAT 131 or AMS 151, MAT 141, or level 7 on the mathematics placement exam. Priority given to students in the University's honors programs.*

4 credits

### **MAT 200: Logic, Language and Proof**

A basic course in the logic of mathematics, the construction of proofs and the writing of proofs. The mathematical content is primarily set theory, combinatorics and Euclidean geometry. There is considerable focus on writing.

*Prerequisites: C or higher in MAT 203, 205 or AMS 261, and in MAT 211 or AMS 210; or A- or higher in MAT 125, 131, 141 or AMS 151; or B- or higher average in MAT 125/126/127, 131/132, 141/142, 171 or AMS 151/161; or permission of instructor*

3 credits

### **MAT 203: Calculus III with Applications**

Vector algebra in two and three dimensions, multivariate differential and integral calculus, optimization, vector calculus including the theorems of Green, Gauss, and Stokes. Applications to economics, engineering, and all sciences, with emphasis on numerical and graphical solutions; use of graphing calculators or computers. May not be taken for credit in addition to AMS 261 or MAT 205.

*Prerequisite: C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination*

4 credits

### **MAT 205: Calculus III**

Vector algebra, multivariate differential and integral calculus, divergence and curl, line and surface integrals, theorems of Green, Gauss, and Stokes. More theoretical than MAT 203 with applications to the physical sciences. Not for credit in addition to AMS 261 or MAT 203.

*Prerequisite: C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination*  
*Pre- or Corequisite: MAT 211 or AMS 210*

4 credits

### **MAT 211: Introduction to Linear Algebra**

Introduction to the theory of linear algebra with some applications; vectors, vector spaces, bases and dimension, applications to geometry, linear transformations and rank, eigenvalues and eigenvectors, determinants and inner products. May not be taken for credit in addition to AMS 210.

*Prerequisite: C or higher in AMS 151 or MAT 131 or 141 or coregistration in MAT 126 or level 7 on the mathematics placement examination*

3 credits

### **MAT 260: Problem Solving in Mathematics**

Students actively solve challenging problems in plane geometry, basic number theory, and calculus, and write precise arguments. Relevant preparation for problem-solving is provided in the course.

*Prerequisite: Permission of instructor*

1 credit

### **MAT 303: Calculus IV with Applications**

Homogeneous and inhomogeneous linear differential equations; systems of linear differential equations; series solutions; Laplace transforms; Fourier series. Applications to economics, engineering, and all sciences with emphasis on numerical and graphical solutions; use of computers. May not be taken for credit in addition to AMS 361, MAT 305, or MAT 308.

*Prerequisite: C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination*

4 credits

### **MAT 305: Calculus IV**

Linear versus nonlinear equations and their numerical solutions, existence and uniqueness, Duhamel's principle for linear equations, series solutions, systems. Fourier series; comparison of separation of variables with integral formulas. More theoretical than MAT 303. Applications to the physical sciences. May not be taken for credit in addition to MAT 303 or AMS 361.

*Prerequisite: C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination*

4 credits

### **MAT 307: Multivariable Calculus with Linear Algebra**

Introduction to linear algebra: vectors, matrices, systems of linear equations, bases and dimension, dot product, determinants. Multivariate differential and integral calculus, divergence and curl, line and surface integrals,

theorems of Green, Gauss, and Stokes. More theoretical and intensive than MAT 203, this course is primarily intended for math majors. Together with MAT 308, it forms a 2-semester sequence covering the same material as the 3-semester sequence of MAT 205, MAT 211 and MAT 305. May not be taken for credit in addition to MAT 203, MAT 205 or AMS 261.

*Prerequisite: MAT 127 or MAT 132*

4 credits

### **MAT 308: Differential Equations with Linear Algebra**

Linear algebra: determinants, eigenvalues and eigenvectors, diagonalization. Differential equations; existence and uniqueness of solutions. First- and second-order equations; linear versus nonlinear equations. Systems of linear equations. Laplace transform. Applications to physics. More theoretical and intensive than MAT 303, this course is primarily intended for math majors. Together with MAT 307, it forms a 2-semester sequence covering the same material as the 3-semester sequence of MAT 205, MAT 211 and MAT 305. May not be taken for credit in addition to MAT 303, MAT 305 or AMS 361.

*Prerequisite: MAT 307 or MAT 205 and MAT 211*

4 credits

### **MAT 310: Linear Algebra**

Finite dimensional vector spaces, linear maps, dual spaces, bilinear functions, inner products. Additional topics such as canonical forms, multilinear algebra, numerical linear algebra.

*Prerequisites: C or higher in MAT 211 or 305 or 308 or AMS 210; C or higher in MAT 200 or permission of instructor*

4 credits

### **MAT 311: Number Theory**

Congruences, quadratic residues, quadratic forms, continued fractions, Diophantine equations, number-theoretical functions, and properties of prime numbers.

*Prerequisites: C or higher in MAT 312 or 313 or 318; C or higher in MAT 200 or permission of instructor*

3 credits

### **MAT 312: Applied Algebra**

Topics in algebra: groups, informal set theory, relations, homomorphisms. Applications: error correcting codes, Burnside's theorem, computational complexity, Chinese remainder theorem. This course is offered as both AMS 351 and MAT 312.

*Prerequisite: C or higher in AMS 210 or MAT 211*

*Advisory Prerequisite: MAT 200 or CSE 113*  
3 credits

### **MAT 313: Abstract Algebra**

Groups and rings together with their homomorphisms and quotient structures. Unique factorization, polynomials, and fields.

*Prerequisites: C or higher in MAT 310 or 312 or 318; C or higher in MAT 200 or permission of instructor*

3 credits

### **MAT 319: Foundations of Analysis**

A careful study of the theory underlying topics in one-variable calculus, with an emphasis on those topics arising in high school calculus. The real number system. Limits of functions and sequences. Differentiations, integration, and the fundamental theorem. Infinite series.

*Prerequisites: C or higher in MAT 200 or permission of instructor; C or higher in one of the following: MAT 203, 205, 211, 307, AMS 261, or A- or higher in MAT 127, 132, 142, or AMS 161*

4 credits

### **MAT 320: Introduction to Analysis**

A careful study of the theory underlying calculus. The real number system. Basic properties of functions of one real variable. Differentiation, integration, and the inverse theorem. Infinite sequences of functions and uniform convergence. Infinite series.

*Prerequisites: C or higher in MAT 200 or permission of instructor; C or higher in one of the following: MAT 203, 205, 211, 307, AMS 261, or A- or higher in MAT 127, 132, 142, or AMS 161*

4 credits

### **MAT 322: Analysis in Several Dimensions**

Continuity, differentiation, and integration in Euclidean  $n$ -space. Differentiable maps. Implicit and inverse function theorems. Differential forms and the general Stokes's theorem.

*Prerequisites: C or higher in MAT 203, 205, or AMS 261; C or higher in MAT 211 or AMS 210; B or higher in MAT 320*

*Advisory Pre- or Corequisite: MAT 310*

3 credits

### **MAT 324: Real Analysis**

Metric spaces, including compactness, connectedness, completeness, and continuity. Introduction to Lebesgue integration. Aspects of Fourier series, function spaces, Hilbert spaces, Banach spaces.

*Prerequisites: C or higher in MAT 203 or 205 or 307 or AMS 261; B or higher in MAT 320*

3 credits

### **MAT 331: Computer-Assisted Mathematical Problem Solving**

Exploration of the use of the computer as a tool to gain insight into complex mathematical problems through a project-oriented approach. Students learn both the relevant mathematical concepts and ways that the computer can be used (and sometimes misused) to understand them. The particular problems may vary by semester; past topics have included cryptography, fractals and recursion, modeling the flight of a glider, curve fitting, the Brachistochrone, and computer graphics. No previous experience with computers is required.

*Prerequisite: C or higher in MAT 203 or 205 or 307 or AMS 261*

3 credits

### **MAT 336- H: History of Mathematics**

A survey of the history of mathematics from the beginnings through the 19th century, with special attention to primary sources and to the interactions between culture and mathematics. Emphasis on topics germane to the high school curriculum. Mesopotamian, Egyptian, and Greek mathematics; non-European mathematics; early Renaissance mathematics; the birth and flowering of calculus; the beginnings of probability theory; and the origin of non-Euclidean geometrics and the modern concept of number.

*Prerequisite: MAT 200 or AMS 301*

3 credits

### **MAT 341: Applied Real Analysis**

Partial differential equations of mathematical physics: the heat, wave, and Laplace equations. Solutions by techniques such as separation of variables using orthogonal functions (e.g., Fourier series, Bessel functions, Legendre polynomials). D'Alembert solution of the wave equation.

*Prerequisites: C or higher in the following: MAT 203 or 205 or 307 or AMS 261; MAT 303 or 305 or AMS 361*

*Advisory Prerequisite: MAT 200*

3 credits

### **MAT 342: Applied Complex Analysis**

Functions of a complex variable, calculus of residues including evaluation of real integrals, power and Laurent series, conformal mappings and applications, Laplace and Cauchy-Riemann equations, the Dirichlet and Neumann problems, and the Laplace and

Hilbert transforms and their applications to ordinary and partial differential equations.

*Prerequisites: C or higher in the following: MAT 203 or 205 or 307 or AMS 261; MAT 303 or 305 or AMS 361*

*Advisory Prerequisite: MAT 200*

3 credits

### **MAT 351: Differential Equations: Dynamics and Chaos**

A study of the long-term behavior of solutions to ordinary differential equations or of iterated mappings, emphasizing the distinction between stability on the one hand and sensitive dependence and chaotic behavior on the other. The course describes examples of chaotic behavior and of fractal attractors, and develops some mathematical tools for understanding them.

*Prerequisites: C or higher in the following: MAT 203 or 205 or 307 or AMS 261; MAT 303 or 305 or 308 or AMS 361; MAT 200 or permission of instructor*

3 credits

### **MAT 360: Geometric Structures**

Formal geometries and models. Topics selected from projective, affine, Euclidean, and non-Euclidean geometries.

*Pre- or Corequisites: C or higher in the following: MAT 203 or 205 or 307 or AMS 261; MAT 211 or AMS 210; MAT 200 or permission of instructor*

3 credits

### **MAT 362: Differential Geometry of Surfaces**

The local and global geometry of surfaces: geodesics, parallel transport, curvature, isometries, the Gauss map, the Gauss-Bonnet theorem.

*Prerequisite: C or higher in MAT 319 or 320 or 364*

3 credits

### **MAT 364: Topology and Geometry**

A broadly based introduction to topology and geometry, the mathematical theories of shape, form, and rigid structure. Topics include intuitive knot theory, lattices and tilings, non-Euclidean geometry, smooth curves and surfaces in Euclidean 3-space, open sets and continuity, combinatorial and algebraic invariants of spaces, higher dimensional spaces.

*Prerequisites: MAT 203 or 205 or 307 or AMS 261*

*Advisory Prerequisite: MAT 319 or 320*

3 credits

### **MAT 371: Logic**

A survey of the logical foundations of mathematics: development of propositional calculus and quantification theory, the notions of a proof and of a model, the completeness theorem, Goedel's incompleteness theorem. This course is offered as both CSE 371 and MAT 371.

*Prerequisite: CSE 150 or CSE 215 or MAT 200*

3 credits

### **MAT 373: Analysis of Algorithms**

Mathematical analysis of a variety of computer algorithms including searching, sorting, matrix multiplication, fast Fourier transform, and graph algorithms. Time and space complexity. Upper-bound, lower-bound, and average-case analysis. Introduction to NP completeness. Some machine computation is required for the implementation and comparison of algorithms. This course is offered as CSE 373 and MAT 373.

*Prerequisites: MAT 211 or AMS 210; CSE 214 or CSE 260*

3 credits

### **MAT 401: Seminar in Mathematics**

Discussions of a specific area of interest in mathematics. The work of each semester covers a different area of mathematics. May be repeated as topic changes. Prerequisites will be announced with the topic each time the course is offered.

*Prerequisites: U3 or U4 standing; additional prerequisites announced with topic*

3 credits

### **MAT 402: Seminar in Mathematics**

Discussions of a specific area of interest in mathematics. The work of each semester covers a different area of mathematics. May be repeated as topic changes. Prerequisites will be announced with the topic each time the course is offered.

*Prerequisites: U3 or U4 standing; additional prerequisites announced with topic*

3 credits

### **MAT 475: Undergraduate Teaching Practicum**

Each student assists in teaching a lower-division mathematics course or works in the Mathematics Learning Center. The student's work is regularly supervised by a faculty member. In addition, a weekly seminar is conducted. Responsibilities may include preparation of materials for student use and discussions, helping students with problems, and involvement in "alternative" teaching

projects. Intended for upper-division students who have excelled in the calculus sequence. May not be used for major credit.

*Prerequisite: Permission of the director of undergraduate studies*

3 credits, S/U grading

### **MAT 487: Independent Study in Special Topics**

A reading course for juniors and seniors. The topics may be chosen by the student with the approval of a supervising member of the faculty, who also takes responsibility for evaluation. A topic that is covered in a course regularly offered by the department is not appropriate for independent study. May be repeated.

*Prerequisite: Permission of the director of undergraduate studies*

0-6 credits

### **MAT 495: Honors Thesis**

The student and a supervising faculty member together choose a topic in mathematics, and the student writes a substantial paper expounding the topic in a new way.

*Prerequisite: Permission of the director of undergraduate studies*

3 credits

## **MEC**

### **Mechanical Engineering**

#### **MEC 101: Engineering Computing and Problem Solving I**

Computer integrated introduction to engineering design and analysis. The mechanical engineering profession, engineering ethics, and engineering impact on society. Engineering equations, graphs, dimensional analysis, curve fitting, optimization in engineering design. Introduction to vectors and engineering statics, failure, and materials selection. Use of spreadsheets and MATLAB.

*Pre- or co-requisites: AMS 151 or MAT 125 or MAT 131 or MAT 141 and PHY 125 or PHY 131 or PHY 141*

2 credits

#### **MEC 102: Engineering Computing and Problem Solving II**

Introduction to programming with MATLAB. Control structures, arrays and matrix operations, functions, object-oriented programming, interfacing MATLAB with other languages. Projects includes applications in solid mechanics, fluid mechanics, thermodynamics and heat transfer, control

theory, and basic design concepts. Emphasizes the interpretation of previous analysis in terms of generating results, making quantitative comparisons, and assessing changes that optimize or otherwise maximize the usefulness of the result.

*Prerequisite: A grade of C or better in MEC 101*

2 credits

#### **MEC 104- E: Practical Science of Things**

A practical introduction to the science and engineering of objects and phenomena in everyday life. The basic principles that underlie the operation common to modern devices such as rollercoasters, balloons, vacuum cleaners, airplanes, bicycles, thermostats, air conditioners, automobiles, and GPS systems are developed by investigating how they work. Issues of design, safety, and environmental impact are also discussed.

*Prerequisite: Satisfaction of entry skill in mathematics requirement (Skill 1) or satisfactory completion of D.E.C. C*

3 credits

#### **MEC 105- E: Everyday Science**

A practical introduction to the science and engineering of objects and phenomena in everyday life. The basic principles that underlie the operation common to modern devices such as xerographic copiers, tape recorders, computers, microwaves, lasers, CDs, plastics, nuclear weapons, and magnetic resonance imaging (MRI) are developed by investigating how they work. Issues of design, safety, and environmental impact are also discussed.

*Prerequisite: Satisfaction of entry skill in mathematics requirement (Skill 1) or satisfactory completion of D.E.C. C*

3 credits

#### **MEC 203: Engineering Graphics and CAD**

Introduces engineering graphics and its role in design process. Includes the principles of engineering drawing and sketching for mechanical design, the use of computer graphics and solid modeling in design representation of 3D objects, assembly and simulation as well as ASME standards on geometric dimensioning and tolerances. Includes hands-on experience in the use of CAD software packages for engineering design. Engineering ethics.

*Prerequisites: MEC major, CIV major, BME major or permission of the department.*

3 credits

#### **MEC 213: Studies in Nanotechnology**

The emerging field of nanotechnology develops solutions to engineering problems by taking advantage of the unique physical and chemical properties of nanoscale materials. This interdisciplinary, co-taught course introduces materials and nano-fabrication methods with applications to electronics, biomedical, mechanical and environmental engineering. Guest speakers and a semester project involve ethics, toxicology, economic and business implications of nanotechnology. Basic concepts in research and design methodology and characterization techniques will be demonstrated. Course is cross-listed as BME 213, MEC 213, and EST 213 and is required for the Minor in Nanotechnology Studies (NTS).

3 credits

#### **MEC 214: Probability and Statistics for Mechanical Engineers**

Foundations of probability and statistics as applied to mechanical measurements and experimentation. Basic statistical analysis of data and assessing likelihood of future events based on past history. Concept of random sampling. Uncertainty analysis and error propagation, using both analytical and graphical tools. Assessing dominant sources of error in measurements.

*Prerequisites: MAT 126 or 131 or 141 or AMS 151; MEC major or permission of instructor.*

*Corequisites: MAT 127 or 132 or 142 or 171 or AMS 161*

1 credit

#### **MEC 220: Practical Electronics Mechanical Engineers**

This is a lecture and laboratory 2 credit course that will overview basic electronics from a practical level (versus a theoretical approach) to provide mechanical engineering students with the fundamentals to do basic electronics work needed for laboratories, subsequent courses and their professional careers.

*Prerequisites: PHY127, PHY132, or PHY142; MEC major*

2 credits

#### **MEC 225: Fundamentals of Machining Practices**

Hands-on experience in the fundamentals of machining including metrology tools and devices, saw, sheet metal working, drilling, reaming, tapping, turning, boring, milling, welding, and rapid prototyping. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Pre- or Co-requisite: MEC 203*

*Prerequisite: MEC major or permission of instructor*

1 credit

### **MEC 260: Engineering Statics**

A review of vector algebra. Concept of force. Equilibrium of particles. Moments about points and lines, couples and equivalent force systems. Equilibrium of rigid bodies. Analysis of simple structures such as trusses, frames, and beams. Centroids, centers of gravity, and moments of inertia. Dry friction with applications to wedges, screws, and belts. Method of virtual work, potential energy, and stability.

*Prerequisite: PHY 131 or 141 or 125*

*Corequisite: AMS 261 or MAT 203*

3 credits

### **MEC 262: Engineering Dynamics**

Vectorial kinematics of particles in space, orthogonal coordinate systems. Relative and constrained motions of particles. Dynamics of particles and the systems of particles, equations of motion, energy and momentum methods. Collisions. Two- and three-dimensional kinematics and dynamics of rigid bodies. Moving frames and relative motion. Free, forced, and damped vibrations of particles and rigid bodies.

*Prerequisite: A grade of "C" or better in MEC 260*

3 credits

### **MEC 280- H: Pollution and Human Health**

An examination of major environmental pollution problems such electromagnetic radiation, ozone layer depletion, and global warming, with a specific focus on the resulting effects on human health. Assessment of health risks in relation to the formulation of environmental and workplace regulations is also considered.

*Prerequisite: One D.E.C. category E course*

3 credits

### **MEC 300: Technical Communication in Mechanical Engineering**

Aims to ensure proficiency in the types of communication necessary for success in the engineering profession. Provides students with the ability to apply their knowledge of correct written and spoken English to the diverse modes of communication encountered and used by engineers in the professional workplace.

*Prerequisites: WRT 102; MEC Major; U3 or U4*

*Corequisite: MEC 317*

1 credit, S/U grading

### **MEC 301: Thermodynamics**

Variables that describe the thermodynamic state of a system or control volume, including absolute temperature, internal energy, enthalpy, and entropy are introduced, and basic principles governing the transformations of energy, especially heat and work, are developed. Underlying principles are used to analyze and solve problems related to thermodynamic systems and to determine the changes in properties of the systems and surroundings implied by changes in inputs, configuration, or constraints.

*Prerequisites: AMS 261 or MAT 203; PHY 125 or 131 or 141; MEC Major*

3 credits

### **MEC 305: Heat and Mass Transfer**

The fundamental laws of momentum, heat and mass transfer, and the corresponding transport coefficients. Principles of steady-state and transient heat conduction in solids are investigated. Laminar and turbulent boundary layer flows are treated, as well as condensation and boiling phenomena, thermal radiation, and radiation heat transfer between surfaces. Applications to heat transfer equipment are covered throughout the course.

*Prerequisites: MEC 301 and 364; MEC 102 or 111 or 112, or ESG 111, or ESE 124, or CSE 114 or 130*

3 credits

### **MEC 310: Introduction to Machine Design**

Application of graphical and analytical methods to the analysis and synthesis of mechanism. Covers concepts of degrees of freedom, graphical and analytical linkage synthesis, position, velocity, acceleration, and force analysis of linkage mechanisms. Introduces principles behind the operation of various machine elements such as gears and gear trains, cams, flywheels and their design, and analysis techniques.

*Prerequisites: MEC 102 or 112 or CSE 114 or 130 or ESG 111; MEC 262*

*Pre- or Corequisite: MEC 203 (ESG 316 for ESG majors)*

3 credits

### **MEC 316: Mechanical Engineering Lab I: Sensors and Instrumentation**

The spatial and temporal resolution of modern instrumentation and sensors that are particular to mechanical engineering. Concepts of static and dynamic response as well as probability, statistics, and the statistical analysis of data are

discussed. Includes basic circuit components. Laboratory safety. Students learn to operate instruments for measuring temperature, pressure, flow velocity, displacement, angle, acceleration, and strain. Design project. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: MEC 214; MEC 220; MEC 363; AMS 361 or MAT 303;*

*Corequisites: MEC 301 and MEC 364*

2 credits

### **MEC 317: Mechanical Engineering Laboratory II**

Hands-on experience in solid and fluid mechanics and heat transfer. Emphasis is on the understanding of fundamental principles as well as familiarity with modern experimentation. Lectures at the beginning of the course provide background information and theories of experimentation. Student groups perform four experiments each in solid mechanics and in fluid mechanics and heat transfer. Report writing is an integral part of the course, with emphasis on design of experiment, interpretation and presentation of data, error analysis, and conclusions. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: MEC 316 and 364*

*Corequisite: MEC 305 and MEC 300*

2 credits

### **MEC 320: Numerical Methods in Engineering Design and Analysis**

This course emphasizes the implementation of numerical methods for computer-aided solutions to the problems that arise in engineering design and analysis. Methods include interpolation, extrapolation, curve fitting, and integration and techniques solving non-linear equations, systems of linear equations, and differential equations. Optimization in engineering design is covered from the formulation of design specifications and criteria, to analyzable models, through to numerical implementation.

*Prerequisites: MEC 102 or CSE 114 or 130 or ESG 111 or ESE 124; AMS 261 or MAT 203; AMS 361 or MAT 303*

3 credits

### **MEC 325: Manufacturing Processes**

The relationship between product design and manufacturing. Materials properties and influence. Introduces traditional and nontraditional manufacturing processes and their capabilities and limitations. Measurement inspection, reliability, and quality engineering.

Economic impact of modern process engineering. Hands-on experience in various manufacturing machines and processes.

*Prerequisite:* ESG 332

*Pre- or Corequisite:* MEC 225

3 credits

### **MEC 363: Mechanics of Solids**

Stress and deformation of engineering structures and the influence of the mechanical behavior of materials. Concepts of stress and strain, constitutive relations, analysis of statically indeterminate systems, study of simple bars and beams, and stability conditions. Emphasis on force equilibrium, elastic response of materials, geometric compatibility, Mohr's circle, stresses and deflections in beams, and torsion and buckling of rods. Design for bending, shear, and combined states of stress.

*Prerequisite:* A grade of "C" or better in MEC 260

3 credits

### **MEC 364: Introduction to Fluid Mechanics**

Fundamental properties of fluids and their conservation laws with applications to the design and evaluation of flows of engineering interest. Topics include hydrostatics, surface tension, dimensional analysis and dynamic similitude, Euler's equation, rotating coordinate systems, boundary layers, lubrication, drag on immersed bodies, open channel and pipe flows, and turbomachinery.

*Prerequisite:* MEC 262; MEC Major

*Pre- or Corequisite:* MEC 301

3 credits

### **MEC 393: Engineering Fluid Mechanics**

The application of the principles of fluid mechanics to important areas of engineering practice such as turbomachinery, hydraulics, and wave propagation. Prepares students for advanced coursework in fluid dynamics. Extends the study of viscous effects, compressibility, and inertia begun in MEC 364.

*Prerequisite:* MEC 364

3 credits

### **MEC 398: Thermodynamics II**

Psychrometrics and psychrometric charts. Thermodynamic considerations for the design and performance of cooling towers, humidifiers, and dehumidifiers. Reacting mixtures, combustion, and chemical equilibrium. Thermodynamics of fluid flow, simple compression, and expansion processes. Analysis and design of gas and vapor power

cycles. Cycles with reheat, intercooling, and cogeneration plants. Refrigeration cycles.

*Prerequisites:* MEC 301 and 364

3 credits

### **MEC 400: Research and Nanotechnology**

This is the capstone course for the minor in Nanotechnology Studies (NTS). Students learn primary aspects of the professional research enterprise through writing a journal-quality manuscript and making professional presentations on their independent research (499) projects in a formal symposium setting. Students will also learn how to construct a grant proposal (a typical NSF graduate fellowship proposal), methods to search for research/fellowship funding, and key factors in being a research mentor.

*Prerequisites:* MEC 213; at least one semester of independent research (499 level)

3 credits

### **MEC 402: Mechanical Vibrations**

Modeling, analysis and design for mechanical vibrations. Fundamentals of free vibration, harmonically excited vibration and vibration under general forcing conditions are considered for one degree, two degree and multidegree of freedom systems; continuous systems; vibration design strategies including isolation and absorbers.

*Prerequisites:* MEC 262 and 363

3 credits

### **MEC 410: Design of Machine Elements**

Application of analytical methods, material science, and mechanics to problems in design and analysis of machine components. Includes the design of mechanical components such as bearings, gears, shafting, springs, fasteners, belts, clutches, and brakes, and takes into consideration factors such as manufacturability and reliability. Design projects with open-ended and interactive problems are assigned to integrate several machine elements in a system.

*Prerequisites:* MEC 310 and 363

3 credits

### **MEC 411: Control System Analysis and Design**

Analysis and design of feedback control systems. Topics include system modeling; transfer function; block diagram and signal-flow graph; sensors, actuators, and control circuit design; control system characteristics and performance; stability analysis; root locus method; Bode diagram; PID and lead-lag compensator design.

*Prerequisites:* MEC 262; MEC 316; AMS 361 or MAT 303

4 credits

### **MEC 422: Thermal System Design**

Device design and system design. Quantitative data for system design including operating characteristics of compressors, turbines, heat exchangers, piping systems, internal combustion engines, and other component equipment. Component matching and system simulation. Optimization including thermoeconomic evaluation and energy analysis. Case studies: refrigeration and air conditioning systems, combined cycles, steam-injected gas turbines.

*Prerequisite:* MEC 305

3 credits

### **MEC 423: Internal Combustion Engines**

Introduction to internal combustion engines and their operation. Analytical approach to the engineering problem and performance analysis of internal combustion engines. Topics include thermodynamics fundamentals; fuel-air cycle analysis; engine combustion; emission formation and control strategies. Includes both the relevant fundamental concepts and the extensive practical knowledge base on which engine research, development, and design depend. Not for credit in addition to MEC 523.

*Prerequisite:* MEC 305

3 credits

### **MEC 440: Mechanical Engineering Design I**

Part I of the two-semester capstone design project sequence. Senior students select a project with multiple realistic constraints, develop the necessary technical background, and write a proposal, progress reports, and a preliminary design report. Includes an oral presentation on the development and progress of the project. Not counted as a technical elective. The final grade will be assigned at the end of the two course sequence MEC 440-MEC 441. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* MEC 225, 300, 310, 317, 320, and 325; MEC major; U4 standing  
*Corequisites:* MEC 410 and 411

3 credits

### **MEC 441: Mechanical Engineering Design II**

Part II of the two-semester capstone design project sequence. Students complete the project design, incorporating engineering standards, build and test a prototype, write a mid-term report and a final design

report, and give an oral presentation. Not counted as a technical elective. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: MEC 440*

3 credits

### **MEC 442: Introduction to Experimental Stress Analysis**

The concepts of three-dimensional stress and strain, their transformation laws, and their mutual relationships are discussed in detail. Results from theory of elasticity as pertinent to experimental stress analysis are also presented. Experimental techniques studied include two-dimensional photoelasticity, resistance strain gauge, moiré method, brittle coating, and analog methods. The application of different techniques to the measurement of stress and strain in models as well as actual structures is demonstrated. Students form small groups and each group is assigned different laboratory projects to gain experience in various experimental stress analysis methods. Previously offered as MEC 342.

*Prerequisite: MEC 363*

3 credits

### **MEC 450: Mechatronics**

An introduction to the design, modeling, analysis, and control of mechatronic systems (smart systems comprising mechanical, electrical, and software components). Fundamentals of the basic components needed for the design and control of mechatronic systems, including sensors, actuators, data acquisition systems, microprocessors, programmable logic controllers, and I/O systems, are covered. Hands-on experience in designing and building practical mechatronic systems is provided through integrated lab activities.

*Prerequisites: MEC 310 and 316*

3 credits

### **MEC 455: Applied Stress Analysis**

A study of linear elastic solids with emphasis on internal stress analysis. Simple boundary value problems at plane structures are analyzed with various solution techniques. Major topics are stress and strain tensors, linear elasticity, principle of virtual work, torsion, stress functions, stress concentration, elementary fracture, and plasticity.

*Prerequisite: MEC 363*

3 credits

### **MEC 456: Introduction to Engineering Mechanics of Composites**

Introduction to the engineering mechanics of fiber reinforced composites. Brief history of the development of fiber composites, their properties, advantages, limitations and applications. Overview of the different types of composites but with focus on long fiber reinforced composites; particularly, lamina and laminate concepts characteristics and configurations. Topics covered include: elastic properties of unidirectional lamina, strength of unidirectional lamina, elastic behavior of multidirectional laminates and stress and failure of multidirectional laminates. Design methodologies and considerations for structural composite materials.

*Prerequisite: MEC 363*

3 credits

### **MEC 457: Engineering Composites Fabrication and Characterization**

Overview of fiber reinforced composites, applications and mechanical properties. Introduction to fiber composites fabrication methods as well as experimental characterization methods used in acquiring their relevant mechanical properties. Fabrication topics include: impregnation of fibers; prepregs; stacking; curing; vacuum bagging; autoclave technology; out-of-autoclave manufacturing processes; molding; processing; cutting and joining. Topics in mechanical characterization include: experimental methods; characterization of the elastic properties and failure strengths of unidirectional lamina; characterization of the elastic properties and failure strengths of multidirectional laminates. Course is divided into in-class lectures and laboratory sessions.

*Prerequisite: MEC 363*

3 credits

### **MEC 470: Introduction to Tribology**

Focus is on the fundamentals of tribology, the science of surfaces in relative motion, with an introduction to friction, lubrication, and wear. The basics of tribology science: engineering surfaces, contact mechanics, lubrication theory, wear processes and modeling, wear properties of materials, and tribology test methods will be covered. Analysis of tribological aspects of machine components and bearings. Industrial case studies will be presented to place the topics in context to industry and society.

*Prerequisites: MEC 363 and 364*

3 credits

### **MEC 475: Undergraduate Teaching Practicum**

Students assist the faculty in teaching by conducting recitation or laboratory sections

that supplement a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

*Prerequisites: U4 standing; a minimum g.p.a. of 3.00 in all Stony Brook courses and the grade of B or better in the course in which the student is to assist; permission of department*

3 credits

### **MEC 488: Mechanical Engineering Internship**

Participation in off-campus engineering practice. Students are required to submit a proposal to the department at the time of registration and two term reports before the end of the semester. May be repeated up to a limit of 12 credits.

*Prerequisite: Permission of undergraduate program director*

3-9 credits, S/U grading

### **MEC 491: Topics in Mechanical Engineering**

Treatment of an area of mechanical engineering that expands upon the undergraduate curriculum. Topics may include advanced material in a specialty, development of a specialized experimental technique, or a specific area of design. Topics may vary from semester to semester. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing in a B.E. degree major; permission of department (course prerequisites vary with topic)*

1-4 credits

### **MEC 492: Topics in Mechanical Engineering**

Treatment of an area of mechanical engineering that expands upon the undergraduate curriculum. Topics may include advanced material in a specialty, development of a specialized experimental technique, or a specific area of design. Topics may vary from semester to semester. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing in a B.E. degree major; permission of department (course prerequisites vary with topic)*

1-4 credits

### **MEC 495: Professional Engineering Seminar**

Prepares the student to enter the workplace as a practicing engineer. Topics include

professional ethics, professional activities, professional engineering licensing, patents, seeking entry-level employment, and exposure to the engineering work environment. Aids in preparation for the EIT/FE exam. Includes speakers from a variety of disciplines, within the College and from industry.

*Prerequisites:* CEAS major; U4 standing  
1 credit, S/U grading

### **MEC 499: Research in Mechanical Engineering**

An independent research project under the supervision of a mechanical engineering faculty member. Permission to register requires the agreement of the faculty member to supervise the research and submission of a one-page research proposal. May be repeated but only six credits of research electives may be counted as technical electives.

*Prerequisite:* Permission of department  
0-3 credits

## **MUS**

### **Music**

#### **MUS 101- D: Introduction to Music**

The basic concepts of music such as melody, harmony, rhythm, counterpoint, and form are studied through investigation of the historical and contemporary masterpieces of the Western classical tradition, of various non-Western musics, and of various "popular" traditions. The different styles and types of music are considered not only in light of the cultural values they embody, but also in relation to present-day cultural and musical values. No previous musical training is assumed. Not for credit after MUS 130.

3 credits

#### **MUS 105- G: Music Cultures of the World**

An introduction to selected musical genres and styles from around the world with an emphasis on music making in relation to the social and cultural practices of various peoples. Not for music major credit.

3 credits

#### **MUS 109- D: Rock Music**

A study of rock music, including an investigation of its musical constituents--rhythm, form, pitch structure, instrumental texture, and vocal style--and an historical survey beginning with the roots of rock in earlier folk and popular styles and tracing its development from the end of World War II to

the present. Special attention is paid to various syntheses of African and European traditions.

3 credits

#### **MUS 119- D: The Elements of Music**

Beginning with the rudiments of music, such as meter, tempo, rhythm, and how to read notes in several clefs, this "hands on" course goes on to examine how music is organized, covering scales, keys, intervals, chords, form, and style in classical music. Students also compose throughout the semester and sharpen their listening skills through attendance at concerts. Serves as prerequisite to many music department courses.

3 credits

#### **MUS 120: Elementary Musicianship**

Beginning ear-training, including harmonic, rhythmic and melodic dictation, interval and chord recognition, and sight-singing of diatonic melodies. Intended for students who are not prepared to enter MUS 121 but who aspire to be music majors. May be repeated, but credit counts toward graduation only once. Not for music major credit.

*Prerequisite:* Audition required

*Corequisite:* MUS 391 or MUS 388 or MUS 267

2 credits

#### **MUS 121: Musicianship I**

Sight-singing, dictation, and transcription of melodic, harmonic, and rhythmic material.

*Prerequisite:* Placement by undergraduate musicianship examination (consult department concerning dates)

*Corequisites:* MUS 122 and 321

2 credits

#### **MUS 122: Beginning Keyboard**

Basic keyboard skills, including reading in clefs and rudimentary technical competence. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Placement by undergraduate keyboard examination

*Corequisites for Music majors:* MUS 121 and MUS 321

1 credit

#### **MUS 130- D: Sound Structures**

Development of strategies for informed listening, analysis, and writing about music. Topics include timbre and sonority, meter and rhythm, melodic design, form, organization of pitch and harmony, and interactions between music and language. Repertory is drawn from a wide range of historical periods and cultural

contexts. Considerable emphasis on writing and on acquiring concepts and vocabulary appropriate to diverse types of music.

*Prerequisite:* MUS 119 or equivalent.

*Primarily intended for prospective music majors and others with sufficient musical background as demonstrated by the Theory Placement Exam or by permission of instructor*  
3 credits

#### **MUS 141: Keyboard Harmony A**

Practical studies in music theory through basic keyboard exercises. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* MUS 122

*Corequisites:* MUS 220 and 321

1 credit

#### **MUS 142: Keyboard Harmony B**

Practical studies in music theory through basic keyboard exercises. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* MUS 141

*Corequisites:* MUS 221 and 323

1 credit

#### **MUS 161: Piano**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required *Corequisite:* MUS 391 or MUS 267

2 credits

#### **MUS 163: Harpsichord**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required *Corequisite:* MUS 391

2 credits

#### **MUS 165: Violin**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262*

2 credits

#### **MUS 166: Viola**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262*

2 credits

#### **MUS 167: Cello**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262*

2 credits

#### **MUS 168: String Bass**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262 or MUS 264 or MUS 267*

2 credits

#### **MUS 169: Classical Guitar**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury

at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 391 or MUS 266*

2 credits

#### **MUS 170: Flute**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

2 credits

#### **MUS 171: Oboe**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required*  
*Corequisite: MUS 262 or MUS 263*

2 credits

#### **MUS 172: Clarinet**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required*  
*Corequisite: MUS 262 or MUS 263*

2 credits

#### **MUS 173: Bassoon**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This

course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required*  
*Corequisite: MUS 262 or MUS 263*

2 credits

#### **MUS 175: Horn**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262 or MUS 263 or MUS 264*

2 credits

#### **MUS 176: Trumpet**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

2 credits

#### **MUS 177: Trombone**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*  
*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

2 credits

#### **MUS 180: Percussion**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see

[www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

*Corequisite:* MUS 262 or MUS 263 or MUS 264 or MUS 267

2 credits

### **MUS 182: Voice**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* Audition required

*Corequisite:* MUS 261

2 credits

### **MUS 187: Other Instruments**

A forty-five-minute individual lesson each week, with five hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

*Corequisite:* MUS 262 or MUS 263 or MUS 264 or MUS 267

2 credits

### **MUS 189: Beginning Jazz Improvisation**

Beginning study of jazz theory, nomenclature, and chord-scale relationships as they relate to the playing of improvised jazz solos. In-class performances and transcription analysis are an integral part of the course. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 220: Musicianship II**

Sight-singing, dictation, and transcription of more complex melodic, harmonic, and rhythmic material, including diatonic chord progressions.

*Prerequisite:* MUS 121 and MUS 321

*Corequisite for Music majors:* MUS 141 and MUS 322

2 credits

### **MUS 221: Musicianship III**

Advanced sight-singing and dictation, including modal, modulating, and chromatic melodies; chord progressions and diatonic and modulating chorales; and complex rhythms.

*Prerequisite:* MUS 141 and 220

*Corequisite:* MUS 142 and 323

2 credits

### **MUS 261: Stony Brook Chorale**

Study and performance of a repertory from the Middle Ages to the present. Grading is based upon attendance. Ability to read music is required; advanced sight-reading is not. May be repeated.

*Prerequisite:* Audition, held at first class meeting; ability to read music

1 credit

### **MUS 262: University Orchestra**

Study and performance of works from the repertory of the concert orchestra. Grading is based upon attendance. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 263: University Wind Ensemble**

Study and performance of works for ensembles of woodwinds, brass, and percussion in various combinations. Grading is based upon attendance. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 264: Big Band Jazz Ensemble**

Study and performance of works for jazz ensemble. Grading is based on attendance. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 265: Workshop in Performance**

Practice in performance skills in a small group workshop setting under the guidance of a performance instructor. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 266: Guitar Workshop**

An overview of guitar technique and fingerboard harmony, featuring in-class performance, transcription of tablature systems, and arranging for solo guitar. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 267: Jazz Combo**

Arranging and extended improvising skills for the small jazz ensemble. Emphasis on in-class performances, transcription assignments, and learning standard jazz compositions. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

1 credit

### **MUS 268: Stony Brook Seawolves Marching Band**

The study and performance of music from the marching band repertoire. The course requires attendance at a marching band camp prior to the beginning of the Fall term. Attendance at home games and one away game is also required. Grading is based on attendance. May be repeated.

*Prerequisite:* must be able to read music

1 credit

### **MUS 290: Vocal Repertory**

Performance and analysis of works from the vocal repertory. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Corequisite:* MUS 182 or 382

1 credit

### **MUS 300- H: Music, Technology, and Digital Culture**

Study of the interactions between music, technology, and culture in popular and concert music since World War I. Issues of production, distribution, and reception, involving such topics as the impact of radio on composition in the 1920s and 1930s, early synthesizers, and the rise of electronic music, digital sampling and DJs, the MP3 phenomenon, cross-cultural borrowings, gender and technology, the internet, interactivity, and new models of consumption. Not for major credit.

*Prerequisite:* One of the following: MUS 101, 105, 106, 119, or 130

3 credits

### **MUS 301- I: Music of the Baroque**

The development during the late Renaissance of a new style in Italy and elsewhere is traced through opera and oratorio, cantata and chorale, concerto, suite, and trio sonata, to its ultimate expression in the works of Handel, Bach, and their contemporaries. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 302- I: The Music of J.S. Bach**

Study of the vocal and instrumental works of Johann Sebastian Bach, considering the cultural and musical traditions in which they were grounded and their continuing impact on musical developments from the Bach revival of the 19th century to the "authentic" performance practice movement of the 20th century. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 303- I: The Music of Beethoven**

Study of the symphonic, vocal, and chamber music of Ludwig van Beethoven, one of the pivotal composers of the Western world, through consideration of the cultural and musical context of late 18th- and early 19th-century Europe and of the heroic image of Beethoven in the 20th century. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 304- K: Contemporary Traditions in American Music: 1900 to the Present**

Study of the development of diverse 20th-century musical traditions in the U.S. from the perspectives of the musical structures and social contexts that define an "American music." The traditions of jazz, blues, musical theatre, folk music, and popular music are considered, for instance, with respect to such issues as how historical events, race, and gender affect the production and reception of music, how philosophical beliefs shape musical composition, and how technological changes resulted in the music "consumer." Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

*Advisory Prerequisite: Completion of D.E.C. categories I and J*

3 credits

### **MUS 305- G: Music in the Romantic Era**

The expressive art of the century between the birth of Schubert and the death of Brahms is examined in selected works of these and other figures such as Berlioz, Mendelssohn, Chopin,

Schumann, Liszt, Wagner, and Verdi. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 306- G: The Symphony**

Study of important symphonic works from the 18th century to the present. The course will concentrate on the development of styles from Haydn, Mozart, and Beethoven through the Romantics, Brahms, and Mahler, concluding with the transformation of the symphonic idea in works of Stravinsky and Webern. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 307- I: Imaginative Worlds of Opera**

Considering opera's blend of drama, music, spectacle and stage action, the course examines diverse European operatic traditions from a variety of angles, ranging from expressive roles for music to social and cultural values embodied in individual works. Study focuses on outstanding repertory pieces such as Mozart's *Marriage of Figaro*, Verdi's *Otello*, and Berg's *Wozzeck*. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 308- K: History of Jazz**

Historical survey of jazz styles from their antecedents in the late 19th century and early ragtime and blues, through New Orleans jazz, swing, bebop, "cool" jazz, "free" jazz, fusion, and Latin styles. Guidance in the appreciation of jazz and related musics, musical analysis of representative works, and demonstrations of improvisation. Jazz as an expression of cultural pluralism. Not for music major credit.

*Prerequisite: MUS 101 or 109 or 119 or 130*

*Advisory Prerequisite: Completion of D.E.C. categories I and J*

3 credits

### **MUS 309- G: Music Since 1900**

An introduction to the variegated and rapidly changing trends of the last and current centuries, including impressionism, expressionism, neoclassicism, twelve-tone and other serialism, chance and texture music, electronic and computer music, as well as styles derived from folk music, jazz, and other forms of popular music. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 310- K: Music and Culture in the 1960's**

The music of Bob Dylan, John Cage, the Beatles, Pauline Oliveros, Ornette Coleman, Elliot Carter, John Coltrane, Laura Nyro, and others is studied in conjunction with texts from or criticism of the 1960s. Music and texts are correlated through the topics of chaos, protest, Black culture, technology, the women's movement, youth culture, and others. Not for music major credit.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 311- J: Topics in Non-Western Music**

A survey of 20th-century musical styles within a selected non-Western area. Individual genres are examined in terms of their musical features and in their relationship to aspects of life such as religious observance, social relations, issues of ethnic and national identity, migration, and transnational cultural exchange. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite: One of the following: MUS 101, 105, 106, 119, or 130*

3 credits

### **MUS 314- G: Women Making Music**

A study of the contributions made by women to music-making in various contemporary and historical cultures of the world, with emphasis on Western traditions. Topics include women as composers, performers, and listeners; genres designed for women; women's roles in relation to men's; gender implications in musical style; and depictions of women in musical dramas. All types of music are considered: "classical," rock, pop, folk, jazz, various "fusions," and non-Western musics such as those from India, China, Indonesia, and the Middle East. This course is offered as both MUS 314 and WST 314.

*Prerequisite: MUS 101 or 119 or 130*

3 credits

### **MUS 315: The Structural Principles of Music I**

An introduction to the language and basic structural concepts of the art of tonal music through the study of such elements as melody, rhythm, harmony, counterpoint, and form; analysis, written exercises, and discussion of theoretical principles. Not for music major credit.

*Prerequisite: MUS 119*

3 credits

**MUS 316: The Structural Principles of Music II**

An introduction to the language and basic structural concepts of the art of 20th-century music through the study of such elements as melody, rhythm, harmony, counterpoint, and form; analysis, written exercises, and discussion of theoretical principles. Not for music major credit.

*Prerequisite:* MUS 315

3 credits

**MUS 320- G: U.S. Popular Music**

The study of popular music in the United States. Topics may include popular music in the U.S. since 1945; American popular music of colonial times; and American musical theatre. The course explores such aspects as musical structure and form, the nature of the commercial music industry, and how issues of gender, race, geography, economics, and technology affect the creation, performance, and reception of popular music. Not for music major credit.

*Prerequisite:* One of the following: MUS 101, 105, 106, 119, or 130

3 credits

**MUS 321: Tonal Harmony I**

Tonal harmony taught through practice in homophonic writing, including the harmonization of chorales. Students study excerpts from the musical repertoire as it pertains to questions of musical construction.

*Corequisites:* MUS 121 and 122

3 credits

**MUS 322: Tonal Harmony II**

Practice in homophonic writing, including the harmonization of chorales, including diatonic harmonies, altered chords, and modulation. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* MUS 121, 122, and 321

*Corequisites:* MUS 141 and 220

3 credits

**MUS 323: Techniques of Music, 1880 to the Present**

Study and practice in the techniques used in the late 19th and 20th centuries to organize pitch, rhythm, tone color, and dynamics.

*Prerequisites:* MUS141, 220, and 322

*Corequisites:* MUS 142 and 221

3 credits

**MUS 324- K & 4: Jazz and American Culture**

An exploration of African American jazz and its importance and representation in American history and culture. We will consider novels, poems, stories, paintings, and photographs with jazz content as well as films by both Hollywood and documentary filmmakers. Special emphasis will be given to the myths that have dominated representations of jazz artists as well as the ways in which jazz artists have inspired artists and writers. This course is offered as both CCS 324 and MUS 324.

*Prerequisite:* MUS 308 or one course in CCS, CLT, or HUM

3 credits

**MUS 331: Musicianship IV**

Sight-singing and dictation of complex tonal, modal, and atonal material. Special emphasis on melodic, harmonic, and rhythmic idioms characteristic of 20th-century music.

*Prerequisite:* MUS 221, 142, and 322

2 credits

**MUS 339: Beginning Composition**

Individual projects in composition discussed and criticized in class. Enrollment limited to eight. May be repeated once.

*Pre- or Corequisite:* MUS 323

3 credits

**MUS 340: Introduction to Music Technologies**

An introduction to the computer-based technologies that are changing the art of music. Hands-on experience with hard-disk recording and sound manipulation, MIDI, sequencing, notation programs, sound module programming, and using the Web. Exploration of the impact of these technologies on aesthetic choices. Significant time in the computer lab required. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites:* MUS 130 and 322

3 credits

**MUS 344: Audio Engineering**

A theoretical examination of the principals of operation of the essential components of the sound recording and reinforcement chain from acoustic venue, through transduction, electronic manipulation and storage, and the reproduction of the acoustic field in various listening environments.

*Prerequisite:* One ARS, CSE, ISE, MUS, or THR course

*Advisory Prerequisite:* ARS/MUS/THR 208

3 credits

**MUS 350- G: Western Music Before 1600**

The vibrant traditions of Western music from Gregorian chant and the beginnings of polyphony to the suave motets of Palestrina and the expressive madrigals of Monteverdi. Emphasis is on learning to think historically, on development of writing skills, and on cultivation of listening skills.

*Prerequisite:* MUS 130, 141, 220, and 321

4 credits

**MUS 351- I: Western Music 1600-1830**

Musical traditions in early modern Europe from Monteverdi through Beethoven. Study of diverse genres such as opera, cantata, symphony, and string quartet within their cultural contexts. Focus is on the understanding of historical processes, on academic prose writing, and on comprehension of complex musical structures.

*Prerequisites:* MUS 321 and 350

4 credits

**MUS 352- G: Western Music from 1830 to the Present**

Western musical traditions from Schubert through David Lang, John Zorn, and Laurie Anderson. Consideration of the central genres of orchestral, vocal, and chamber music and their transformations by various cultural and technological forces. Focus on music stylistic change and proliferation, and on academic writing about music.

*Prerequisite:* MUS 322 and 351

4 credits

**MUS 361: Piano**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite:* Audition required

*Corequisite:* MUS 391 or MUS 267 or MUS 388

4 credits

**MUS 363: Harpsichord**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated.

*Prerequisite:* Audition required

*Corequisite: MUS 391*

*4 credits*

### **MUS 365: Violin**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262*

*4 credits*

### **MUS 366: Viola**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262*

*4 credits*

### **MUS 367: Cello**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262*

*4 credits*

### **MUS 368: String Bass**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262 or MUS 264 or MUS 267*

*4 credits*

### **MUS 369: Classical Guitar**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 391 or MUS 266*

*4 credits*

### **MUS 370: Flute**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

*4 credits*

### **MUS 371: Oboe**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required Corequisite:*

*MUS 262 or MUS 263*

*4 credits*

### **MUS 372: Clarinet**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required Corequisite:*

*MUS 262 or MUS 263*

*4 credits*

### **MUS 373: Bassoon**

A sixty minute individual lesson each week, with fifteen hours of practice required.

Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required Corequisite: MUS 262 or MUS 263*

*4 credits*

### **MUS 375: Horn**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required Corequisite: MUS 262 or MUS 263 or MUS 264*

*4 credits*

### **MUS 376: Trumpet**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

*4 credits*

### **MUS 377: Trombone**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

*4 credits*

### **MUS 380: Percussion**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music

majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

4 credits

### **MUS 382: Voice**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisites: Audition required*

*Corequisite: MUS 261*

4 credits

### **MUS 387: Other Instruments**

A sixty minute individual lesson each week, with fifteen hours of practice required. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other qualified students. May be repeated. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: Audition required*

*Corequisite: MUS 262 or MUS 263 or MUS 264 or MUS 267*

4 credits

### **MUS 388: Fundamentals of Accompanying**

Development of skills required of an accompanist, including sight-reading and instrumental and vocal accompaniment. Specific accompanying assignments are made throughout the semester. May be repeated once. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: MUS 161 or 361*

2 credits

### **MUS 391: Chamber Music**

Ensembles formed by students enrolled in MUS 161 to 187 or MUS 361 to 387 Performance Study. Two hours of rehearsal per week under the supervision of a faculty member or graduate assistant. May be repeated. This course has an associated fee.

Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Corequisite: Enrollment in private lessons, MUS 161 through 187, as appropriate*

1 credit

### **MUS 421: Analysis of Tonal Music**

An examination, through the study of selected works, of the action and interaction of harmonic progression, rhythm, meter, motive, texture, and line in defining and articulating tonal structures.

*Prerequisite: MUS 322*

*Corequisite: MUS 331*

3 credits

### **MUS 422: Analysis of Post-Tonal Music**

Music to be studied is selected from representative works by Debussy, Bartok, Schoenberg, Stravinsky, Webern, and other composers of the 20th and 21st centuries.

*Prerequisite: MUS 421*

*Advisory Prerequisite: MUS 352*

3 credits

### **MUS 434: Orchestration**

The possibilities and limitations of the commonly used instruments, conventions of notation, and practice in scoring for various ensembles. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: MUS 322*

*Advisory Prerequisite: MUS 323, MUS 350-352*

3 credits

### **MUS 437: Electronic Music**

Historical background, musical works, aesthetic concepts and creative approaches to electronic music. Basic acoustics and sound engineering skills; electronic/live sound production, recording, modification, and editing; critical listening, improvisation, timbral design; musique concrete and live performance will be included. Studio work includes technical practice and creative assignments. Technical background is not required. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: MUS 321; permission of instructor*

3 credits

### **MUS 439: Composition**

Open only to students demonstrating sufficient aptitude and capacity for original work. May be repeated.

*Prerequisite: Permission of instructor and submission of portfolio to Director of Undergraduate Studies*

*Advisory Prerequisite: MUS 339*

3 credits

### **MUS 450: Seminar in the History of Music**

Advanced study of a topic in music history for music majors. Topics may include study of major composers, major genres, dramatic music, the relation of music and poetry in song, or an historically or geographically defined musical style. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Advisory Prerequisite: MUS 350-352; MUS 322 or 323, depending on topic*

3 credits

### **MUS 475: Undergraduate Teaching Practicum I**

Each student receives regularly scheduled supervision from the instructor of the course specified as the forum for the practicum. Responsibilities may include conducting recitation sections of lower-division courses, preparing material for practice or discussion, and helping students with course problems.

*Prerequisite: U3 or U4 standing; music major; permission of instructor and department*

3 credits, S/U grading

### **MUS 476: Undergraduate Teaching Practicum II**

Each student receives regularly scheduled supervision from the instructor of the course specified as the forum for the practicum. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: MUS 475; permission of instructor and department*

3 credits, S/U grading

### **MUS 487: Independent Project**

Individual study (may be an honor's project) under the guidance of a faculty member leading to a significant essay, lecture-recital, or recital with researched program notes. Independent Projects used to fulfill the upper division elective requirement should be approved by the Undergraduate Studies Committee in the semester prior to the semester in which MUS 487 is undertaken.

*Prerequisite: Permission of instructor; approval of department's undergraduate studies committee*

0-6 credits

### **MUS 488: Internship**

Internship projects arranged in consultation with a faculty member and an outside agency.

*Prerequisite: U3 or U4 standing; 15 credits in music department courses; permission of department*

0-6 credits, S/U grading

### **MUS 491: Conducting**

Manual technique and the analysis and preparation of scores for performance. May be repeated.

*Prerequisite: MUS 322; permission of instructor*

*Corequisite: MUS 261 or 262 or 263*

3 credits

## **MVL**

### **Medieval Studies**

#### **MVL 141- B: The Legend of King Arthur**

A study of the development of the legend of King Arthur from the earliest references in medieval English chronicles through the flowering and fixing of the tradition in French and German literary works of the High and Late Middle Ages. Among the texts considered are works by Bede, Giraldus Cambrensis, Geoffrey of Monmouth, Chretien de Troyes, Wolfram von Eschenbach, and Hartmann von Aue.

3 credits

#### **MVL 241- G: Heroes and Warriors**

A study of the warrior-hero in Western literature from the Greeks through the Middle Ages. Works include Homer's Iliad, the Poetic Edda, The Lay of Hildebrand, Beowulf, The Lay of the Nibelungen, and the Song of Roland.

*Advisory Prerequisite: One course in medieval history or literature*

3 credits

#### **MVL 447: Independent Readings and Research**

Independently supervised readings in selected topics in medieval studies. May be repeated.

*Prerequisites: Permission of instructor and department*

1-3 credits

### **MVL 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: U3 or U4 standing; permission of instructor and department*

3 credits, S/U grading

### **MVL 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisite: MVL 475; permission of instructor and department*

3 credits, S/U grading

## **PER**

### **Persian**

#### **PER 101 - S3: Intensive Elementary Persian**

An intensive course covering the elementary Persian program in one semester, satisfying the language requirement. This course is designed for students who have no prior knowledge of the language.

6 credits

## **PHI**

### **Philosophy**

#### **PHI 100- B: Concepts of the Person (II)**

An historical introduction to philosophy through readings and discussion on topics such as human identity, human understanding, and human values.

3 credits

#### **PHI 101- G: Historical Introduction to Western Philosophy (I)**

An introduction to pivotal theories of the Western philosophic tradition. Readings may be drawn from ancient Greek, medieval, and modern classics of philosophy. Topics may include philosophic theories of politics, morality, logic, metaphysics, knowledge, anthropology, art, and religion.

3 credits

#### **PHI 103- B: Philosophic Problems (II)**

An introduction to philosophy through the analysis of one or more aspects of contemporary life such as technology, war, international relations, families and friendships, or race, class and gender. A variety of texts are used.

3 credits

#### **PHI 104- B: Moral Reasoning (II)**

An introduction to philosophy through inquiry into the formation, justification, and evaluation of moral judgments. Students are introduced to the major theories and problems of ethics, such as utilitarianism, Kant's categorical imperative, ethical relativism, egoism, and classical conceptions of the good and virtue. Against this background students engage in discussions of contemporary moral issues.

3 credits

#### **PHI 105- G: Politics and Society (II)**

An historical introduction to philosophy through an analysis of political theories, theories of action, and styles of political life. Main themes include the relation of the individual to the state, the scope of social responsibility, and the nature of human freedom.

3 credits

#### **PHI 108- B: Logical and Critical Reasoning (II)**

The principal aim of this course is to help a student acquire the skills of thinking, reading, and writing critically. The student develops a sensitivity to language and argumentation that is applicable to a wide range of situations and subject matters. Material is intended for freshmen and sophomores.

*Prerequisite: Open to freshmen and sophomores, and to juniors and seniors who have not completed DEC B*

3 credits

#### **PHI 109- B: Philosophy and Literature in Social Context (III)**

The role of literature and philosophy in understanding and critically assessing personal experience and social life. The links among literary texts, philosophical issues, and

political and social commitments are explored. Topics include the relations between language and experience, the role of philosophical thinking through literary texts, and the significance of literary expression in different cultural and historical situations.

3 credits

### **PHI 110- B: Arts and Ideas (III)**

An introduction to the historical and comparative study of the various arts in relation to the philosophical ideas that prevailed at the same time. At least four significantly different historical periods of intense creative activity - such as ancient Greece, the Renaissance, the 18th or 19th century in the West, ancient China, T'ang or Sung dynasty China, Heian or Muromachi period Japan, and the contemporary age - are studied in terms of the interconnections between philosophical theorizing and artistic practice.

3 credits

### **PHI 111- B: Introduction to Eastern Philosophy (I)**

An introduction to different systems of Eastern philosophy and the main classical texts drawn from Hinduism, Buddhism, Taoism, Confucianism, and Neo-Confucianism. Efforts are made to recover the different modes of knowledge, language, identification, and liberation dealt with in these texts.

3 credits

### **PHI 200- I: Introduction to Ancient Philosophy (I)**

Readings and discussion of the major Greek and Roman thinkers, e.g., the pre-Socratics, Plato, Aristotle, the Stoics, and Plotinus, who had a worldview very different from our own, but also laid part of the foundation for much of the philosophy, theology, science, law, and politics of our own age.

*Advisory Prerequisite:* U2 standing or one course in philosophy

3 credits

### **PHI 206- I: Introduction to Modern Philosophy (17th and 18th century) (I)**

Readings and discussion of the major thinkers of the 17th and 18th centuries, e.g., Descartes, Leibniz, Spinoza, Hobbes, Locke, Berkeley, Hume, and Kant, who all reflect the scientific, philosophical and political revolutions that would lay part of the foundation of our own age.

*Advisory Prerequisite:* U2 standing or one course in philosophy

3 credits

### **PHI 220- C: Introduction to Symbolic Logic (II)**

This first course in symbolic logic emphasizes the development of systematic techniques for assessing the validity of arguments: truth tables and truth values analysis, Venn diagrams, elementary quantification theory, and deduction in both the propositional calculus and quantification theory.

*Prerequisite:* Satisfaction of entry skill in mathematics requirement

*Advisory Prerequisite:* U2 standing or one course in philosophy

3 credits

### **PHI 247- G: Existentialism (I)**

Readings in existential philosophy and literature with special emphasis on such themes as alienation, anxiety, nihilism, absurdity, the self, value, death, and immediacy. Existentialist categories are used to interpret contemporary lifestyles and culture.

*Prerequisites:* U2 standing; one course in philosophy

3 credits

### **PHI 264- D: Philosophy and the Arts (III)**

A study of the arts focusing on the nature of the creative process, methods of interpretation, essential differences among the various arts, and the relation of performance to text.

*Advisory Prerequisite:* U2 standing or one PHI, ARH, MUS, or THR course

3 credits

### **PHI 268- H: Science, Technology, and Society**

Examines different topics involving current science and technology issues from different philosophical perspectives. Topics include questions such as what is the nature of inquiry?, what is the nature of discovery?, what is the role of instruments and perception?, what is the nature and role of laboratories?, what are the practical, conceptual, and cultural underpinnings of scientific activity?, what are the possibilities and dangers of research?, what is pseudoscience?, what philosophical, ethical and political issues are raised by current events in science?, and how do science and technology affect our society?

3 credits

### **PHI 277- G: Political Philosophy (II)**

An inquiry into the function of philosophic principles in political thought and action, with readings drawn from such authors as Plato,

Aristotle, Machiavelli, Spinoza, Hobbes, Locke, Kant, Hegel, Mill, and Dewey.

*Prerequisite:* U2 standing or one course in philosophy

*Advisory Prerequisite:* PHI 105

3 credits

### **PHI 284- G: Introduction to Feminist Theory (III)**

The social construction of gender and how this construction affects philosophical thought and practice. The course provides an introductory survey of current feminist issues and analyses. It also examines the meaning of feminism for philosophy by examining the effect of introducing a political analysis of gender into a discipline that is supposedly universal and neutral. This course is offered as both PHI 284 and WST 284.

*Advisory Prerequisite:* U2 standing or one PHI or WST course

3 credits

### **PHI 300- I: Ancient Philosophy (I)**

Advanced studies in selected Greek thinkers from the pre-Socratics to the classical Athenian philosophers and the Hellenistic schools.

*Prerequisite:* PHI 200

3 credits

### **PHI 304- I: Medieval Philosophy (I)**

Study of the writings of major thinkers from Augustine to William of Ockham.

*Prerequisite:* PHI 200

3 credits

### **PHI 306- I: Modern Philosophy (I)**

Advanced studies in selected thinkers such as Descartes, Vico, Spinoza, Locke, Berkeley, Hume, and Kant.

*Prerequisite:* PHI 206

3 credits

### **PHI 308- I: 19th-Century Philosophy (I)**

Study of major figures in 19th-century thought, such as Hegel, Schopenhauer, Marx, Mill, Nietzsche, Kierkegaard, Spencer, and Comte.

*Prerequisite:* PHI 206

3 credits

### **PHI 309- I: 20th-Century Philosophy (I)**

A study of selected major philosophical problems and movements during the 20th century, e.g., logical positivism, the problem of induction, incommensurability meta-ethics, the linguistic turn, deconstruction, foundationalism and anti-foundationalism.

*Prerequisite:* PHI 206

3 credits

**PHI 310- K: American Philosophy (I)**

A study of selected major figures in the history of American philosophy, e.g., Jefferson, Emerson, Edwards, James, Peirce, Dewey, Whitehead, and Santayana. American history is viewed through the lens of American philosophies such as pragmatism and transcendentalism.

*Prerequisites:* Two courses in philosophy

*Advisory Prerequisites:* One of the following:

PHI 200, 206, 247, 300, 306, or 308

3 credits

**PHI 312- I: Topics in Contemporary European Thought (I)**

Topics in major developments in contemporary European philosophy from 1900 to the present. May be repeated as the topic changes.

*Prerequisites:* Two courses in philosophy

*Advisory Prerequisites:* One of the following:

PHI 200, 206, 247, 300, 304, 306, 309, or 310

3 credits

**PHI 320- G: Metaphysics (II)**

An inquiry into the first principles of science, art, and action as these are treated by representative classical and modern authors.

*Prerequisites:* Two courses in philosophy

3 credits

**PHI 325- G: Contemporary Philosophies of Language (II)**

A discussion of current topics in the philosophy of language, semiotics, and literary theory.

*Prerequisites:* Two courses in philosophy

3 credits

**PHI 330: Topics in Advanced Symbolic Logic (II)**

A study of such topics as a natural deduction system of quantification theory including consistency and completeness proofs; axiomatic formal systems and associated concepts of consistency, completeness, and decidability; elementary modal logic; and introductory set theory. With instructor approval, may be repeated as the topic changes.

*Prerequisite:* PHI 220

3 credits

**PHI 332- G: Theories of Knowledge (II)**

A study of a variety of conceptions of the structure and content of knowledge as found in classical and contemporary epistemologies. Fundamental methods and principles of philosophical inquiry are applied to questions

about the ways in which concepts and theories are generated in the physical and social sciences and to questions about knowledge of what is of value, knowledge in philosophy, and knowledge in the arts.

*Prerequisites:* Two courses in philosophy

*Advisory Prerequisite:* PSY 103

3 credits

**PHI 335- G: Philosophy of Time (II)**

An inquiry into the nature of time as it is treated by philosophers of classical and modern times.

*Prerequisites:* One course in philosophy or physics

3 credits

**PHI 336- G: Philosophy of Religion (II)**

A philosophical analysis of basic concepts, principles, and problems of religious thought. Topics may include faith and knowledge, religion and morality, divine attributes, arguments for and against the existence of God, and the problem of evil.

*Prerequisites:* Two courses in philosophy or one course in religious studies

3 credits

**PHI 340- J: Philosophical Traditions of East Asia (I)**

A study of influences and confluences among major currents of thought in East Asia, surveying the major debates that shaped the great intellectual traditions of China and their transformation as they were assimilated in Korea and Japan. Particular attention is given to the rise of Neo-Confucian orthodoxy in East Asia and the philosophical and political reasons its basic concepts were challenged during the Ming, late Choson and Tokugawa periods.

*Prerequisites:* PHI 111 or RLS 240 or 246 or 260; one other course in philosophy

3 credits

**PHI 344- J: Japanese Thought and Philosophy (I)**

An examination of major texts in Japan's religious, poetic-artistic, and philosophical traditions down to modern times. Topics may include Tendai, Shingon, Pure Land, and Zen Buddhism; the cultural forms of Shinto religiosity; aesthetic concepts such as *miyabi*; Tokugawa Neo-Confucianism and its impact on modern Japan; philosophical aspects of the modern Japanese novel; the Kyoto school of Buddhism.

*Prerequisites:* PHI 111 or RLS 240 or 246 or 260; one other course in philosophy

3 credits

**PHI 347- G: Hermeneutics and Deconstruction (II)**

An exploration of the major assumptions, commitments, methods, and strategies of hermeneutics and deconstruction. The course examines how these two recent schools of thought have developed out of the contemporary philosophical scene and how they have had such a significant impact on literary theory, art criticism, text theory, social theory, and the history of philosophy. Readings include selections from the writing of Heidegger, Gadamer, Jauss, Ricoeur, Derrida, Kristeva, Lyotard, Kofman, Irigaray, and others.

*Prerequisites:* Two courses in philosophy

*Advisory Prerequisite:* PHI 247, 264, 306, 308, or 312

3 credits

**PHI 353- G: Philosophy of Mind (II)**

Analysis of the major problems in the philosophy of mind, e.g., the mind-body problem, the problem of identity through time, the relation between thoughts and sensations, the problem of the knowledge of other minds.

*Prerequisites:* Two courses in philosophy

*Advisory Prerequisite:* PSY 103

3 credits

**PHI 363- G: Philosophy of the Social Sciences (III)**

A study of the philosophical foundations of the social sciences, applying principles and methods of philosophical analysis to questions concerning the structures of social reality, the methodological and epistemological status of the social sciences, and the criteria for evidence and theory formation in the social sciences.

*Prerequisites:* One course in philosophy;

completion of D.E.C. category F

*Advisory Prerequisite:* PHI 105, 206, 249, or 277

3 credits

**PHI 364- H: Philosophy of Technology (III)**

A systematic study of the interrelations of human beings and their social institutions with the surrounding world of nature and of technological artifacts. The impact of technological culture on human beliefs and perceptions of the world is explored. This course is interdisciplinary in scope, with readings from philosophy, anthropology, literature, history, environmental studies, and other areas where technology is of concern.

*Prerequisites:* One course in philosophy;

completion of D.E.C. category E

3 credits

**PHI 365- H: Philosophy and Computers (III)**

An investigation of topics at the interface between philosophy and computation drawing on classical and contemporary sources.

Philosophical questions about computers, computation, information, logic, language, and mind, and the prospects for computer modeling as a tool in philosophical investigation.

*Prerequisites:* Two courses in philosophy  
*Advisory Prerequisite:* PHI 220 or one course in computer science

3 credits

**PHI 366- G: Philosophy and the Environment (III)**

Philosophical questions raised by human relations with the natural world, ranging from basic concepts such as nature, ecology, the earth, and wilderness, to the ethical, economic, political, and religious dimensions of current environmental problems, including the question of whether there are values inherent in nature itself beyond those determined by human interests alone.

*Prerequisites:* Two courses in philosophy, or one course in philosophy and completion of D.E.C. category E

3 credits

**PHI 367- G: Philosophy of War and Peace (III)**

An investigation into the philosophical issues raised by war and peace. Topics may include theories of just war, the relationship between authority, state power and war, and the relationship between reason and the violent nature of history. The question of the origins, perseverance, and need of war, as well as what is peace and how it may be attained will be considered through the study of philosophers such as Plato, Aquinas, Kant, Hegel, Marx, William James, Hannah Arendt, and contemporary thinkers.

*Prerequisites:* Two courses in philosophy  
*Advisory Prerequisites:* PHI 104 and 105

3 credits

**PHI 368- H: Philosophy of Science (III)**

A course in the philosophy of science using both historical and contemporary materials. Methodological issues discussed include scientific explanation and prediction, the structure of theories, the nature of scientific revolutions, and the role of laws in science. Philosophic problems in understanding specific sciences and their relation to each other are also considered, as are their relations

to other areas of philosophic concern, such as metaphysics.

*Prerequisites:* One course in philosophy; completion of D.E.C. category E  
*Advisory Prerequisites:* PHI 206

3 credits

**PHI 369: Philosophy of Mathematics (III)**

An investigation of philosophical issues that arise in mathematics. Topics include foundational issues within mathematics (logicism, formalism, intuitionism, and platonism, as well as recent theories of mathematical naturalism); the nature and existence of mathematical objects; the nature of mathematical truth; the concept of set; reinterpretations of the history of mathematics.

*Prerequisites:* One course in philosophy; completion of D.E.C. category C  
*Advisory Prerequisites:* PHI 206 and 220

3 credits

**PHI 370- G: Philosophical Psychology (III)**

An examination of philosophical issues and some psychological theories concerning the nature of the person and the sources of the self. The course includes such topics as the dimensions of the person, the nature of conscious life, the scope of human cognition, and gender identity.

*Prerequisites:* One course in philosophy  
*Advisory Prerequisite:* PHI 100 or 103 or 104

3 credits

**PHI 371- G: Literature and Justice (III)**

This course focuses on the theme of justice in literature and investigates the relation of literature to the law and to philosophical accounts of justice. Readings include literary texts centered on questions of justice, fairness, and moral agency, as well as theoretical works that analyze the role of literature in legal education and judicial decision-making. This course is offered as both CLT 371 and PHI 371.

*Prerequisite:* Completion of DEC B; U3 or U4 status

3 credits

**PHI 372- G: Ethical Inquiry (II)**

An intensive study of the methodological principles governing the formation of ethical theories and ethical judgments through an investigation of selected ethical problems.

*Prerequisites:* PHI 104 or two courses in Philosophy  
*Advisory Prerequisites:* PHI 108, 200, 206, 300, 304, 306, 308, 309, or 366

3 credits

**PHI 373- G: Philosophy in Relation to Other Disciplines (III)**

The study of philosophy as it affects and is affected by other disciplines such as anthropology, science, sociology, the history of ideas, theology, and psychology. May be repeated as the topic changes.

*Prerequisites:* Two courses in philosophy

3 credits

**PHI 374- G: Bioethics**

Provides students with the opportunity to conduct research and pursue advanced readings in the field of bioethics. Readings may include foundational articles in bioethics, recent work in feminist bioethics, as well as narratives of illness. The class will analyze one or more contemporary issues in bioethics, such as experimentation with human subjects, migration of care workers, medical tourism or disability. The course will also include attention to the connection between health and social justice, considering problems such as hunger, obesity, and food justice or the just allocation of health care resources.

*Prerequisites:* Two courses in Philosophy  
*Advisory Prerequisites:* PHI 104 and PHI 284

3 credits

**PHI 375- G: Philosophy of Law (III)**

An examination of the concept of law and the nature of legal reasoning. The course explores the relationship of law to other central philosophical and social ideas such as freedom, rights, morality, authority, welfare, property, justice, equality, and constitutionalism.

*Prerequisites:* Two courses in philosophy

3 credits

**PHI 376- G: Philosophy and Medicine (III)**

An investigation of the role that philosophical concepts play in medical thinking and practice. The course focuses on the philosophical foundations of concepts of health and disease; concepts of right, responsibility, and justice relevant to medical practice; promise-keeping and truth-telling in the doctor-patient relationship; and specific moral problems that arise in medical practice.

*Prerequisites:* Two courses in philosophy  
*Advisory Prerequisite:* HIS 237 or 238 or SOC/HMC 200 or HMC 331

3 credits

**PHI 377: Contemporary Political Philosophy (II)**

A critical examination of selected issues in contemporary political philosophy, for example, the nature and justification of basic rights, the legitimization of political authority, and the various relations between ideals of social justice and democratic rule. Readings represent contemporary views such as libertarianism, liberalism, socialism, communitarianism, and feminism, and include selections by authors such as Arendt, Dworkin, Foucault, Habermas, Pateman and Rawls. This course is offered as both PHI 377 and POL 377.

*Prerequisites:* Two courses in philosophy  
*Advisory Prerequisites:* PHI 105 or 277 or 375; one upper-division political science course

3 credits

### **PHI 378- K: Philosophical Topics in Asian American History (III)**

Analysis and interpretation of Asian and American literature, film, law, and history to understand the experiences of Asians in the Americas and to reconceptualize the concepts of power, race, class, gender, and ethnicity from the era of the early immigration period through the present day, placed within a broad historical context, including consideration of social, political, economic, and cultural history and institutions. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* U3 or U4 standing  
*Advisory Prerequisite:* One course in philosophy

3 credits

### **PHI 379- K: Philosophy of Race (III)**

Examination of our assumptions about race and the impact of those assumptions on issues concerning gender, class, and sexuality throughout American history. Readings include critical race theory, feminist theory, and critical legal theory. Students examine racial issues from a philosophical perspective and consider the ways in which representations of race may reinforce patterns of power and privilege. This course is offered as both AFH 379 and PHI 379.

*Prerequisite:* U3 or U4 standing  
*Advisory Prerequisite:* One course in philosophy

3 credits

### **PHI 380- G: Literature and Philosophy (III)**

An intensive study of the methods and principles of the philosophical analysis of literature and the relations between literature

and philosophy. Primary texts are selected to demonstrate the precise nature of the relationship. Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisites:* One philosophy course; one literature course

*Advisory Prerequisite:* PHI 109 or 110

3 credits

### **PHI 381- G: Aesthetics (II)**

An intensive study of methods and principles specific to the philosophical analysis of art through selected classical texts in aesthetics (e.g., Plato's *Phaedrus*, Aristotle's *Poetics*, Kant's *Critique of Judgment*, and Nietzsche's *The Birth of Tragedy*). Discussions focus on such problems as the ontology of the work of art, its epistemological significance, the relation between fact and fiction, criteria of interpretation, or the political import of art. Readings in the classical texts may be supplemented by selections from contemporary authors.

*Prerequisites:* Two courses in philosophy; completion of D.E.C. category D course  
*Advisory Prerequisites:* PHI 109 or 110; PHI 264

3 credits

### **PHI 382- H: The Quantum Moment: Quantum Mechanics in Philosophy, Culture, and Life (III)**

This course explores the implications and influence, real and alleged, of quantum mechanics on fields other than physics. What does quantum mechanics mean, if anything, for philosophy, ethics, and social behavior? At the same time, we shall look into how social and cultural influences may have affected the way that quantum mechanics was formulated, and how it has evolved. We shall review the early history of quantum mechanics, and discuss some of the important debates at the founding of quantum mechanics. Students will not be expected to learn the mathematics in depth, only the introduction provided by the instructors aimed at non-science students. Besides readings, the course will also involve plays, films, and guest speakers. Students will be expected to work on a final project, to be presented in class. This course is offered as both PHI 382 and PHY 382.

*Prerequisite:* 100-level Physics or Philosophy course and U3 or U4 standing

3 credits

### **PHI 383- G: Philosophical Issues of Race and Gender (III)**

Issues of race and gender and how the notion that racism and sexism are analogous

forms of oppression aids and detracts from consideration of these issues. Examination of the dynamics of race and gender in various contexts such as activism, art, law, literature, the media, medicine, and philosophy. This course is offered as both PHI 383 and WST 383.

*Prerequisite:* U3 or U4 standing  
*Advisory Prerequisite:* One PHI or WST course

3 credits

### **PHI 384- G: Advanced Topics in Feminist Philosophy (III)**

An intensive philosophical study of selected topics of feminist concern. Topics are selected to further the understanding of what effect feminism has upon traditional areas of philosophy as well as providing a detailed understanding of particular feminist theories. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes. This course is offered as both PHI 384 and WST 384.

*Prerequisites:* One PHI course; one WST course  
*Advisory Prerequisites:* PHI/WST 284; one other PHI or WST course

3 credits

### **PHI 390: Topics in Philosophy (either I, II, or III)**

May be repeated as the topic changes.

*Prerequisites:* Two courses in philosophy  
1-3 credits

### **PHI 395: Junior Seminar**

An intensive study of an issue, topic, figure, or historical period in philosophy intended to provide an induction into the method and techniques of scholarly philosophy for junior philosophy majors. This seminar emphasizes careful reading, rigorous discussion, and extensive writing at an advanced level. The content of the seminar is announced before the start of the term, and students are consulted on the content as it proceeds.

*Prerequisites:* U3 or U4 standing; PHI 200 and PHI 206

3 credits

### **PHI 401- G: Individual Systems of the Great Philosophers (I)**

A detailed study of the works of a single great philosopher. May be repeated as the topic changes.

*Prerequisite:* PHI 200 and PHI 206; completion of the Upper Division Writing Requirement

3 credits

**PHI 402- G: Analysis of Philosophic Texts (I)**

Detailed analysis of a major philosophic text. May be repeated as the topic changes.

*Prerequisite:* PHI 200 and PHI 206; completion of the Upper Division Writing Requirement

3 credits

**PHI 420: Advanced Topics in Philosophy (either I, II, or III)**

An advanced course treating a specialized issue or topic in philosophy or in philosophy and another discipline. The content of the course is announced before the start of the term. May be repeated as the topic changes.

*Prerequisite:* U4 standing or five courses in philosophy

3 credits

**PHI 472- J: Topics in Asian Philosophy (I)**

Designed for upper-division students, this course presents in-depth study of a specific topic in an Asian philosophical tradition. Students are expected to demonstrate knowledge through mastery of native terms and concepts from that tradition. May be repeated as the topic changes. This course is offered as both AAS 472 and PHI 472.

3 credits

**PHI 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled courses. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites:* Prior preparation in subject field; need to have already taken the course for a letter grade with the faculty member; no more than one undergraduate teaching practicum course per semester; permission of instructor and director

3 credits, S/U grading

**PHI 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled courses. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not

serve as teaching assistants in the same course twice.

*Prerequisites:* PHI 475; prior preparation in subject field; need to have already taken the course for a letter grade with the faculty member; no more than one undergraduate teaching practicum course per semester; permission of instructor and director

3 credits, S/U grading

**PHI 487: Readings and Research in Philosophy (II)**

Advanced-level inquiry with individualized instruction in one particular philosophical style of reasoning. Consult undergraduate advisor for specific details. May be repeated.

*Prerequisites:* U4 standing in philosophy major; permission of department

0-6 credits

**PHI 489: Readings and Research in the History of Philosophy (I)**

Advanced-level inquiry with individualized instruction in the great philosophies of the past. Consult undergraduate advisor for specific details. May be repeated.

*Prerequisites:* U4 standing in philosophy major; permission of department

0-6 credits

**PHI 490: Readings and Research in Philosophical Investigations of Other Disciplines (III)**

Advanced-level inquiry with individualized instruction in the application of philosophical tools to one of the special disciplines. Consult undergraduate advisor for specific details. May be repeated.

*Prerequisites:* U4 standing in philosophy major; permission of department

0-6 credits

**PHI 495: Philosophy Honors Thesis**

A one-semester project for philosophy majors who are candidates for the degree with honors. The project involves independent study and the writing of a senior thesis under the close supervision of an appropriate faculty member in conjunction with two other courses at the 300 level or higher, concentrated on related aspects of a central problem. The project must be approved before the start of the student's senior year. On completion, the thesis is reviewed by the advisor and one other member of the Philosophy faculty and by a faculty member from outside the Department. The honors thesis is then the focus of an oral examination. Honors are awarded upon passage of the examination.

*Prerequisite:* Permission of instructor

3 credits

# PHY

## Physics

**PHY 100: Physics Head Start**

An intensive review of the physics and associated mathematical tools necessary to solve the problems and do the calculations encountered in the introductory physics courses. The emphasis will be on the application of trigonometry to physical problems, the manipulation of vectors, diagramming and graphing, and algebraic manipulation including solving linear equations with more than one variable. The use of derivatives to describe physical quantities will be touched on and integrals will be motivated.

*Prerequisite:* MAT 123 or level 4 on the math placement exam

2 credits, S/U grading

**PHY 112- E: Light, Color, and Vision**

An introduction to the modern understanding of light, color, and vision, primarily for non-science majors and especially beneficial to students majoring in visual arts or theatre. Topics include the nature of light; the human eye and vision; illusions, color perception, and color theory; optical instruments; the camera and photography; optical phenomena in the atmosphere (mirages, rainbows, halos); and light in modern physics (relativity, lasers). Not for major credit.

*Prerequisite:* Satisfaction of entry skill in mathematics requirement (Skill 1) or satisfactory completion of D.E.C. C

3 credits

**PHY 113- E: Physics of Sports**

First part of an introduction to physics from the perspective of sports, especially designed for non-science majors. Basic concepts in classical mechanics and fluid dynamics are used to analyze particular actions in football, baseball, soccer, track and field, and other sports. Students learn, for example, about the knuckle ball in baseball and why it is so hard to hit, and why quarterbacks throw a football in a spiral. The concepts of heat, energy, and calories are also discussed. The laboratory component, PHY 115, may be taken concurrently with or after PHY 113.

*Prerequisite:* Satisfaction of entry skill in mathematics requirement (Skill 1) or satisfactory completion of D.E.C. C

3 credits

**PHY 114- E: Electromagnetism, Waves and Radiation for Sports Science**

Second part of the Physics of Sports sequence. The focus is on electricity, magnetism, optics, acoustics, radiation, and medical imaging. The laboratory component, PHY 116, may be taken concurrently with or after PHY 114.

*Prerequisite: PHY 113*

*3 credits*

**PHY 115: Physics of Sports Laboratory**

Laboratory component of PHY 113.

Experiments are designed to help students better understand the physics aspects of sports. Students work in groups and conduct experiments indoors and outdoors. Knowledge of first-year college-level mathematics is recommended, but most necessary information is taught in class as needed. May be taken concurrently with or after PHY 113.

*Pre or Corequisite: PHY 113*

*1 credit*

**PHY 116: Electromagnetism, Waves and Radiation for Sports Science Laboratory**

Laboratory component of PHY 114.

Experiments are designed to help students better understand the physics aspects of sports. Knowledge of first-year college-level mathematics is recommended, but most necessary information is taught in class as needed. May be taken concurrently with or after PHY 114.

*Prerequisites: PHY 113 and 115*

*Pre- or Corequisite: PHY 114*

*1 credit*

**PHY 119- E: Physics for Environmental Studies**

The principles of physics as they apply to environmental issues. A review of mathematics is followed by a discussion of Newton's laws, conservation principles, topics in fluids and wave motion, optical instruments, and radioactivity. Three lectures and one laboratory session per week. This course is offered as both ENS 119 and PHY 119.

*Prerequisites: MAT 123; CHE 131*

*4 credits*

**PHY 121- E: Physics for the Life Sciences I**

First part of an introduction to physics with applications to biology, primarily for students majoring in biological sciences or pre-clinical programs. Topics include mechanics, fluid mechanics, and thermodynamics. Strong algebra skills and knowledge of the ideas of calculus are required. Three lecture hours

per week. The Laboratory component, PHY 124, must be taken concurrently; a common grade for both courses will be assigned. PHY 121 may not be taken for credit in addition to PHY 125, 131, or 141. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites: MAT 125 or 131 or 141 or AMS 151; CHE 132 or 142*

*Corequisite: PHY 123*

*3 credits*

**PHY 122- E: Physics for the Life Sciences II**

Second part of an introduction to physics with applications to biology, primarily for students majoring in biological sciences or pre-clinical programs. Topics include electromagnetism, optics, acoustics, and radiation phenomena. Strong algebra skills and knowledge of the ideas of calculus are required. Three lecture hours and one recitation hour per week. Three lecture hours per week. The Laboratory component, PHY 124, must be taken concurrently; a common grade for both courses will be assigned. PHY 122 may not be taken for credit in addition to PHY 126, 127, 132, or 142. PHY 122 is co-graded with PHY 124. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in PHY 121/123*

*Corequisite: PHY 124*

*3 credits*

**PHY 123: Physics for Life Sciences Laboratory I**

Must be taken concurrently with Lecture component, PHY 121; a common grade for both courses will be assigned. Two hours of laboratory per week. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Corequisite: PHY 121*

*1 credit*

**PHY 124: Physics for Life Sciences Laboratory II**

Must be taken concurrently with Lecture component, PHY 122; a common grade for both courses will be assigned. Two hours of laboratory per week. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering

for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: C or higher in PHY 121/123*

*Corequisite: PHY 122*

*1 credit*

**PHY 125- E: Classical Physics A**

First of a three-part sequence intended for physical-sciences or engineering majors. It focuses on the mechanics of point particles and simple oscillators, and emphasizes motion in one and two dimensions and the concepts of momentum and energy. Calculus is used concurrently with its development in MAT 125. Three lecture hours and one recitation hour per week. Not for credit in addition to PHY 121/123, PHY 131, or PHY 141. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: MAT 123 or Level 4 on*

*the mathematics placement examination*

*Corequisite: MAT 125 or MAT 131 or MAT 141 or AMS 151*

*4 credits*

**PHY 126- E: Classical Physics B**

Second or third of a three-part sequence for physical-sciences or engineering majors. It focuses on the mechanics of rigid bodies, on fluids, waves, thermodynamics, and optics. Three lecture hours and one recitation hour per week. Associated Labs (PHY 133 or PHY 134) are offered separately. Not for credit in addition to PHY 122/PHY 124, PHY 132, or PHY 142. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher: PHY 125 or 131 or 141*  
*Corequisite: MAT 126, 132, 142, 171 or AMS 161 or level 7 or higher on math placement exam*

*3 credits*

**PHY 127- E: Classical Physics C**

Second or third of a three-part sequence for physical-sciences or engineering majors. It focuses on electromagnetism using the concepts of vector fields and scalar potentials, and on DC and AC electric circuits. Calculus is used concurrently with its development in MAT 126. Three lecture hours and one recitation hour per week. Associated Labs (PHY 133 or PHY 134) are offered separately. Not for credit in addition to PHY 122/PHY 124, PHY 132, or PHY 142. This course has

been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in PHY 125 or 131 or 141*  
*Corequisite: MAT 126, 132, 142, 171 or AMS 161 or level 7 or higher on math placement exam*  
 3 credits

### PHY 131- E: Classical Physics I

First part of a two-semester physics sequence for physical-sciences or engineering majors who have a strong mathematics background and are ready for a fast learning pace. It covers mechanics, wave motion, kinetic theory, and thermodynamics. Calculus is used concurrently with its development in MAT 131. Three lecture hours and one recitation hour per week. The Laboratory component, PHY 133 (Lab 1), could be taken concurrently. Not for credit in addition to PHY 121/123, PHY 125, or PHY 141. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: MAT 123 or level 5 on the mathematics placement examination*  
*Corequisite: MAT 125 or MAT 131 or MAT 141 or AMS 151*  
 3 credits

### PHY 132- E: Classical Physics II

Second part of a two-semester physics sequence for physical-sciences or engineering majors who have a strong mathematics background and are ready for a fast learning pace. It covers electromagnetism, electric circuit theory, and optics. Calculus is used concurrently with its development in MAT 132. Three lecture hours and one recitation hour per week. The Laboratory component, PHY 134, may be taken concurrently. Not for credit in addition to PHY 122/124, PHY 126, PHY 127, or PHY 142. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: C or higher in PHY 131 or PHY 141*  
*Corequisite: MAT 132 or MAT 142 or MAT 127 or MAT 171 or AMS 161*  
 3 credits

### PHY 133: Classical Physics Laboratory I

Two hours of laboratory per week that corresponds to the content of PHY 131 or PHY 125+PHY 126. This course has been designated as a High Demand/Controlled

Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: C or higher in PHY 125; or pre-or corequisite PHY 131; or corequisite PHY 141*  
 1 credit

### PHY 134: Classical Physics Laboratory II

Two hours of laboratory per week that corresponds to the content of PHY 132 or PHY 126+127. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: C or higher in PHY 133*  
 1 credit

### PHY 141- E: Classical Physics I: Honors

First part of a demanding two-semester sequence for students with the strongest background, interests, and abilities in science and mathematics. The topics covered in PHY 141 are similar to those in PHY 131 but are treated in more depth in a small-class setting. Students may transfer to PHY 131 at any time during the first half of each semester without penalty. Three lecture hours and one recitation hour per week. PHY 141 may not be taken for credit in addition to PHY 121/123, PHY 125, or PHY 131.

*Prerequisite: Level 6 on Math Placement, or B or higher in MAT 131 or 141 or AMS 151, or B+ or higher in MAT 125, or instructor permission (priority given to students in Honors or WISE programs)*  
*Corequisite: MAT 131 or 141 or 126 or AMS 151; PHY 133*  
 3 credits

### PHY 142- E: Classical Physics II: Honors

Second part of a demanding two-semester sequence for students with the strongest background, interests and abilities in science and mathematics. The topics covered in PHY 142 are similar to those in PHY 132, but are treated in more depth in a small-class setting. Students may transfer to PHY 132 at any time during the first half of each semester without penalty. Three lecture hours and one recitation hour per week. PHY 142 may not be taken for credit in addition to PHY 122/124, PHY 126, PHY 127, or PHY 132.

*Prerequisite: C or higher in PHY 141 or permission of department*  
*Corequisite: MAT 132 or 142 or 127 or 171 or AMS 161; PHY 134*  
 3 credits

### PHY 191: Transitional Study

Laboratory for transfer students to supplement courses taken at another institution. Students take the laboratory portion of a 100-level course for which they have taken the theoretical portion elsewhere.

*Prerequisite: Permission of department*  
 1 credit

### PHY 192: Transitional Study

Laboratory for transfer students to supplement courses taken at another institution. Students take the laboratory portion of a 100-level course for which they have taken the theoretical portion elsewhere.

*Prerequisite: Permission of department*  
 1 credit

### PHY 231: Physics for Future Presidents

A study of key physics ideas that a newly-inaugurated President of the country, or a newly-hired President of a company, needs to know. This course equips the future President with enough knowledge of the physics behind a pressing issue to make an intelligent decision even in the face of conflicting advice about issues including energy, national security, and space exploration. Politics is the art of balancing competing demands, and business involves profitably serving customers, so the economics of many technologies will also be discussed.

*Prerequisite: 1 DEC E or 1 DEC F course*  
 3 credits

### PHY 237- H: Current Topics in World Climate and Atmosphere

An exploration of current concerns about the greenhouse effect, acid rain, and global ozone loss, in a format accessible to non-science majors. The social and political steps being taken to limit global atmospheric pollution and climate change are discussed. Not for major credit. This course is offered as both ATM 237 and PHY 237.

*Prerequisites: One D.E.C. category E course; satisfaction of entry skill in mathematics requirement*  
 3 credits

### PHY 251: Modern Physics

A survey of the major physics theories of the 20th century (relativity and quantum

mechanics) and their impact on most areas of physics. It introduces the special theory of relativity, the concepts of quantum and wave-particle duality, Schroedinger's wave equation, and other fundamentals of quantum theory as they apply to nuclei, atoms, molecules, and solids. The Laboratory component, PHY 252, must be taken concurrently; a common grade for both courses will be assigned. Three hours lecture and one hour recitation per week.

*Prerequisite:* PHY 122, or PHY 126 and PHY 127 and PHY 134, or PHY 132 and PHY 134, or PHY 142

*Pre- or Corequisite:* MAT 203 or MAT 205 or AMS 261 or MAT 307

3 credits

### **PHY 252: Modern Physics Laboratory**

Must be taken concurrently with lecture component PHY 251; a common grade for both courses will be assigned. Students perform some of the pivotal experiments of the 20th century. The Lecture component, PHY 251, must be taken concurrently; a common grade for both courses will be assigned. Two hours of laboratory per week.

*Corequisite:* PHY 251

1 credit

### **PHY 277: Computation for Physics and Astronomy**

An introduction to computing on UNIX/Linux computers. Fundamentals of using UNIX/Linux to write computer programs for numerical algorithms to solve computational physics and astronomy problems. Assignments are carried out in a high-level compiler programming language such as Fortran 90 or C++ and require extensive use of SINC site computers outside the classroom.

*Prerequisite:* PHY 125, PHY 126, PHY 127; or PHY 131, PHY 132, PHY 133, PHY 134; or PHY 141, PHY 142; AMS 151 or MAT 126 or MAT 131 or MAT 141

*Advisory Prerequisite:* AMS 161 or MAT 127 or MAT 132 or MAT 142 or MAT 171

3 credits

### **PHY 287: Introduction to Research**

An opportunity for students, while still early in their studies, to do research commensurate with their level of preparation. Students work alongside faculty, post-doctoral fellows, and graduate students on ongoing research projects. Students must take the initiative to negotiate the opportunity. BNL and other scientists may be allowed as co-supervisors. May be repeated up to a total of 3 credits.

*Prerequisite:* Permission of department

0-3 credits

### **PHY 291: Transitional Study**

A laboratory for transfer students to supplement a course taken at another institution. Students take the laboratory portion of a 200-level course for which they have taken the theoretical portion elsewhere.

*Prerequisite:* Permission of department

1 credit

### **PHY 300: Waves and Optics**

The physics of oscillations and waves, from mechanical waves to light waves to electron waves. Topics include resonance and normal modes of coupled oscillators, the wave equation and wave propagation, interference and diffraction, polarization and imaging, coherence, and lasers. Three lecture hours and one three-hour laboratory per week.

*Prerequisite:* PHY 132/PHY 134 or PHY 142 or PHY 126/PHY 127/PHY 134

*Corequisite:* MAT 203 or MAT 205 or AMS 261

4 credits

### **PHY 301: Electromagnetic Theory I**

The application of Maxwell's equations to solve time-independent boundary-value problems and to study the interactions of electric and magnetic fields with bulk matter.

*Prerequisite:* PHY 251 and PHY 277 or permission of department

*Advisory Corequisite:* MAT 341

3 credits

### **PHY 302: Electromagnetic Theory II**

A study of time-dependent electric and magnetic fields as derived from Maxwell's equations. Topics include the interrelations of electric and magnetic fields and their potentials; energy and momentum associated with electromagnetic fields and the Maxwell vacuum and matter; waveguides and transmission lines; special relativity for electromagnetism; retarded potentials for time-varying sources; and radiation of electromagnetic waves.

*Prerequisite:* PHY 301

3 credits

### **PHY 303: Mechanics**

An in-depth study of classical mechanics, from the Newtonian to the Lagrangian and Hamiltonian formulations. First, Newtonian mechanics is reviewed and applied to more advanced problems than those considered in PHY 131 or 141. The Lagrangian and Hamiltonian methods are then derived from

the Newtonian treatment and applied to various problems.

*Prerequisite:* PHY 251 and PHY 277 or permission of department; MAT 303 or MAT 305 or AMS 361

3 credits

### **PHY 306: Thermodynamics, Kinetic Theory, and Statistical Mechanics**

A study of the laws that govern physical systems in thermal equilibrium. In the first part, the concepts of temperature, internal energy, and entropy are analyzed and the first and second laws of thermodynamics are used to connect various properties that are independent of the microscopic details of the system. The second part is devoted to a microscopic study of a system in thermal equilibrium, from the kinetic theory of gases to statistical mechanics and the relation between entropy and probability, with application to simple examples in classical and quantum statistics.

*Prerequisites:* PHY 251, 277, 300

3 credits

### **PHY 307: Physical and Mathematical Foundations of Quantum Mechanics**

Physical and mathematical foundations of quantum mechanics. Maxwell waves and their properties: intensity, energy density, and momentum density. Planck-Einstein relation between energy and frequency for light quanta. De Broglie relation between momentum and wavelength. Number density and probability density of photons. One-photon quantum mechanics, with Maxwell field as the wave function. Diffraction phenomena. Uncertainty relation between wavelength and position, hence between momentum and position. Not for credit in addition to PHY 390 with similar topic. Not for credit in addition to PHY 274.

*Prerequisites:* PHY 122, or PHY 126 and PHY 127 and PHY 134, or PHY 132 and PHY 134, or PHY 142; MAT 132 or MAT 142 or MAT 127 or MAT 171 or AMS 161

*Advisory Corequisite:* MAT 203 or MAT 205 or AMS 261

4 credits

### **PHY 308: Quantum Physics**

The concepts, historical development, and mathematical methods of quantum mechanics. Topics include Schroedinger's equation in time-dependent and time-independent forms; one- and three-dimensional solutions, including the treatment of angular momentum and spin. Applications to simple systems, especially the hydrogen atom, are stressed.

*Prerequisite:* PHY 300, 301, and 303

3 credits

### **PHY 311: Connections in Science**

A selection of the interrelations between physics and other scientific and technological fields, using modern examples from engineering, medicine, and applied mathematics, among others. The course is taught as a seminar and includes guest lecturers, tours of laboratories, and discussion of classic and current research projects. Appropriate for physics and non-physics majors alike.

*Prerequisite:* PHY 122/124 or PHY 126 and PHY 127 and PHY 132 or PHY 132/134 or PHY 142

1 credit

### **PHY 313- H: Mystery of Matter**

Exploration of our understanding of the basic constituents of matter, and of how that understanding and the tools developed to study them affect aspects of contemporary society. Historical discoveries and their place in social and political institutions of the time are considered, along with issues of government funding and the cost to society. Includes a discussion of developments at Brookhaven National Laboratory and their scientific and social impact.

*Prerequisites:* U3 or U4 standing; one D.E.C. category E course

3 credits

### **PHY 335: Electronics and Instrumentation Laboratory**

An intensive laboratory-based course covering modern electronic circuits and the theory behind them. Topics include AC circuits, digital techniques, and computer interfacing involving both interface hardware and programming in a high-level language such as BASIC or Pascal. Two three-hour laboratories per week.

*Prerequisite:* PHY 251

3 credits

### **PHY 382- H: The Quantum Moment: Quantum Mechanics in Philosophy, Culture, and Life (III)**

This course explores the implications and influence, real and alleged, of quantum mechanics on fields other than physics. What does quantum mechanics mean, if anything, for philosophy, ethics, and social behavior? At the same time, we shall look into how social and cultural influences may have affected the way that quantum mechanics was formulated, and how it has evolved. We shall review the early history of quantum mechanics, and discuss some of the important debates at the

founding of quantum mechanics. Students will not be expected to learn the mathematics in depth, only the introduction provided by the instructors aimed at non-science students. Besides readings, the course will also involve plays, films, and guest speakers. Students will be expected to work on a final project, to be presented in class. This course is offered as both PHI 382 and PHY 382.

*Prerequisite:* 100-level Physics or Philosophy course and U3 or U4 standing

3 credits

### **PHY 390: Special Topics in Physics**

May be repeated once as the topic changes.

*Prerequisite:* Permission of department

3 credits

### **PHY 405: Advanced Quantum Physics**

Study of quantitative methods of quantum mechanics, including perturbation theory and the WKB approximation, scattering theory, and elements of quantum-information theory. Symmetry principles are stressed and advanced mathematical techniques are used throughout the course.

*Prerequisite:* PHY 303 and PHY 308; MAT 341

3 credits

### **PHY 408: Relativity**

A development of the special theory of relativity leading to general relativity with applications to cosmology.

*Prerequisite:* PHY 302 and 303

3 credits

### **PHY 420: Introduction to Accelerator Science and Technology**

This course will introduce students to the field of accelerator science and technology, a very versatile branch of physics and technology. This course is composed of the following parts: introduction of accelerator history and their basic principles, basic beam dynamics in synchrotrons, introduction of challenges in Accelerator physics, and introduction of typical beam measurements and instrumentations.

*Prerequisite:* PHY 277, PHY 300, PHY 301, PHY 302, and PHY 303

*Pre- or corequisite:* PHY 335 and PHY 408

3 credits

### **PHY 431: Nuclear and Particle Physics**

An introduction to the physics of the nucleus and elementary particles, stressing their quantum-mechanical properties and the role of symmetry principles. Topics include nuclear structure, nuclear reactions, nuclear forces, the

interaction of radiation with matter, radiation detectors, accelerators, and the properties of elementary particles and resonances.

*Prerequisite:* PHY 308

3 credits

### **PHY 445: Senior Laboratory**

A selection of historically important experiments from atomic and nuclear spectroscopy, particle physics, solid-state and low-temperature physics, and astronomy performed with modern instrumentation. Each student does three experiments, usually with a partner. As students progress, they are encouraged to pursue independent projects, without rigid formats or procedures. The emphasis is on the development of experimental skills and on professionally acceptable analysis and presentation of results, both orally and in writing. Two three-hour laboratory sessions per week.

*Prerequisite:* PHY 308 and PHY 335

3 credits

### **PHY 447: Tutorial in Advanced Topics**

Selected readings in advanced topics for upper-division students of unusual ability and substantial accomplishments. Prior to the beginning of the semester, the topic to be studied is selected by the supervising member of the faculty and a reading assignment is planned. Weekly conferences with this faculty member are devoted to discussion of material, resolution of problems encountered, and assessment of the student's progress. May be repeated up to a total of 6 credits.

*Prerequisite:* Permission of department

1-6 credits

### **PHY 451: Quantum Electronics**

Introduction to modern atomic physics for the laser era. Emphasis on the interaction between atoms and light, as well as on atomic structure and how it affects this interaction. Modern applications such as laser cooling, atom trapping, precision spectroscopy with frequency comb, quantum information, and others will be discussed.

*Pre- or corequisite:* PHY 405

3 credits

### **PHY 452: Lasers**

Introduction to the theory of lasers using elementary quantum mechanics. It includes a study of resonance conditions, normal modes, and optical cavities; a description of the various types of lasers, their methods of control and their limitations; and an introduction to their applications to research, medicine, communication, and computing.

*Prerequisites: PHY 251 and PHY 300*

3 credits

### **PHY 472: Solid-State Physics**

A study of the different types of solids, with emphasis on their thermal, electrical, and optical properties. It introduces the concepts of phonons and electronic bands, and applications to metals, semiconductors, superconductors, and magnetism.

*Prerequisite: PHY 306 and 308*

3 credits

### **PHY 475: Undergraduate Teaching Practicum**

An opportunity for selected undergraduates to collaborate with the faculty in teaching at the introductory level. In addition to working as tutors and as laboratory assistants, students meet once a week with a faculty supervisor to discuss problems they have encountered and to plan future activities. Students are generally assigned to assist in courses they have completed and in which they have excelled. Not for major credit. Can be repeated up to a maximum of 6 credits with a maximum of 3 credits per course taught.

*Prerequisite: Permission of department*

0-3 credits, S/U grading

### **PHY 487: Research**

An opportunity for students to conduct faculty-supervised research for academic credit. Students must take the initiative to negotiate the opportunity. BNL and other scientists may be allowed as co-supervisors. Research proposals must be prepared by the student and submitted for approval by the supervising faculty before the beginning of the credit period. An account of the work and the results achieved is submitted to the supervisor before the end of the credit period. May be repeated, up to a total of 6 credits.

*Prerequisite: Permission of department*

0-6 credits

## **POL**

### **Political Science**

#### **POL 101- F: World Politics**

Analysis of the basic concepts and issues of international relations in the contemporary international system. The behaviors of states and their decision makers are considered according to various models of national and international conflict. The relationship between the characteristics of nations and their foreign policies is studied on a comparative basis.

3 credits

#### **POL 102- F & 4: Introduction to American Government**

What the informed citizen and specialist should know about the organization of American government, including the Constitution and what it means today, the Congress, political parties, pressure groups, growth of the Presidency, the Supreme Court, judicial review, federalism, separation of powers, and the Bill of Rights. May not be taken for credit in addition to POL 105.

3 credits

#### **POL 103- F: Introduction to Comparative Politics**

Analysis of political institutions and processes in the contemporary world, emphasizing the interaction of political structures and processes in a variety of political settings.

3 credits

#### **POL 201- C: Introduction to Statistical Methods in Political Science**

Elementary statistical methods in empirical political science, focusing on the analysis of public opinion, survey research designs, sampling, and probability. The course considers the application of descriptive and inferential statistics to testing hypotheses on various political issues. May not be taken for credit after AMS 102, ECO 320, PSY 201, or SOC 202. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisite: Satisfaction of entry skill in mathematics requirement; Advisory Prerequisite: POL 101 or 102 or 103 or 105*

3 credits

#### **POL 214- J: Modern Latin America**

From independence to the present: the evolution of 19th- and 20th-century Latin America. Emphasis on current social, economic, and political issues. This course is offered as both HIS 214 and POL 214.

*Advisory Prerequisite: LAC 200*

3 credits

#### **POL 216- J: History of U.S.-Latin American Relations**

An examination of the impact of U.S. economic and political relations with Latin America from the mid-19th century to the present. The course considers changes in American policy toward Latin America, as well as the varying responses of Latin

American nations to U.S. intervention and influence. This course is offered as both HIS 216 and POL 216.

*Advisory Prerequisite: One HIS course*

3 credits

#### **POL 287: Introductory Research in Political Science**

May be repeated up to a limit of 12 credits, but only six credits may count for major or minor requirements in political science.

*Prerequisite: Permission of departmental research coordinator*

0-3 credits, S/U grading

#### **POL 305- I: Government and Politics of the United Kingdom**

Examination of the political system of Great Britain and Northern Ireland, including the Constitution, parliament, cabinet, political parties, and the policy-making process.

*Prerequisite: POL 103; U3 or U4 standing*

3 credits

#### **POL 309- I: Politics in the European Union**

Why the European Union was created, how its institutions have evolved over time, and where the union is going.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 101 and 103*

3 credits

#### **POL 310- F: Immigration and Refugee Politics**

Provides an introduction to the politics of immigration and refugees by considering the impact of the movement and resettlement of foreigners across international borders on states, societies, and international relations. We will address several themes that generate heated debate within the topic of migration including, why people move, the impact of ethnic and religious diversity, state control over its borders, racism and xenophobia, immigrant integration strategies, citizenship policies, refugee movements, globalization, security and human smuggling.

*Prerequisite: U3 or U4 standing or approval of professor*

3 credits

#### **POL 311: Introduction to International Law**

Casebook approach to standard introductory course in international law, including the following topics: state jurisdiction and responsibility, individuals, international organization, and use of force.

*Prerequisite: U3 or U4 standing;*

*Advisory Prerequisite: POL 101*

3 credits

**POL 313- F: Problems of International Relations**

Analysis of the international system, its characteristic forms, and the principal forces making for conflict and adjustment. Examination of some prevalent analytical concepts, of major current problems and developments, and of prospects and alternatives for the future.

*Prerequisite: POL 101; U3 or U4 standing.*

*Advisory Prerequisite: POL 201 or any other course satisfying the major's methodology requirement*

3 credits

**POL 317- F: American Election Campaigns**

The politics of presidential nominations through primaries, caucuses, and conventions; the conduct of presidential general election campaigns; mass media coverage and opinion polling; the citizen's involvement in campaign politics; voter attitudes toward parties, candidates, and issues; and the interpretation of electoral outcomes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 102 or 105*

3 credits

**POL 318- F: Voters and Elections**

An examination of how citizens make electoral decisions, including the decision to participate at all in elections. The course compares models of voter behavior and probes the influence of such factors as party identification, opinions on issues, ideological orientations, and candidate evaluations. In addition, the social and economic context of voting is explored, as is the importance of elections for policy making and the functioning of the political system.

*Prerequisite: U3 or U4 standing; Advisory Prerequisite: POL 102 or 105; POL 201 or any other course satisfying the major's methodology requirement*

3 credits

**POL 319: Business Law**

A study of the legal environment of business operations, covering such topics as the principle of contracts, commercial papers, partnerships, corporations, real property, estates, bankruptcy, antitrust laws, and environmental and civil rights regulations.

*Prerequisite: U3/U4 standing or New Transfer student*

3 credits

**POL 320- F: Constitutional Law and Politics: United States**

A study of the role of the modern Supreme Court within the political and governmental process; its relation with Congress, the Presidency, state and local governments, parties, and interest groups; and the Court's policy-making role in economic regulation.

*Prerequisites: POL 102 or 105; U3 or U4 standing*

3 credits

**POL 322- F: The Presidency in the American Political System**

How presidential power developed historically; from what sources the powers of the modern Presidency emanate; how decisions are made in the presidential institution; how and to what degree presidential power may or ought to be controlled.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 102 or 105*

3 credits

**POL 323- F: U.S. Congress**

An examination of the most powerful legislative institution in America. The historical background of Congress is examined along with its internal organization, rules, and relationship to the rest of government and to the world outside Washington.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 102 or 105*

3 credits

**POL 324- F: American Political Parties and Pressure Groups**

An examination of political party organization, political leadership, finance, campaign techniques, and legal controls over parties; the functions and methods of pressure groups and their interaction with policy makers; the historical origins and development of the American party system; the significance of parties and pressure groups for democratic ideology; and the problems of political leadership in a democracy.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 102 or 105*

3 credits

**POL 325- F: Civil Liberties and Civil Rights**

A systematic treatment of leading Supreme Court decisions in such areas as freedom of speech, the press, and religion; the rights of criminal defendants; voting rights; the right to

privacy; and discrimination on grounds of race, sex, poverty, illegitimacy, and alienage.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 320*

3 credits

**POL 327- K: Urban Politics**

Covering the development of urban settlements from the early 19th century to the contemporary period, the course emphasizes both the formal and informal political institutions and processes in American cities and suburbs, including governmental structures, political parties, interest groups, and service delivery systems. Special attention is given to the multiethnic and multicultural context within which urban politics in the United States takes place. Among the topics examined is the historical development of urban settlements in the United States, studying both the growth of cities and suburbs and the ever-changing relationship between these types of settlements evident at different times in our history.

*Prerequisite: POL 102 or POL 105*

3 credits

**POL 328- F: Criminal Law**

A survey of substantive and procedural criminal law as it applies to traditional and contemporary penal issues, including a review of relevant U.S. and New York constitutional, statutory, and case law provisions.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 320*

3 credits

**POL 330- K: Gender Issues in the Law**

A critical exploration of American law that specifically addresses the issues of (in)equality of women and men in the United States.

The course surveys and analyzes cases from the pre-Civil War era to the end of the 20th century dealing with various manifestations of sex discrimination, decided in the federal court system, typically by the Supreme Court, and the state court system. The course also considers how the political nature of the adjudicative process has ramifications for the decisions rendered by a court. This course is offered as both POL 330 and WST 330.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: POL 102 or 105 or WST 102 (formerly SSI/WST 102)*

3 credits

**POL 332- F: Politics of Criminal Due Process**

A survey of the procedural steps through which a criminal case passes commencing with

the initial investigation of a crime, covering the laws and court rules governing arrest, search and seizure, bail and fair trial, and concluding with the unconditional release of an offender.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 102 or 105

3 credits

### **POL 333: Environmental Law**

Survey of the origins of environmental law and the major legislation enacted by Congress and the state of New York. Special emphasis is placed on the application of environmental law to the problem of solid waste management on Long Island. This course is offered as both ENS 333 and POL 333.

*Prerequisites:* ECO 108; POL 102

3 credits

### **POL 336- F: U.S. Foreign Policy**

An examination of the central problems in making U.S. foreign policy. The particular system and structure of foreign policy making as they have evolved from the constitutional and historical roots of the United States are the focus. An important central theme is the potential tension between the demands of effective foreign policy and democratic restraints.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 101 or 102 or 103 or 105

3 credits

### **POL 337- J: The Politics of Africa**

A study of nationalism, political thought, and political institutions in Africa. Consideration is given to the quest for unity, the problems of liberation, and the political implications of social change. This course is offered as both AFS 337 and POL 337.

*Prerequisites:* Two AFS or POL courses

3 credits

### **POL 338- J: Contemporary India: History, Politics, and Diplomacy**

Study of the forces shaping India's post-independence history, domestic politics, and foreign diplomacy. As the world's largest democracy, second most populous nation, and Asia's second fastest growing economy, its impact on the international scene in the coming years will be carefully analyzed. The course, taught by a former Ambassador, will also focus on emerging trends in Indo-U.S. relations and impact of the Indian diaspora. This course is offered as both AAS 338 and POL 338.

*Prerequisites:* One previous course in AAS or POL; U3 or U4 standing

3 credits

### **POL 339- J: Contemporary China: History, Politics, and Diplomacy**

This course will analyze the evolution of major events in contemporary China following the communist revolution that led to the establishment of the People's Republic in 1949. The course, taught by a former Ambassador, will examine major political, economic, and social developments in light of both their general global impact and their particular relationship with the U.S. This course is offered as both AAS 339 and POL 339.

*Prerequisites:* AAS 219 or POL 101; U3 or U4 standing

3 credits

### **POL 344- F: American Political Ideology and Public Opinion**

An examination of the nature of contemporary political ideology and public opinion in the United States. The goal is to understand political conflict and debate in the U.S. and the ways in which the public influences that debate. Major topics in public opinion include political tolerance and trust, attitudes toward women and African Americans, the role of the mass media, and the impact of political values and ideology on political campaigns and elections.

*Prerequisites:* POL 102 or 105; C or higher in POL 201 or any other course satisfying the major's methodology requirement

3 credits

### **POL 346- F: Political Psychology**

Focus on the application of psychological concepts and measures to political behavior. Course topics include attitude measurement, stability and change, obedience to authority, learning theory, attention and problem solving, personality correlates of political activity, and stress and aggression.

*Prerequisite:* Junior or Senior Standing

3 credits

### **POL 347- K: Women and Politics**

Analysis of the role of women in current American politics -- their electoral participation, office seeking, and political beliefs -- and policy issues that have special relevance to women. The course traces the history of American women's political involvement and the historical trajectory of gender-related policy from the mid-19th century to today. This course is offered as both POL 347 and WST 347.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 102 or 105

3 credits

### **POL 348- F: Political Beliefs and Judgments**

Following a review of the literature on political attitudes, the course applies psychological concepts and experimental approaches to the study of the content and structure of political beliefs and judgments.

*Prerequisite:* U3 or U4 standing; *Advisory*

*Prereq:* POL 201 or any other course

*satisfying the major's methodology requirement*

3 credits

### **POL 350- I: Contemporary European Political Theory**

Analysis of major writings in European political thought throughout the 20th century, focusing on four important ideological groupings: liberalism, socialism, fascism, and conservatism, with consideration of their historical antecedents.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Completion of D.E.C. category F

3 credits

### **POL 351: Social Surveys in Contemporary Society**

An interdisciplinary course on the history, uses, design, and implementation of the social survey. Emphasis is given to the use of surveys in politics, the media, and business.

*Prerequisites:* POL 201 or any other course satisfying the major's methodology requirement; U3 or U4 standing

3 credits

### **POL 357- J: India's Foreign Policy**

A critical analysis of the foreign policy of India since Independence in 1947, especially Non-alignment and relations with major powers. The factors behind India's entry into the nuclear club and its impact on her international relations within the subcontinent and beyond. Analysis of issues such as Kashmir, terrorism, India's quest for a permanent seat in the U.N. Security Council, economic reforms, and role of Indian diaspora to the country's relations with the countries of their adoption.

*Prerequisite:* U3 or U4 standing or permission of instructor

*Advisory Prerequisites:* AAS 201 and 348

3 credits

### **POL 359- F: Public Policy Analysis**

A course analyzing the connection between the administrative processes of government in the United States and the public policy process. It focuses on the analysis of policy formulation and the broader connections between public policy and the American political process.

*Prerequisites:* POL 102 or 105; U3 or U4 standing

3 credits

### **POL 365- F: Economy and Democracy**

An examination of the interplay between economics and politics in Western democracies. Topics include the economic theory of democracy; the political-business cycle; political parties and economic policies; the economy and voter choices in elections; economic performance and government (especially presidential) popularity; and the formation of economic expectations.

*Prerequisite:* U3 or U4 standing; Advisory

*Prerequisite:* POL 102 or 105; POL 201 or any other course satisfying the major's methodology requirement

3 credits

### **POL 367- F: Mass Media in American Politics**

Competing theories of the power of the press are tested by examining the literature on mass media effects on what the public thinks and what the public thinks about. Various explanations of why news organizations behave as they do are also assessed. Conflicts between freedom of the press and such values as privacy, national security, and the right to fair trial are discussed. The relationships between freedom of the press and the public's right to know are also explored.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 102 or 105

3 credits

### **POL 372- J: Politics in the Third World**

Analysis of problems and prospects of nonindustrialized nations that are experiencing political and economic development. Particular attention is paid to the impact of colonialism, social problems, economic modernization, and foreign policy orientations of Third World nations.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 101 or 103

3 credits

### **POL 374- F: Global Issues in the United Nations**

An overview of key issues and contemporary debate in the United Nations toward an understanding of its formal and informal

operations. Issues include peace and security; human rights; development and trade; and the global environment. Consideration of perspectives of people from outside the United States and the West; the major obstacles to effective international cooperation in the U.N. and the ways these obstacles might be overcome; and how democratic governance is affected by the rise of global institutions and governance. This course offered as both POL and SOC 374.

*Prerequisite:* SOC 105 or POL 101 or 103

3 credits

### **POL 377: Contemporary Political Philosophy (II)**

A critical examination of selected issues in contemporary political philosophy, for example, the nature and justification of basic rights, the legitimization of political authority, and the various relations between ideals of social justice and democratic rule. Readings represent contemporary views such as libertarianism, liberalism, socialism, communitarianism, and feminism, and include selections by authors such as Arendt, Dworkin, Foucault, Habermas, Pateman and Rawls. This course is offered as both PHI 377 and POL 377.

*Prerequisites:* Two courses in philosophy  
*Advisory Prerequisites:* PHI 105 or 277 or 375; one upper-division political science course

3 credits

### **POL 382- J: Politics and Political Change in Latin America**

An examination of revolutionary and reformist movements that have shaped the political, social, and economic contours of 20th-century Latin America. Topics include the Mexican and Cuban revolutions, populism, urban squatter movements, and guerrilla warfare. This course is offered as both HIS 382 and POL 382.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* HIS 213 or HIS/POL 214 or HIS/POL 216 or LAC 200

3 credits

### **POL 390: Topics in Political Science**

May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; one POL course announced with topic

3 credits

### **POL 391: Topics in Political Science**

May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; one POL course announced with topic

3 credits

### **POL 392- I: Topics in Political Science and the European Tradition**

Topics may include, for example, politics during the time of the French Revolution, or contemporary Italian politics. Designed for upper-division students, this course provides an in-depth study of a specific topic relating to Western civilization. Students will be expected to demonstrate knowledge of the development of the distinctive features of the history, institutions, economy, society, and culture of Western civilization, and relate it to that of other regions in the world. May be repeated as the topic changes.

*Prerequisites:* U3 or U4 standing; one POL course announced with topic

3 credits

### **POL 401: Seminar in Advanced Topics**

May be repeated as the topic changes.

*Prerequisite:* Junior or Senior Standing

3 credits

### **POL 402: Seminar in Advanced Topics**

May be repeated as the topic changes.

*Prerequisite:* Junior or Senior Standing

3 credits

### **POL 403: Seminar in Advanced Topics**

May be repeated as the topic changes.

*Prerequisite:* Junior or Senior Standing

3 credits

### **POL 404: Seminar in Advanced Topics**

May be repeated as the topic changes.

*Prerequisite:* Junior or Senior Standing

3 credits

### **POL 411- H: Science, Technology, and Arms Control**

A study of the application of scientific technology to national defense, covering nuclear weapons and delivery systems, chemical and biological weapons, conventional weapons systems, defense research and development, arms control and disarmament negotiations, and international technology transfer.

*Prerequisites:* U3 or U4 standing; one D.E.C. category E course

3 credits, S/U grading

### **POL 412: Intelligence Organizations, Technology, and Democracy**

The role of intelligence organizations in decision making through analysis of agency practices in support of U.S. national security

policy. The course also explores the roles of intelligence agencies and practices in democratic societies.

*Prerequisites:* U3 or U4 standing; POL 101 and 102; one D.E.C. category E course  
3 credits

### **POL 447: Directed Readings in Political Science**

Individually supervised readings in selected topics of the discipline. May be repeated, but total credit may not exceed six credits.

*Prerequisites:* Political science major with U3 or U4 standing; 15 credits in political science; permission of instructor and department  
1-6 credits

### **POL 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Not for major credit.

*Prerequisites:* Political science major; U4 standing; permission of instructor  
3 credits, S/U grading

### **POL 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served. Not for major credit.

*Prerequisites:* POL 475; permission of instructor and department  
3 credits, S/U grading

### **POL 487: Directed Research**

Qualified advanced undergraduates in political science may carry out individual research projects under the direct supervision of a faculty member. May be repeated but total credits may not exceed six credits.

*Prerequisites:* Political science major; 15 credits in political science; permission of instructor and department; permission of departmental research coordinator may be substituted.  
0-6 credits

### **POL 488: Internship**

Participation in a local, state, or federal governmental agency or community organization. Students are required to submit progress reports to their department sponsor and a final report on their experience to the department faculty. May be repeated up to a limit of 12 credits.

*Prerequisites:* Political science major or minor with 3.00 g.p.a.; 15 credits in political science; permission of instructor and department  
0-6 credits, S/U grading

### **POL 489: Washington or Albany Internship**

Designed so that students can participate in Washington, D.C. at the Washington Center as interns in private or public sector organizations and agencies or in Albany as interns in the New York State Assembly or Senate Program. Students are supervised by selected practitioners within the organization or agency. Students are required to submit journals of experience and observation which, together with the supervisor's report, become the basis for a Satisfactory/Unsatisfactory grade. Only three credits may be applied to major requirements.

*Prerequisites:* Completion of pre-application orientation; admission to Washington Center or NY State Assembly or Senate Program; POL major or minor; 3.00 g.p.a.; 15 credits in POL; sponsorship of a political science faculty member  
Corequisite: POL 490  
12 credits, S/U grading

### **POL 490: Washington or Albany Seminar**

Seminar offered in Washington, D.C. as part of the internship program of the Washington Center or in Albany as part of the New York State Assembly or Senate Internship Program. The seminars are taught by people with experience in public and private agencies, public policy formulation, and relevant academic and professional experience. Students are offered work in several program areas designed to complement their internships, such as law and justice, congressional studies, policy studies, community urban service, and studies in government.

*Prerequisites:* Completion of pre-application orientation; admission to Washington Center or NY State Assembly or Senate Program; POL major or minor; 3.00 g.p.a.; 15 credits in POL; sponsorship of a political science faculty member  
Corequisite: POL 489  
3 credits

### **POL 495: Senior Honors Project in Political Science**

First course of a two-semester project for political science majors who are candidates for the degree with honors. Arranged in consultation with the department, the project involves independent study and the writing of a research paper under close supervision of a faculty member. Students enrolled in POL 495 are obliged to complete POL 496. Students receive only one grade upon completion of the sequence.

*Prerequisite:* Admission to the political science honors program  
3 credits

### **POL 496: Senior Honors Project in Political Science**

Second course of a two-semester project for political science majors who are candidates for the degree with honors. Arranged in consultation with the department, the project involves independent study and the writing of a research paper under close supervision of a faculty member. Students enrolled in POL 495 are obliged to complete POL 496. Students receive only one grade upon completion of the sequence.

3 credits

## **POR**

### **Portuguese**

#### **POR 111: Elementary Portuguese I**

An introduction to spoken and written Portuguese, stressing pronunciation, speaking, comprehension, reading, and writing with a focus on Brazilian Portuguese. Designed for students with no prior knowledge of the language. A student who has had two or more years of Portuguese in high school (or who has otherwise acquired an equivalent proficiency) may not take POR 111 without written permission from the supervisor of the course.

4 credits

#### **POR 112 - S3: Elementary Portuguese II**

An introduction to spoken and written Portuguese, stressing pronunciation, speaking, comprehension, reading, and writing, with a focus on Brazilian Portuguese.

*Prerequisite:* POR 111 or instructor consent  
4 credits

## **PSY**

## Psychology

### PSY 103- F: Introduction to Psychology

An introduction to research and theory in psychology in such areas as learning, perception, cognition, biopsychology, development, personality, and abnormal and social psychology. As part of the course, students must participate in experiments and/or a library research project.

3 credits

### PSY 201- C: Statistical Methods in Psychology

The use and interpretation of elementary statistical techniques in research, emphasizing descriptive statistics, correlational analysis, and inferential statistics, including chi-square, t-tests, and an introduction to the Analysis of Variance. May not be taken for credit after AMS 102, ECO 320, POL 201, or SOC 202. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites:* PSY 103; *satisfaction of entry skill in mathematics requirement*

3 credits

### PSY 220- F: Survey in Developmental Psychology

A study of the growth processes from fetal development to late childhood. Perceptual and learning characteristics are explained as they relate to increases in cognitive and social competence in the total community. Biological factors are examined as they relate to inheritance of behavior patterns.

*Prerequisite:* PSY 103

3 credits

### PSY 230- F: Survey in Abnormal and Clinical Psychology

Examines the description, etiology, course, and treatment of psychological disorders. Current theory and research are emphasized.

*Prerequisite:* PSY 103

3 credits

### PSY 240- F: Survey in Social Psychology

A presentation of various topics in social psychology including interpersonal processes, obedience to authority, social perception, attitude change, attraction and liking, and aggression and violence, especially as applied to national and international issues.

*Prerequisite:* PSY 103

3 credits

### PSY 250- F: Survey in Biopsychology

Introduction to the neural basis of sensory processes, motor control, attention, emotion, and learning.

*Prerequisite:* PSY 103 or BIO 101 or 150

3 credits

### PSY 260- F: Survey in Cognition and Perception

A survey of theoretical and empirical work on human cognition and perception including pattern recognition, memory, attention, language comprehension, decision making, and problem solving.

*Prerequisite:* PSY 103

3 credits

### PSY 273: Supervised Research in Psychology

Initial training and participation in techniques or duties related to a specific laboratory or field research experience under the direct supervision of a faculty member or advanced graduate student in the Department of Psychology. Students may take two sections in a single semester, but no more than three credits may be applied to a section. May not be taken for more than six credits per faculty advisor during the student's career.

*Prerequisite:* *Permission of instructor*

0-6 credits, S/U grading

### PSY 283: Applications and Community Service

Designed to provide opportunities for students to study and apply psychological principles outside the classroom (e.g., in settings such as hospitals and schools). Specific programs vary from semester to semester. General information is available in the Psychology Undergraduate Office. May be repeated up to a limit of six credits.

*Prerequisite:* *Permission of instructor*

1-3 credits, S/U grading

### PSY 285: Practicum in Infant/Toddler or Preschool Development and Education

Students work nine hours a week in a full-day child care center on campus with infants/toddlers or preschool-aged children (Section numbers 1 and 2 denote assignment to infants/toddlers; Section numbers 3 and 4 are the practicum with preschool-aged children). Students gain practical experience in infancy or preschool development and education through guiding, teaching, preparing age-appropriate materials, and observing.

Students maintain daily journals; they also plan, develop, and implement appropriate educational activities that provide some of the basis for discussion and evaluation in the corequisite seminar, PSY 385. This course requires students to use knowledge gained in PSY 385 in a closely supervised situation. Can be repeated once by enrolling in a section that focuses on a different age group.

*Prerequisite:* CFS 210 or CFS 322 or PSY 220 or PSY 325 or PSY 326; *permission of instructor*

*Corequisite:* PSY 385

3 credits, S/U grading

### PSY 301: Advanced Statistics

Survey of probability and sampling theory, descriptive and inferential statistics, and introduction to experimental design.

*Advisory Prerequisite:* PSY 310

3 credits

### PSY 310- F: Research and Writing in Psychology

An introduction to and critical analysis of the methodology of psychological research. In addition to attending lectures taught by faculty, students work closely with a graduate instructor and peers in small breakout sections to prepare a research proposal. Not for credit in addition to the discontinued PSY 300. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites:* PSY 103; PSY 201 or any other course satisfying the department's statistics requirement

4 credits

### PSY 325: Children's Cognitive Development

A survey of the basic principles of cognition from experimental research with children. Topics include perceptual development, language development, memory development, conceptual development, and the development of academic skills.

*Prerequisites:* PSY 220

*Advisory Prerequisite:* PSY 310

3 credits

### PSY 326: Children's Social and Emotional Development

Current theories, models, research methods, and findings in the study of children's socioemotional development. The course emphasizes the interaction of the individual with his or her social environment in developmental processes and outcomes. Eras

covered include infancy, toddler/preschool, mid-late childhood, and adolescence.

*Prerequisites:* PSY 220

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 327: Human Growth and Development in the Educational Context**

The biological and psychological development of childhood and adolescence that affects teaching and curriculum development for diverse learners. Additional topics include childhood and adolescent psychiatric disorders, special education programs, drug and alcohol use and abuse, and societal issues. Formerly SSE 327 and SSI 327. Not for credit in addition to SSE 327 or SSI 327.

*Prerequisites:* U3 or U4 standing; admission to a teacher education program, or admission in the Psychology major

3 credits

### **PSY 329: Special Topics in Developmental Psychology**

May be repeated as the topic changes.

*Prerequisites:* PSY 220

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 333: Mood Disorders**

The mood disorders include bipolar (manic-depressive) and depressive disorders. They are among the most common psychological disorders, and are a tremendous personal, social, and economic burden. This course will provide an introduction to current theory and research on the mood disorders, including their classification, epidemiology, course, etiology, pathogenesis, and treatment. Not for credit in addition to PSY 339 with topic of "Mood Disorders."

*Prerequisite:* PSY 230

3 credits

### **PSY 334- F: Autism and Intellectual Disability**

Study of concepts, procedures, and research related to autism, mental retardation, and other developmental disabilities from a psychological and educational perspective. Topics to be dealt with include: assessment, family roles, development of communication, social development, cognitive development, sensory and motor development, adaptive behaviors, problem behaviors, instructional strategies, comprehensive programs, public policy legal issues, personnel preparation, methodological and research issues, and future directions for disability research and practice.

*Prerequisite:* PSY 230

*Advisory Prerequisite:* PSY 220

3 credits

### **PSY 335: Clinical Behavior Modification**

The application of behavioral and cognitive sciences to the assessment and treatment of clinical problems. The aims of the course are to familiarize the student with the theoretical and empirical foundations of clinical behavior modification, provide examples of applications to a variety of different clinical problems, and discuss the results of outcome studies. While specific treatment methods are described and issues related to clinical application are discussed, no actual clinical training or practicum is provided in this course.

*Prerequisite:* PSY 230

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 337: Applied Behavior Analysis/ Positive Behavior Support**

Exploration of concepts, procedures, and research related to applied behavior analysis/ positive behavior support, an approach that involves the application of principles derived from behavioral, community, and ecological psychology to problems of social significance in the fields of clinical psychology, education, family life, and health. There is a focus on issues of assessment, intervention, and outcomes related to problem behavior, school performance, home-based support, community integration, and improving quality of life through systems change. Not for credit in addition to PSY 339 when the topic is Applied Behavior Analysis/Positive Behavior Support.

*Prerequisite:* PSY 103

*Advisory Prerequisite:* U3 or U4 standing

3 credits

### **PSY 338: Behavior Deviation in Children**

Development and modification of behavioral deviations in children; application of principles derived from experimental analysis of behavior to problems of children.

*Prerequisites:* PSY 220

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 339: Special Topics in Clinical Psychology**

May be repeated as the topic changes.

*Prerequisite:* PSY 230

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 341: Psychology of Prejudice**

An overview of theoretical perspectives, research methods, empirical findings, and practical applications of psychological research on prejudice. Topics include the development of prejudice among children; the role of cognitive, social, personality, and motivational factors in maintaining prejudice and stigma; the psychological consequences of prejudice and stigma; and strategies for reducing prejudice, stigma, and intergroup conflict.

*Prerequisite:* PSY 240

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 344: Development and Aging in Adulthood**

Adult development, aging and death will be examined in the context of family relationships, friendship patterns, intergenerational ties, and cultural themes. Cognitive process, personality, and coping strategies will be integrated into a discussion of biological aging and health maintenance in order to understand the range of individual, ethnic and socioeconomic differences that influence personal choices and challenges in identity formation, work, leisure and retirement. This course is offered as both CFS 344 and PSY 344.

*Prerequisite:* U3 standing; CFS 210 or PSY 220

3 credits

### **PSY 345: Theories of Personality**

The study of the ways in which people differ. Examines traditional and current thinking and research about the nature and causes of the individual patterns of behavior, emotion, and thinking that we call personality.

*Prerequisite:* PSY 240

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 346: Health Psychology**

The role of psychological factors in the maintenance of good health or in coping with illness. Topics include the modification of specific health behavior, such as alcoholism, obesity, lack of exercise, and smoking; the relationship of stress and illness; and coping with terminal illnesses.

*Prerequisite:* PSY 240

*Advisory Prerequisite:* PSY 310

3 credits

### **PSY 347- F: Psychology of Women**

The psychological impact of important physiological and sociological events and

epochs in the lives of women; menstruation, female sexuality, marriage, childbirth, and menopause; women and mental health, mental illness and psychotherapy; the role of women in the field of psychology. This course is offered as both PSY 347 and WST 377.

*Prerequisite: WST major or minor; or one of the following: WST 102, WST 103, PSY 103, WST/SOC 247*

3 credits

### **PSY 348: Special Topics in Social Psychology**

May be repeated as the topic changes.

3 credits

### **PSY 349: Special Topics in Social Psychology**

May be repeated as the topic changes.

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 355: Human Brain Function**

The functional organization of the human brain, including dysfunctions resulting from various types of brain pathology. Neuroanatomical, neuropsychological, neurophysiological, and experimental psychological approaches are described.

*Prerequisite: PSY 250*

3 credits

### **PSY 356: Physiological Psychology**

An advanced survey of the neurobiological bases of complex behavior. A review of basic neurophysiology, neuroanatomy, and neurochemistry is followed by considerations of the circuitry and neural processing supporting perception, motion, emotion, sleep, attention, learning, language, and higher cognitive mechanisms.

*Prerequisite: PSY 250 or BIO 202 or BIO 203*

3 credits

### **PSY 357: Animal Learning**

Principles of adaptation and behavioral change with emphasis on techniques of reward and punishment and of stimulus control.

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 358: Special Topics in Biopsychology**

May be repeated as the topic changes.

3 credits

### **PSY 359: Special Topics in Biopsychology**

May be repeated as the topic changes.

*Prerequisite: PSY 250*

3 credits

### **PSY 364: Judgment and Decision Making**

An exploration of the psychological factors that influence judgment and decision making. Topics include how judgments and decisions ought to be made (e.g., rational decision making), systematic flaws in people's actual performance, and the neural systems that underlie decisions.

*Prerequisite: PSY 260*

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 365: The Psychology of Language**

Examination of language acquisition and a consideration of its implication for cognitive psychology.

*Prerequisite: PSY 260*

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 366: Human Problem Solving**

An exploration of human problem solving and critical thinking. Topics include memory strategies, the role of language in thinking, inductive and deductive reasoning, creativity, and the development of problem solving skills.

*Prerequisite: PSY 260*

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 367: Memory**

A review of classic and current theories of memory and empirical research on memory in memory-intact and memory-impaired populations.

*Prerequisite: PSY 260*

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 368: Sensation and Perception**

An examination of both the basic mechanisms and the organizational processes of visual and auditory perception. Topics include the perception of color, depth, movement, pitch, loudness, speech, and music.

*Prerequisite: PSY 260*

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 369: Special Topics in Cognition and Perception**

May be repeated as the topic changes.

*Prerequisite: PSY 260*

*Advisory Prerequisite: PSY 310*

3 credits

### **PSY 375: History and Systems of Psychology**

History of psychology presented either as a development and testing of theories that emerge from a long philosophical tradition, or as a set of practices that serve particular social functions and respond to pressures from the socioeconomic context.

*Prerequisites: Nine credits of psychology*

3 credits

### **PSY 380: Research Lab: Human Cognition**

Techniques and experimental methods to conduct research in cognition on a selection of topics such as perception and sensation, language, attention, or memory. Hands-on learning of research and reporting of research.

*Prerequisites: PSY 310; permission of instructor*

4 credits

### **PSY 382: Research Lab: Social Psychology**

Techniques and experimental problems in social psychology, including natural observation, surveys, and experimental design. Three hours of lecture and two hours of field or laboratory research per week.

*Prerequisites: PSY 240 and 310*

4 credits

### **PSY 383: Behavioral Ecology Laboratory**

This course is an introduction to and critical analysis of theory and research on animal behavior in natural and naturalistic settings. A field research study is major component of this course. This course is also only open to B.S. majors in Psychology and enrollment is limited.

*Prerequisites: PSY 103 or 104; PSY 201 or AMS 102; PSY 310*

4 credits

### **PSY 384: Research Lab: Human Factors**

Current theories and empirical methods in the psychology of human-computer interaction. Students practice techniques in the research, design, and evaluation of human-computer interfaces.

*Prerequisites: PSY 260 and 310; permission of department*

4 credits

### **PSY 385- F: Seminar in Infant/Toddler or Preschool Development and Education**

Seminar in development and education of infants/toddlers or preschool-aged children (Section numbers 1 and 2 are seminar on infants/toddlers; Section numbers 3 and 4 are seminar on preschool-aged children). Sections devoted to infants/toddlers focus on learning and living environments that foster emergent communication and language skills and promote social, cognitive, physical, and emotional development. Sections devoted to preschool-aged children focus on emergent literacy, science and math discovery, and multi-sensory experiences that enhance motor development and exploration of the arts. Strategies for problem solving and promotion of positive social interaction and emotional development, including active listening, limit-setting, conflict negotiation, and child initiated approaches are examined from a multicultural perspective. Students design age-appropriate curricula and implement them under instructor supervision within the co-requisite practicum, PSY 285. Can be repeated once by enrolling in a section that focuses on a different age group. Can be used once toward Psychology Department elective requirements.

*Prerequisite: CFS 210 or CFS 322 or PSY 220 or PSY 325 or PSY 326; permission of instructor*

*Corequisite: PSY 285*

3 credits

### **PSY 399: Junior Honors Seminar**

First course of a three-semester research seminar on research in psychology. Topics investigated by faculty are reviewed. The class focuses on particular theories, methods, and results that illustrate the research process within the department. Students are expected to present oral and written proposals for their senior year research project.

*Prerequisites: PSY 310; admission to psychology honors program*

1 credit

### **PSY 447: Readings in Psychology**

Directed readings under the guidance of a faculty member. May be repeated once.

*Advisory Prerequisite: PSY 310*

1-6 credits

### **PSY 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly assigned times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisites: PSY 310; U4 standing in psychology major; permission of instructor and department*

3 credits, S/U grading

### **PSY 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: PSY 475; permission of instructor and department*

3 credits, S/U grading

### **PSY 487: Independent Research in Psychology**

Upper-division students interested in carrying out independent research projects under the auspices of a faculty member in the Department of Psychology may do so in this course. The student must propose and carry out the research project and must analyze and write up the results in a form acceptable to the sponsor. Written agreement by the faculty sponsor to undertake this responsibility and an outline of the project goals are filed with the Undergraduate Psychology Office. These become part of the student's departmental file. May be repeated up to a limit of 12 credits.

*Prerequisites: U3 or U4 standing; PSY 310; permission of department*

0-6 credits

### **PSY 488: Internship**

Participation in public and private agencies and organizations. Students are required to submit written progress reports and a final written report on their experience to the faculty sponsor and department. May be repeated up to a limit of 12 credits.

*Prerequisites: 12 credits in psychology including PSY 310; permission of the supervising faculty member and undergraduate director*

0-6 credits, S/U grading

### **PSY 491: Advanced Seminar in Psychology**

Special seminars covering current research theory. Topics are announced prior to the beginning of each semester. May be repeated up to a limit of 18 credits. Students may take two sections in a single semester. May not be taken for more than six credits per faculty member during the student's career.

*Prerequisites: PSY 310; permission of instructor*

1-3 credits

### **PSY 492: Advanced Seminar in Psychology**

Special seminars covering current research theory. Topics are announced prior to the beginning of each semester. May be repeated up to a limit of 18 credits. Students may take two sections in a single semester. May not be taken for more than six credits per faculty member during the student's career.

*Prerequisites: PSY 310; permission of instructor*

1-3 credits

### **PSY 495: Senior Honors Seminar**

Second course of a three-semester research seminar with continuing discussions of methods and theories relevant to honors research projects. Students are expected to design and execute a research project and submit a these under the supervision of appropriate faculty sponsorship. Students enrolled in PSY 495 are obliged to complete PSY 496. Students receive only one grade upon completion of the sequence.

*Prerequisite: PSY 399; permission of department*

*Corequisite: PSY 487*

1 credit

### **PSY 496: Senior Honors Seminar**

Third course of a three-semester research seminar with continuing discussions of methods and theories relevant to honors research projects. Students are expected to design and execute a research project and submit a these under the supervision of appropriate faculty sponsorship. Students enrolled in PSY 495 are obliged to complete PSY 496. Students receive only one grade upon completion of the sequence.

*Prerequisite: PSY 495; permission of department*

*Corequisite: PSY 487*

1 credit

## **RLS**

### **Religious Studies**

#### **RLS 101- B: Western Religions**

An historical introduction to Judaism, Christianity, and Islam. Attention is given to the cultural background, art, literature, philosophy, and institutional development of each tradition.

3 credits

### **RLS 102- B: Eastern Religions**

An historical introduction to Hinduism, Buddhism, Confucianism, and Taoism. Attention is given to the cultural background, art, literature, philosophy, and institutional development of each tradition. This course is offered as both AAS 102 and RLS 102.

3 credits

### **RLS 230- G: Judaism**

A survey of the great texts of the Judaic heritage, with the aim of learning the contribution of each to the Jewish tradition. The course includes an examination of characteristic Jewish beliefs, practices, and attitudes. This course is offered as both JDH 230 and RLS 230.

3 credits

### **RLS 240- J: Confucianism and Daoism**

An introduction to the basic philosophies and doctrines of Confucianism and Daoism, such as the concept of Dao, non-action, benevolence, and propriety. The course explores both the similarities and the differences between these two traditions. This course is offered as both AAS 240 and RLS 240.

3 credits

### **RLS 246- J: Korean and Japanese Religions**

An introduction to Korean and Japanese religious history from earliest recorded periods to the 19th century. Emphasis is given to Buddhism, Confucianism, Taoism, Korean Shamanism, and Japanese Shintoism. Relationships between the Korean variant of religious traditions and those of China and Japan are also investigated.

3 credits

### **RLS 256- J: Hinduism**

Survey of the principal religious and philosophical currents of Hindu civilization in India from the time of the Vedas and Upanishads through the development of the major devotional ways and schools of thought current in India today. These include the polytheism of Hindu mythology, the theism of various forms of devotional practice, and the monotheism and nondualism of Hindu philosophy. This course is offered as both AAS 256 and RLS 256.

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

### **RLS 260- J: Buddhism**

An introduction to the basic philosophy and doctrines of Buddhism, beginning with a survey of lives and works of major historical figures of Buddhism. The principal issues of Buddhist thought, drawing from Indian, East Asian, and Western sources, are treated. Particular attention is paid to the meaning of faith, practice, and enlightenment in Buddhism. This course is offered as both AAS 260 and RLS 260.

3 credits

### **RLS 270- I: Christianity**

A critical introduction to the scripture, tradition, history, and religious practices and beliefs of Christianity as one of the principal factors in the shaping of European culture.

3 credits

### **RLS 280- J: Islam**

An introduction to the main features of Islamic revelation as contained in the Koran and its impact on the major spiritual, intellectual, legal, and social teachings and institutions of the Islamic world. The course concludes with an examination of Islam in the modern world. This course is offered as both AAS 280 and RLS 280.

3 credits

### **RLS 301- G: Sources and Methods**

An in-depth inquiry into the application of critical, historical, and philosophical methods to religious texts and experiences. An introduction to the resources and limitations of academic study of religion.

*Prerequisite: any 200-level or higher RLS course*

3 credits

### **RLS 310- G: Biblical Theology**

Intensive introduction to the theological tendencies and implications of selected major texts from the Christian and Jewish scriptures. The course surveys historical and critical work on the selected texts, but focuses on the religious thinking reflected in them and their influence on later traditions. May be repeated once as the topic changes.

*Prerequisite: U3 or U4 standing  
Advisory Prerequisite: Varies according to topic*

3 credits

### **RLS 320- G: The Rabbinic Tradition**

The origin and development of the Rabbinic tradition, examination of the chief elements of Rabbinic teaching at various times, and

analysis of the major types of Rabbinic literature.

*Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230*

3 credits

### **RLS 366- G: Feminine Spirituality**

The role and destiny of human beings as envisaged by the world's great traditions, especially the Chinese and the Islamic. The course focuses on the concept of femininity as a principle in the realms of theology, metaphysics, cosmology, and spiritual psychology; and the theoretical and practical applications of the feminine principle to the place of both men and women in society. Topics include feminine and masculine as metaphysical and cosmological principles; woman and religious law; woman's role in symbolism, mythology, and literature; and the feminine aspects of the self that both women and men need to develop on the path of achieving spiritual perfection. Previously offered as RLS 426, this course is now offered as RLS 366. Not for credit in addition to the former RLS 426. This course is offered as both AAS 366 and RLS 366.

*Prerequisite: any 200-level or higher RLS course*

3 credits

### **RLS 367- J: Meditation and Enlightenment**

A critical analysis of the traditions, practices, and literature of Zen and other traditions of Buddhism, with particular attention paid to the meaning of enlightenment and the practice of meditation. Previously offered as RLS 341, this course is now offered as both AAS 367 and RLS 367. Not for credit in addition to the former RLS 341.

*Prerequisite: AAS/RLS 102 or 260*

3 credits

### **RLS 368- J: Yoga: Theory and Praxis**

In this course we investigate Yogic systems of philosophy and self-transformation in their many forms throughout history. Topics include the origins of Yoga in ancient India, the philosophy of the Yoga Sutras and its commentarial traditions, Buddhist Yoga, Hatha Yoga, Tantric Yoga, and the medicalization and globalization of Yoga in the modern period. Students are encouraged to supplement class discussions by participating in Yoga classes at the Stony Brook University Wellness Center. This course is offered as both AAS 368 and RLS 368.

*Prerequisite: One previous course in AAS or RLS*

*Advisory Prerequisite: Junior or Senior standing*

3 credits

### **RLS 380- G: Islamic Classics**

A study in depth of Islamic texts in translation. Selections may be made from the Qur'an, the Hadith, the Law, and from one or more of the major intellectual schools, such as Kalam (scholastic theology), Peripatetic philosophy, illuminationist theosophy, Sufism, and the "transcendent theosophy" of the School of Isfahan. May be repeated as the topic changes. Previously offered as RLS 408, this course is now offered as both AAS 380 and RLS 380.

*Prerequisite: AAS/RLS 280*

3 credits

### **RLS 382- G: Japanese Buddhism**

An introduction to the teachings and practices of two major schools of Japanese Buddhism: Zen and Pure Land. The course focuses on the writings of the founders of the important lineages within these schools. Formerly offered as RLS 406, this course is now offered as both AAS 382 and RLS 382. Not for credit in addition to the former RLS 406.

*Prerequisite: AAS/RLS 260*

3 credits

### **RLS 387- J: Islam and Confucianism**

The goal of this course is to compare the basic teachings of Islam and Confucianism concerning the correct way to achieve true human status. Special stress will be placed on books that Muslim scholars wrote in Chinese beginning in the seventeenth century. These books employed Neo-Confucian language to introduce Chinese Muslims to their own theology, cosmology, and spiritual psychology, thus providing a rare pre-modern example of inter-religious dialogue. This course is offered as both AAS 387 and RLS 387.

3 credits

### **RLS 390- G: Special Topics**

May be repeated for credit as the topic changes. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

### **RLS 391- G: Special Topics**

May be repeated for credit as the topic changes. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated as the topic changes.

*Prerequisite: U3 or U4 standing*

*Advisory Prerequisite: Completion of D.E.C. category B*

3 credits

### **RLS 400: Religious Studies Seminar**

A seminar for senior majors in religious studies, focusing on the problem of the relation between phenomenology, hermeneutics, and history of religions on the one hand and their theological and philosophic interpretation on the other.

*Prerequisite: Permission of the director of undergraduate studies*

3 credits

### **RLS 415- G: Judaic Response to Catastrophe**

The response of Judaic thinkers, from the Bible to the Second World War, to the problem of historical disaster and the need to understand and respond to it. Particular attention is given to the question of long-term continuity and the appearance of innovation in such responses. This course is offered as both JDH 415 and RLS 415.

*Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230*

3 credits

### **RLS 447: Readings in Religious Studies**

Directed readings with religious studies faculty, limited to religious studies majors or upper-division students working on advanced problems in religious studies. May be repeated.

*Prerequisite: Permission of program coordinator*

1-6 credits

### **RLS 475: Undergraduate Teaching Practicum**

Students assist instructors in religious studies courses with large enrollments. Under the supervision of the course instructor, they are responsible for conducting discussion and review sections of the course and helping students with course readings and assignments such as research papers.

*Prerequisites: U4 standing in religious studies major; permission of instructor and program director*

3 credits, S/U grading

### **RLS 495: Senior Honors Project**

First course of a two-semester project for RLS majors who are candidates for the degree with honors. Arranged with the program during the student's junior year, the project involves independent study and the writing of a paper under close supervision of an appropriate faculty member, on a topic chosen by the student. Students receive only one grade upon completion of the sequence.

*Prerequisite: Permission of instructor and program director*

3 credits

### **RLS 496: Senior Honors Project**

Second course of a two-semester project for RLS majors who are candidates for the degree with honors. Arranged with the program during the student's junior year, the project involves independent study and the writing of a paper under close supervision of an appropriate faculty member, on a topic chosen by the student. Students receive only one grade upon completion of the sequence.

*Prerequisite: Permission of instructor and program director*

3 credits

## **RUS**

### **Russian Language and Literature**

#### **RUS 101 - S3: Intensive Elementary Russian**

An intensive course covering the elementary Russian program (RUS 111, 112) in one semester. RUS 101 is designed for students who have no prior knowledge of the language. A student who has had two or more years of Russian in high school (or who has otherwise acquired an equivalent proficiency) may not take this course without written permission from the supervisor of the course. May not be taken for credit after any other course in Russian.

6 credits

#### **RUS 111: Elementary Russian I**

An introduction to Russian. Class work is supplemented by practice in the language laboratory. The course is designed for students who have no prior knowledge of the language. A student who has had two or more years of Russian in high school (or who has otherwise

acquired an equivalent proficiency) may not take RUS 111 without written permission from the supervisor of the course.

4 credits

### **RUS 112 - S3: Elementary Russian II**

An introduction to Russian. Class work is supplemented by practice in the language laboratory.

*Prerequisite: RUS 111*

4 credits

### **RUS 211 - S3: Intermediate Russian I**

Intermediate courses in Russian stressing an active command of the language. May not be taken for credit in addition to RUS 213.

*Prerequisite: RUS 112*

3 credits

### **RUS 212 - S3: Intermediate Russian II**

Intermediate courses in Russian stressing an active command of the language. May not be taken for credit in addition to RUS 213.

*Prerequisite: RUS 211*

3 credits

### **RUS 213 - S3: Intermediate Russian for Students of Russian-Speaking Background**

A course intended for students who already speak Russian and who need training in writing, reading, and grammar. May not be taken for credit in addition to RUS 211 or 212. The course is not intended for students who have the equivalent of a Russian high school education.

*Prerequisite: Native-speaking proficiency in Russian*

3 credits

### **RUS 311 - S3: Russian Conversation and Composition**

A course in the active use of spoken and written Russian. Particular emphasis is placed on contemporary idiom.

*Prerequisites: RUS 212 or 213; permission of instructor required for students of Russian-speaking background*

3 credits

### **RUS 312 - S3: Russian Conversation and Composition**

A course in the active use of spoken and written Russian. Particular emphasis is placed on contemporary idiom.

*Prerequisites: RUS 212 or 213; permission of instructor required for students of Russian-speaking background*

3 credits

### **RUS 323- G & 3: Russian Literary Texts**

A survey of representative texts chosen from various periods of Russian literature. Intended to improve the students' command of the literary language; readings and discussions are in Russian.

*Prerequisite: RUS 312 or equivalent proficiency in Russian*

3 credits

### **RUS 331: Contemporary Russian Literacy**

The study of Russian Language and culture past the intermediate level through the use of internet resources. Intended to develop contemporary cultural literacy through online research, readings in online media and texts, writing essays and blogs in Russian. Note: this course is offered online and is intended for students of Russian-speaking background.

*Prerequisites: RUS 212 and 213, or equivalent*

3 credits

### **RUS 332: Professional Russian**

This course is intended as an opportunity for students to use class time to research literature written in Russian pertaining to their majors. The course will be taught online but has several mandatory in-person meetings on campus and will make use of internet resources for research, reading and writing tasks. The primary goals will be the enrichment of professional vocabulary and development of advanced reading and writing proficiency in the student's major field of study.

*Prerequisites: RUS 212 and 213, or equivalent*

3 credits

### **RUS 411: Advanced Russian I (Fourth-year)**

A proficiency-oriented course intended for fourth-year students of Russian who have completed six semesters of college-level instruction or the equivalent. The course focuses on advanced topics in grammar and syntax and sets as a goal an active vocabulary of 2,250 words. Particular attention will be devoted to oral and written skills through oral presentations and essays respectively. The expected outcome is language ability ranging from intermediate high to advanced low as determined by ACTFL Proficiency Guidelines.

*Prerequisite: RUS 312 or equivalent*

3 credits

### **RUS 412: Advanced Russian II (Fourth-year)**

A proficiency-oriented course intended for fourth-year students of Russian who have completed seven semesters of college-level

instruction or the equivalent. The course focuses on advanced topics in grammar, syntax, word formation and derivation and sets as a goal an active vocabulary of 2,500 words. Particular attention will be devoted to oral and written skills through oral presentations and essays respectively. The expected outcome is language ability ranging from advanced low to advanced mid as determined by ACTFL Proficiency Guidelines.

*Prerequisite: RUS 411 or equivalent*

3 credits

### **RUS 439 - S3: Structure of Russian**

The study of Russian phonetics, phonology, and morphology, with a discussion of different theoretical approaches as well as practical application. This course is especially recommended for prospective teachers of Russian.

*Prerequisite: RUS 212 or equivalent proficiency in Russian*

3 credits

### **RUS 447 - S3: Directed Readings in Russian**

A program of independent advanced study for qualified juniors and seniors under the supervision of a faculty member.

*Prerequisites: RUS 311, 312 or equivalent proficiency in Russian; a 300- or 400-level course in Russian literature; permission of instructor and department*

1-3 credits

### **RUS 475 - S3: Undergraduate Teaching Practicum in Russian I**

Each student conducts a regular problem or tutorial section that supplements a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion and helping students with problems. Not for major or minor credit.

*Prerequisites: Fluency in Russian; permission of instructor and department*

3 credits, S/U grading

### **RUS 476 - S3: Undergraduate Teaching Practicum in Russian II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisites: Fluency in Russian; permission of instructor and department*

3 credits, S/U grading

### **RUS 491- G & 3: Special Author**

A detailed study of the works of a major 19th- or 20th-century author, such as Pushkin, Gogol, Turgenev, or Blok. Readings are in Russian, and classes are conducted largely in Russian. May be repeated as the topic changes.

*Prerequisites: HUR 141, 142; RUS 312 or equivalent proficiency in Russian*

3 credits

### **RUS 492- G & 3: Special Genre or Period**

A detailed study of a special genre such as the Russian novel or Russian drama, or period such as Soviet literature. Readings are in Russian, and classes are conducted largely in Russian. May be repeated as the topic changes.

*Prerequisites: HUR 141, 142; RUS 312 or equivalent proficiency in Russian*

3 credits

### **RUS 495 - S3: Senior Honors Project in Russian**

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

*Prerequisite: Permission of department*

3 credits

## **SBC**

### **Sustainability Block Curriculum**

#### **SBC 104- B: Introduction to Moral Reasoning**

An introductory inquiry into the formation and evaluation of moral judgments and reasoning. The major theories and problems of ethics are surveyed, such as utilitarianism, Kant's categorical imperative, ethical relativism, egoism, and various concepts of the good and virtue. Readings from historical and contemporary figures.

3 credits

#### **SBC 111: Introduction to Sustainability Studies**

Survey course introduces concept of sustainability. Sustainability is often defined as the ability to provide for the needs of the world's current population without damaging the ability of future generations to provide

for themselves. This course reviews the needs of the current population and future generations, trends that affect our ability to provide those needs, and possible solutions that are environmentally, economically, and socially acceptable.

3 credits

#### **SBC 113- E: Physical Geography Lecture**

This study of geosystems examines modern environmental problems through quantitative methods, analysis, and modeling grounded in basic and applied science and research. The goal of the course is to introduce students to the fundamental processes that dominate the atmosphere, hydrosphere, lithosphere, and biosphere, their characteristics and complex interactions, and their impact on human life and society.

3 credits

#### **SBC 114: Physical Geography Lab**

This laboratory course provides hands on experience in understanding the geosystems, including distribution and interrelationships of climate, vegetation, soils, and landforms.

*Pre- or corequisite: SBC 113*

1 credit

#### **SBC 115: Introduction to Human Demography**

An introductory course on the study of human population. Measurement issues and data in demographic analysis, as well as demographic perspectives on the basis of a review of major sources of information about population studies will be presented. Theories incorporating social, economic and political explanations for influences on human population growth will be considered. Population processes, with focus on fertility, mortality and migration, are reviewed. Population structure and characteristics, the interaction of the population processes and the number of people in a society of a given age, sex, race, ethnicity, socioeconomic levels, marital status, and gender, are reviewed. Major issues related to sustainability (such as economic development, food and pollution, urbanization, gender and minority empowerment, and the human relationship and ecology with other organisms and species) are reviewed.

*Prerequisite: MAT 125, MAT 131, MAT 132, or level 6 or higher on math placement exam.*

3 credits

#### **SBC 116: Introduction to Human Geography**

Survey course introduces geography as a social science by emphasizing the relevance of geographic concepts to human problems. Course emphasizes globalization and cultural diversity.

3 credits

#### **SBC 117- D: Design Drawing**

This introductory course exposes the student to the fundamental theories and practices employed in visually representing design concepts from observational through technical and speculative drawing. The course content introduces the student to contour drawing, rendering, orthographic projection, and pictorial drawing. Project work engages the student in the application of the above-mentioned drawing techniques and develops skills through the solution of student tailored problems.

3 credits

#### **SBC 200- F: Human Settlement: History and Future**

The history of city growth over the millennia as affected by technological change is a basis for understanding the future of human settlement. More than half of the world's population currently lives in cities and urbanization continues on a global scale. The universality of urban development and resulting patterns will be presented as well as limits on growth of cities. Architectonic and socioeconomic planning theories and strategies for sustainable growth are presented. The development of Long Island, which is a microcosm of national and global patterns, will be discussed in detail.

3 credits

#### **SBC 201: Systems and Models**

Introduction to the dynamic modeling of complex systems. Students will learn to use simulation software that facilitates the visualization, formulation, and analysis of systems. Students will learn about systems with positive and negative feedbacks, the effects lags on system performance, and the difference between stocks and flows. Systems studied will include ecological models, economic models, chemical models, population models, epidemiological models, and models that include the interactions between population, economic development, and the environment.

*Prerequisite: AMS 151 or MAT 125 or MAT 131 or MAT 141*

1 credit

#### **SBC 203- G: Interpretation and Critical Analysis**

An introduction to interdisciplinary inquiry and representation in arts, culture, and theory with emphasis on the roles of analysis, argument, and imagination in multiple media. Requires serious engagement with sophisticated texts.

*Pre- or corequisite: WRT 102*

*3 credits*

### **SBC 204- E: Population Studies**

The course will present basic mathematics of population growth and introduce various approaches for modeling populations, including population viability analysis (PVA). PVA, the quantitative assessment of the extinction risk of rare species or populations, takes biological information (habitat requirements, birth and death rates, population size) and makes predictions about future population sizes. Real examples will be discussed for a range of organisms, from bacteria to plants and mammals. This course will provide also the background for understanding human population growth. The impacts of human population growth in the developed and developing world on the ecology of other organisms, habitats and systems will also be discussed.

*Prerequisite: MAT 125 and SBC 201*

*3 credits*

### **SBC 205: Introduction to Geospatial Analysis (lab course)**

Introduction to geographic information systems (GIS) and remote sensing techniques as applied to documenting, mapping, analyzing, interpreting, and managing natural and cultural resources. Overview of types of GIS data, computer hardware and software used for geospatial analysis, basic cartography, and global positioning system (GPS).

*1 credit*

### **SBC 206- F: Economics and Sustainability**

Introduction to the basic economic concepts used in sustainability analysis. Students will learn the basic concepts and how to apply them in various context. Topics include the analysis of situations in which the behavior of individuals indirectly affects the well-being of others, strategic behavior and the environment, and the use of market-oriented policies to help in the stewardship of the environment.

*Prerequisite: ECO 108*

*3 credits*

### **SBC 307- K & 4: American Environmental History**

This course provides an overview of the history of how Americans have used, viewed and valued the natural environment. Beginning with the Indians and the early colonists (15th-16th centuries), the course will examine the cultural, social, economic, political, and technological currents that shaped North Americans' relationships with their environment in early and later industrial eras, after World War II, and finally, in the late 20th and early 21st centuries. Historical snapshots will center on people living in more natural places, such as farms and forests, as well as more built places, such as factories, cities, and suburbs. Events in the northeastern U.S. will provide a geographic focus, but the course will also look at related happenings elsewhere on the North American continent and beyond. Finally, it will examine at the growing array of movements that have identified themselves as 'environmental,' at the 'greenness' of modern culture, and at the environmental dimensions of a globalizing era.

*Prerequisite: U3/U4 standing*

*3 credits*

### **SBC 308- K: American Environmental Politics**

This course will survey the politics of environmental policy-making in the United States. It examines how contrasting political, economic and social interests and values have clashed and contested with one another, and the exerted power, in the environmental policy realm. The course will explore past precedents and roots, but with a view to explain the shape of this realm in the modern United States, including the many actors and institutions: local, regional and national governments, non-governmental organizations and interest groups, as well as the public. It will look at the main patterns by which these groups have defined environmental problems and formulated and implemented solutions. A chief goal is to illuminate how and why solutions of real-world environmental problems, if they are to be effective, differ from those of scientific or engineering puzzles.

*Prerequisite: POL 102*

*3 credits*

### **SBC 309: Global Environmental Politics**

This course will explore the politics of environmental policy-making within the international realm. Focused especially on environmental dilemmas that cross national boundaries (i.e., pollution), or that are shared by multiple nations (i.e., global warming) it will look at the ways that such problems have been defined and their solutions sought,

both with and without an over-arching state or governance. It will survey the many groups, interests and values that have clashed and competed with one another to exert power and influence international environmental policies, as well as the variety of international institutions and agreements that have sought to formulate and implement solutions. One goal is to illuminate how and why effective solutions to global environmental problems differ from those to scientific or engineering puzzles. The course also aims to spur student engagement with the sometimes overwhelming nature of global environmental threats, the tenuous and sometimes counterproductive ways that knowledge and power can be linked, and the ways individuals may act powerfully in service of "sustainability."

*Prerequisite: SBC 111 or ENV 115 or ENS 101 or GEO 101 or permission of instructor*

*3 credits*

### **SBC 310: Migration, Development and Population Redistribution**

This course draws upon the contributions of various social and natural sciences (including population and urban geography, demography, political science, sociology, history, economics, public health and environmental sciences) to explore the effects of migratory and demographic shifts on the environment, social welfare, public health, economic development, ethnic diversity, urbanization, public policy and planning. It will examine the political, social, environmental, health and economic effects on sustainability.

*Prerequisite: SBC 115*

*3 credits*

### **SBC 311- H: Disasters and Society: A Global Perspective**

This class introduces students to the sociological examination of natural, technological, and industrial disasters. Students will explore how and why disasters are fundamentally social events: What do disasters reveal about society? Why are the human consequences of disasters unequally distributed? What are the typical ways in which states, organizations, and communities respond to disasters? Focusing on case studies from around the world, students will discuss: What are the long-term/short-term causes of particular disasters? What forms of suffering the disasters under consideration generated? What state/civil society actions did they trigger? What advocacy networks were put in place in their aftermath?

*Prerequisite: SBC 111, or ENS 101, or GEO 101; POL 102 or SOC 105*

*3 credits*

**SBC 312- F: Environment, Society, and Health**

This class examines the interactions between environment, social structures, and institutions. The first part of the class examines the ways in which environmental issues are perceived and constructed by various social actors (lay public, state officials, scientists, activists, media). The second part of the class will examine the differential impact of class, race, and gender on the distribution of hazards and risks (what is commonly known as 'environmental inequality'). In the third part of the class, students will be introduced to different cases of 'contested environmental illnesses' (cancer, lead-poisoning, asthma).

*Prerequisite:* SBC 111, or ENS 101, or GEO 101; POL 102 or SOC 105

3 credits

**SBC 320- J: Sub-Saharan Africa: Geography, Cultures, and Societies**

This course presents a broad perspective on Sub-Saharan Africa, a region of sharp geographic, cultural, and economic contrasts. The legacy of the region's triple heritage (indigenous, Islamic, and European) is presented as a framework for understanding the complexity and diversity of contemporary Sub-Saharan Africa in terms of distribution of languages, religions, ethnicity, family relations, and governance systems. The influence of globalization, migration, HIV/AIDS, conflicts, population growth, and socioeconomic development policies on modern Sub Saharan African are discussed.

*Prerequisite:* Junior or Senior Standing

3 credits

**SBC 321- G: Ecology and Evolution in American Literature**

This course is a review of 19th- and 20th-century American writers who trace the evolution of the US with respect to ecological practices through various multicultural perspectives. Literature covered will include transcendentalist essays, utopian/dystopian novels, ecofeminist fiction, and journalism.

*Prerequisite:* SBC 203 or EGL 204

3 credits

**SBC 325: Environmental Writing and the Media**

An examination of multiple genres (including: photo journalism, literary nonfiction, fine art and advertising and documentary film) in order to understand ways in which these genres are utilized to inform and manipulate public opinion regarding the environment. The culmination of the course will be a final project using multiple genres.

*Prerequisite:* WRT 102

*Advisory Prerequisite:* SBC 203

3 credits

**SBC 330- G: Extreme Events in Literature**

A course that examines the depiction of extreme events (both natural and human-related) in literature, journalism, art, and film, with special emphasis paid to the extended political and social issues that are raised by the events in question.

*Prerequisite:* SBC 203 or EGL 204

3 credits

**SBC 331- G: City, Suburb, Sprawl**

A course that traces the shift from city to suburb to sprawl in texts that span the late-nineteenth century through the early twenty-first century, with special attention paid to phenomena such as industrialization, immigration, mass society, globalization, and postmodern hyperspace. An interdisciplinary set of texts will include works by novelists, artists, architects, and literary theoreticians.

*Prerequisite:* SBC 203 or EGL 204

3 credits

**SBC 354: Drawing for Design--CAD**

Techniques and Theory of Drawing; Architectural Drawing; Learning Computer Assisted Design (CAD). This course will serve as an introduction to CAD tools relevant to design and architectural rendering.

*Prerequisite:* SBC 117

3 credits

**SBC 401: Integrative, Collaborative Systems Studies**

Problem-based capstone course.

*Prerequisite:* U3 or U4 status

3 credits

**SBC 475: Undergraduate Teaching Practicum**

Work with a faculty member as assistant in a regularly scheduled course. The student must attend all classes and carry out all assignments; in addition the student will be assigned a specific role to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course.

*Prerequisites:* Permission of instructor and undergraduate director

3 credits, S/U grading

**SBC 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled courses. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites:* Permission of instructor and undergraduate director

3 credits, S/U grading

**SBC 487: Sustainability Studies Research**

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. Repeatable to a maximum of 3 credits.

*Prerequisite:* Permission of instructor

0-3 credits, S/U grading

**SBC 488: Internship**

Participation in local, state, and national public and private agencies and organizations. May be repeated to a limit of 12 credits.

*Prerequisites:* U3/U4 status and permission of the Undergraduate Program Director

0-12 credits, S/U grading

## SBU

### Stony Brook University

**SBU 101: Introduction to Stony Brook**

A seminar intended to integrate transfer students into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, ACH 101, LDS 101, GLS 101, HDV 101, ITS 101, SSO 101, SCH 101, or LSE 101.

*Prerequisite:* First-semester freshman or transfer student, according to section

1 credit, S/U grading

**SBU 301: Global Issues**

Global issues involving international politics, sociology, and economics. the course addresses topics and regions that are currently of global importance, each class session focussing on a particular issues presented by an expert and coordinated by the instructor. Meeting times may be variable. May be repeated as the topic changes.

1 credit, S/U grading

# SCH

## University Scholars Program

### SCH 101: Introduction to Stony Brook

A seminar intended to integrate students into the University Scholars Program and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, GLS 101, ACH 101, LDS 101, HDV 101, ITS 101, SSO 101, SBU 101, or LSE 101.

*Prerequisite: Admission to the University Scholars Program*

1 credit, S/U grading

# SCI

## Science Teacher Preparation

### SCI 410: Pedagogy and Methods for Science Education I

Fundamental science teaching strategies, theories, and practices are introduced to students. Implementation of the New York State Math, Science, and Technology Standards and core science curricula is emphasized, in addition to the importance of inquiry based learning, laboratory activities, and laboratory safety. Students plan lessons and make several presentations. Students complete an action research project based on field observations made in conjunction with SCI 449.

*Prerequisites: Acceptance to a Science Teacher Preparation program; minimum g.p.a. of 2.75*

*Corequisite: SCI 449 Note: you must register for the same sections of SCI 410 and 449*

3 credits

### SCI 420: Pedagogy and Methods for Science Education II

Builds on the practical application of science pedagogy introduced in SCI 410. Advanced science teaching strategies are presented. Emphasis is placed on the integration of theory and practice, extension of scientific inquiry for diverse learners and assessment of student progress. Essential themes and critical issues in the science disciplines are explored in the context of teaching in secondary schools. Experiences in SCI 450 are incorporated into SCI 420. Note: you must register for the same sections of SCI 420 and 450.

*Prerequisites: C or higher in SCI 410; minimum g.p.a. of 2.75*

*Corequisite: SCI 450*

3 credits

### SCI 447: Directed Readings in Science Education

Advanced study in science education under the supervision of a science education faculty member.

*Prerequisite: Permission of the science education program*

1-6 credits

### SCI 449: Field Experience, Grades 7-12

Students visit science classes in secondary schools and participate in selected school-based outreach programs for a total of 50 hours during the semester. The observations made during these visits serve as the basis for the action research project that is completed in SCI 410, as well as for discussions that occur in class. Due to public school schedules, the majority of these experiences occur during morning hours.

*Prerequisites: Acceptance to a Science Teacher Preparation program; minimum g.p.a. of 2.75*

*Corequisite: SCI 410 Note: you must register for the same sections of SCI 410 and 449*

1 credit, S/U grading

### SCI 450: Field Experience, Grades 7-12

Students visit science classes in secondary schools and participate in selected school-based outreach programs for a total of 50 hours during the semester. The observations made during these visits serve as the basis for discussions that occur in class and for the research component of SCI 420. Due to public school schedules, the majority of these experiences occur during morning hours. Note: you must register for the same sections of SCI 420 and 450.

*Prerequisites: C or higher in SCI 410; minimum g.p.a. of 2.75*

*Corequisite: SCI 420*

1 credit, S/U grading

### SCI 451: Supervised Teaching-Science: Middle Level Grades 7-9

Prospective science teachers participate in full-time supervised student teaching in partnership schools, grades 7-9. Frequent consultation with the University supervisor helps the student interpret and evaluate the teaching experience. Applications must be filed in the semester preceding student teaching.

*Prerequisites: C or higher in SCI 420; PSY 327; SSE 350; 2.75 cum gpa.; completion of*

*all graduation requirements; Dept permission. Corequisites: SCI 452 and 454; Note: students must register for equivalent sections of SCI 451, 452, 454*

6 credits, S/U grading

### SCI 452: Supervised Teaching-Science: High School Grades 10-12

Prospective science teachers participate in full-time supervised student teaching in partnership schools, grades 10-12. Frequent consultation with the University supervisor helps the student interpret and evaluate the teaching experience. Applications must be filed in the semester preceding student teaching.

*Prerequisites: C or higher in SCI 420; SSE 350, PSY 327, and LIN 344; 2.75 cum GPA; completion of all grad reqs; Permission of dept*  
*Corequisites: SCI 451 and 454; Note: students must register for equivalent sections of SCI 451, 452, 454.*

6 credits, S/U grading

### SCI 454: Science Student Teaching Seminar

Includes discussions of teaching techniques that are critical to success as a science teacher, such as classroom management and effective questioning techniques. Analysis of actual problems and issues encountered by the student in his or her student teaching experience are part of each seminar session.

*Prerequisites: C or higher in SCI 420; SSE 350, PSY 327, and LIN 344; 2.75 cum GPA; completion/grad reqs; successful compl./LAST Exam; Dept perm. Corequisites: SCI 451 and 452; Note: students must register/equiv sections of SCI 451, 452, 454.*

3 credits

### SCI 487: Applied Research

Repeatable to a maximum of 6 credits.

*Prerequisite: Permission of science education program*

0-3 credits

# SKT

## Sanskrit

### SKT 111: Elementary Sanskrit I

An introduction to Sanskrit, the classical language of Indian religion and philosophy, including grammar, translation, and readings from selected texts of Hinduism and Buddhism.

4 credits

### SKT 112 - S3: Elementary Sanskrit II

An introduction to Sanskrit, the classical language of Indian religion and philosophy, including grammar, translation, and readings from selected texts of Hinduism and Buddhism.

*Prerequisite: SKT 111*

4 credits

## SLN

### Sign Language

#### SLN 111: Elementary American Sign Language I

An introduction to American Sign Language, the visual-gestural language of the deaf. It incorporates nonverbal communication techniques, basic vocabulary, basic grammar principles, and basic conversational skills. This course is designed for students who have no prior knowledge of the language. A student who has acquired an equivalent proficiency may not take SLN 111 without written permission from the supervisor of the course.

3 credits

#### SLN 112 - S3: Elementary American Sign Language II

An introduction to American Sign Language, the visual-gestural language of the deaf. It incorporates nonverbal communication techniques, basic vocabulary, basic grammar principles, and basic conversational skills.

*Prerequisite: SLN 111*

3 credits

#### SLN 211 - S3: Intermediate Sign Language I

An intermediate course in American Sign Language, the visual-gestural language of the deaf; incorporates nonverbal communication techniques, intermediate vocabulary, grammar principles, and conversational skills.

*Prerequisite: SLN 112 or permission of instructor*

3 credits

#### SLN 212 - S3: Intermediate Sign Language II

An intermediate course in American Sign Language, the visual-gestural language of the deaf; further develops the nonverbal communication techniques, intermediate vocabulary, grammar principles, and conversational skills learned in SLN 211.

*Prerequisite: SLN 211 or permission of instructor*

3 credits

#### SLN 475: Undergraduate Teaching Practicum I

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: U3 or U4 standing; permission of instructor*

3 credits, S/U grading

#### SLN 476: Undergraduate Teaching Practicum II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In SLN 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisites: SLN 475; permission of instructor*

3 credits, S/U grading

## SOC

### Sociology

#### SOC 105- F: Introduction to Sociology

A general introduction to the science of sociology, emphasizing sociological theory and methods. Students are taught what is unique about the way in which sociologists analyze human behavior and society. Differences between the sociological perspective and perspectives of other social sciences are emphasized. There is also a heavy emphasis on the types of methods and data that sociologists use to test the validity of their ideas.

3 credits

#### SOC 200: Medicine and Society

An examination of some traditional concerns of the humanities and social sciences as they occur in basic health care and its delivery. Practicing physicians or other health care professionals present clinical cases to emphasize such topics as allocation of scarce resources, issues of dying and refusing

treatment, confidentiality, and cultural factors and disease. Discussion focuses on the social, historical, ethical, and humanistic import of the cases. This course is offered as both HMC 200 and SOC 200.

3 credits

#### SOC 201: Research Methods in Sociology

Methods of collecting and analyzing empirical data to test sociological hypotheses. Emphasis is on multivariate analysis of tabular and statistical data.

*Prerequisite: SOC 105*

3 credits

#### SOC 202- C: Statistical Methods in Sociology

An introduction to the use and interpretation of statistical methods in social research; descriptive and inferential statistics. May not be taken for credit after AMS 102, ECO 320, POL 201, or PSY 201. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

*Prerequisites: SOC 105; satisfaction of entry skill in mathematics requirement*

3 credits

#### SOC 204- F: Intimate Relationships

The dynamics of forming, maintaining, and dissolving intimate relationships. Attention is focused on dating, partner selection, sexuality, marriage, divorce, and remarriage.

3 credits

#### SOC 243- F: Sociology of Youth

Adolescent socialization; age structures and intergenerational conflict; peer groups and youth subcultures.

3 credits

#### SOC 247- K: Sociology of Gender

The historical and contemporary roles of women and men in American society; changing relations between the sexes; women's liberation and related movements. Themes are situated within the context of historical developments in the U.S. This course is offered as both SOC 247 and WST 247.

3 credits

#### SOC 248- F: Social Problems in Global Perspective

Examination of contemporary social problems in the United States, identifying how each problem is experienced in other countries,

and how each is connected to global level processes or institutions. Such problems as urbanization, drugs and crime, unemployment, and environmental degradation are considered.

*Prerequisite:* SOC 105

3 credits

### **SOC 268: Theory and Practice in Student Leadership**

Leadership theory, leadership qualities, and group dynamics are explored with an emphasis placed on experiential learning and group observation. Effective communication skills, understanding group dynamics, and appreciating cultural diversity are topics of significant relevance. This course is intended for students who are interested in serving in leadership positions on campus.

*Prerequisites:* SOC 105; permission of instructor

3 credits

### **SOC 302- K: American Society**

Intended for students who wish to look at American society through the eyes of the sociologist. Included in the course is the sociological view of American social structure in terms of power and patterns of inequality, the legal system, ethnic and cultural pluralism, social mobility, and urban problems. Sociological issues are considered within the context of the developments of society throughout U.S. history.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **SOC 303- F: Social Inequality**

Theories of social stratification; patterns of differentiation in wealth, prestige, and power; social mobility; power structures and elites.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 304- F: Sociology of the Family**

An historical and cross-cultural analysis of the family as a major social institution in society; the demography of contemporary American families; selected policy issues involving the family.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 309- F: Social Conflicts and Movements**

An examination of aggregate phenomena; revolutionary and counterrevolutionary programs and organizations. Historical and cross-cultural examples are emphasized.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 310- K: Ethnic and Race Relations**

The comparative experience of ethnic and other minority groups within the United States, including formation, migration, and conflict; prejudice, discrimination, and minority self-hatred. Consideration of the developments of U.S. society from the colonial period to the present provide the context for consideration of the changing experiences of ethnic groups.

*Prerequisites:* SOC 105; two other courses in the social sciences

3 credits

### **SOC 315- H: Sociology of Technology**

Social systems and the various "tools" they develop to shape their environment. Concentration on technologies of highly developed, modern societies and on ethical issues involved in attempts to guide the development and effects of these technologies. Consideration is given to the role of technology in all societies, from the simplest to the most developed.

*Prerequisites:* SOC 105; two other courses in the social sciences; one D.E.C. category E course

3 credits

### **SOC 323- K: Urban Society**

The emergence of cities and the process of urbanization; an examination of urban structure; the consequences of the urban milieu for interpersonal relations and institutions.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 330- F: Media and Society**

The course examines changes in the use of mass communications media, such as newspapers, radio, television, and the Internet, over time, and assesses the implications of these changes for society. Consideration of the commercial use of mass media and the media's role in providing news for democratic societies. Emphasis on the global dimensions of the mass media, including how they shape Americans' understandings of other countries and peoples, and vice versa.

*Prerequisites:* U3 or U4 standing; SOC 105 or POL 101 or 102 or 103

3 credits

### **SOC 336- F: Social Change**

Development and modernization are studied in a historical and comparative perspective that emphasizes the universality of social change in human societies. The approach is

macrosociological, focusing on broad patterns of change in economic, social, and political organization in the modern era. Revolutions as dramatic instances of socio-political change receive particular attention.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 337- F: Social Deviance**

Competing theories of the nature of social deviance; stigmatizing, labeling, and application of informal social controls; technical, legal, and ethical issues related to "non-victim" crimes.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 338- F: The Sociology of Crime**

The application of formal social control to criminally prosecutable offenses; the relationship of law and society; the criminal justice system.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 339- F: Sociology of Alcoholism and Drug Abuse**

An examination of the sociological literature on alcoholism and drug abuse. Topics include addictive careers, the epidemiology (spread) of abuse, history of attempts to control alcohol and drugs, treatment approaches, and policy alternatives.

*Prerequisites:* SOC 105; U3 or U4 standing

3 credits

### **SOC 340- H: Sociology of Human Reproduction**

A study of the links between biological reproduction and the socioeconomic and cultural processes that affect and are affected by it. The history of the transition from high levels of fertility and mortality to low levels of both; different kinship, gender, and family systems around the world and their links to human reproduction; the value of children in different social contexts; and the social implications of new reproductive technologies. This course is offered as both SOC 340 and WST 340.

*Prerequisites:* SOC 105; one D.E.C. category E course in biology

3 credits

### **SOC 344- F: Environmental Sociology**

Analysis of how populations gain sustenance from their environments through organization, information, and technology. Evolution of technology and its ecological consequences for population growth, urbanization, social

stratification, environmental destruction, and the quality of life. Problems in managing the human environment and communities.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 348- F: Global Sociology**

The impact of globalization on human societies, cultures, organizations, and identities. Consideration of the roles of institution such as the United Nations, organizations such as media conglomerates and transnational corporations, and religious associations in shaping an emerging global society including a survey of contemporary global issues such as the environment, human rights, and economic development.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 351- F: Sociology of the Arts**

Theories on the arts and society; the social role of the artist; processes of cultural production. Examples are drawn from one or more of the arts, including literature and the visual and performing arts.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 355- H: Social World of Humans and Animals**

Comparison of basic social processes in human and animal groups. Topics covered include dominance, hierarchies, the distribution of scarce resources, cooperation, and the division of labor.

*Prerequisite:* One sociology or biology course  
3 credits

### **SOC 361- F: Historical Development of Sociological Theory**

Main currents in the development of modern sociology, with an emphasis on Marx, Weber, and Durkheim, among other leading theorists.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 362- F: Contemporary Sociological Theory**

A systematic treatment of the dominant general orientations in sociology including structural-functional analysis, symbolic interactionism, and modern versions of Marxism.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 364- J: Sociology of Latin America**

A survey of Latin American societies, social structures, and processes of social, political, and economic change. Topics include social stratification; occupational structure; demographic characteristics; the state; class structure; military intervention in politics; conditions for democracy, political stability, and revolution; policy making; and popular social movements.

*Prerequisites:* SOC 105; two other courses in the social sciences  
3 credits

### **SOC 365- J: Introduction to African Society**

Examination of the ways that the slave trade and colonization affected African societies' incorporation into the world economy as well as the development of their social and political institutions. The nature of African institutions, organizations, belief and value systems before the colonial impact and how these histories were understood and experienced by African men and women are considered. The historical continuities and discontinuities in contemporary African societies as well as the effects of globalization and modernization in Africa are examined. This course is offered as both AFS 365 and SOC 365.

*Prerequisite:* SOC 105 or AFS 101 or 102 or POL 101 or 103

*Advisory Prerequisite:* AFS 221

3 credits

### **SOC 371- K: Gender and Work**

Gender differences in workforce participation and occupational attainment as they have changed throughout U.S. history. Covers such topics as historical changes in workforce participation; economic, legal, and social factors affecting employment; career options; and pay equity. Readings and lectures focus on the historical and contemporary experience of American men and women, including differences by ethnicity and class. This course is offered as both SOC 371 and WST 371.

*Prerequisites:* SOC 105 or WST 102 (formerly SSI/WST 102) or WST 103; two other courses in the social sciences

3 credits

### **SOC 374- F: Global Issues in the United Nations**

An overview of key issues and contemporary debate in the United Nations toward an understanding of its formal and informal operations. Issues include peace and security; human rights; development and trade; and the global environment. Consideration of perspectives of people from outside the United States and the West; the major obstacles to

effective international cooperation in the U.N. and the ways these obstacles might be overcome; and how democratic governance is affected by the rise of global institutions and governance. This course offered as both POL and SOC 374.

*Prerequisite:* SOC 105 or POL 101 or 103  
3 credits

### **SOC 378- F: War and the Military**

The causes and origins of wars, and the impact of war on social change, considered in the context of various wars and battles. Topics covered include issues of military organization, recruitment, training, morale, war planning, and the integration of women, gays, and minorities in the military. This course is offered as both HIS 378 and SOC 378.

*Prerequisite:* One HIS course or SOC 105  
3 credits

### **SOC 380- F: Social Psychology**

Individual and social factors in human behavior; the structure of personality; identity development; communication processes; and attitudes.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 381- F: Sociology of Organizations**

Bureaucracy as a form of organization; the structure of relations between and within organizations.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 384- F: Sociology of the Life Course**

Change and stability of individuals through the life course (from childhood to old age) in the context of social structure and interactional processes. Covers such topics as socially structured periods and transitions in the life course; identity formation; continuity and change; life crises; changing roles and transitions.

*Prerequisites:* SOC 105; U3 or U4 standing  
3 credits

### **SOC 386- J: State and Society in the Middle East**

State building and modernization in the Middle East during the last century and a half are studied in the context of the Middle Eastern social structure and institutions. The analysis of political change - reform and revolution - in the Middle East is viewed from a socio-historical perspective.

*Prerequisites: SOC 105; two other courses in the social sciences*

3 credits

### **SOC 387- F: Sociology of Education**

Educational institutions as social systems; social patterns in the life cycles of students and teachers; class and ethnic factors in educational development.

*Prerequisites: SOC 105; U3 or U4 standing*

3 credits

### **SOC 390- F: Special Topics**

Past topics have included titles such as Global Trade, Arms, and Human Rights; The Sociology of Aging; and Gender in Africa. Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social science discipline(s) studied. May be repeated as the topic changes.

*Prerequisites: SOC 105; U3 or U4 standing*

3 credits

### **SOC 391- F: Special Topics**

Past topics have included titles such as Global Trade, Arms, and Human Rights; The Sociology of Aging; and Gender in Africa. Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social science discipline(s) studied. May be repeated as the topic changes.

*Prerequisites: SOC 105; U3 or U4 standing*

3 credits

### **SOC 392- F: Special Topics**

Past topics have included titles such as Global Trade, Arms, and Human Rights; The Sociology of Aging; and Gender in Africa. Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social

science discipline(s) studied. May be repeated as the topic changes.

*Prerequisites: SOC 105; U3 or U4 standing*

3 credits

### **SOC 393- F: Special Topics**

Past topics have included titles such as Global Trade, Arms, and Human Rights; The Sociology of Aging; and Gender in Africa. Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social science discipline(s) studied. May be repeated as the topic changes.

*Prerequisites: SOC 105; U3 or U4 standing*

3 credits

### **SOC 394- F: Special Topics**

Past topics have included titles such as Global Trade, Arms, and Human Rights; The Sociology of Aging; and Gender in Africa. Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, political science, and linguistics. Students will be expected to demonstrate an understanding of the methods social scientists use to explore social phenomena, and knowledge of the major concepts, models, and issues of the social science discipline(s) studied. May be repeated as the topic changes.

*Prerequisites: SOC 105; U3 or U4 standing*

3 credits

### **SOC 395- H: Topics in Science, Technology, and Society**

Selected topics in sociology that examine significant examples of the impacts of science and technology on culture and society. Semester supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.

*Prerequisites: SOC 105; one D.E.C. category E course*

3 credits

### **SOC 401: Honors: Sociology of Global Issues**

Honors topics course in the sociology of global issues. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisites: Permission of instructor and department*

3 credits

### **SOC 447: Independent Readings**

Selected readings, usually in a special area, to be arranged by the student and the instructor. May be repeated. A total of no more than six credits of SOC 447, 487, and 488 may be counted toward the major.

*Prerequisites: Written permission of instructor and director of undergraduate studies*

1-6 credits

### **SOC 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.

*Prerequisite: U3 or U4 standing; 12 credits of sociology; permission of instructor and director of undergraduate studies*

3 credits, S/U grading

### **SOC 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served.

*Prerequisite: SOC 475; permission of instructor and director of undergraduate studies*

3 credits, S/U grading

### **SOC 487: Independent Research**

Participation in local, state, and national public and private agencies and organizations. Students are required to submit written progress reports and a final written report on their experiences to the faculty sponsor and the department. A total of no more than six credits of SOC 447, 487, and 488 may be counted toward the major.

*Prerequisites: Written permission of instructor and director of undergraduate studies*

0-6 credits

### **SOC 488: Internship**

Participation in local, state, and national public and private agencies and organizations. Students are required to submit written progress reports and a final written report on their experiences to the faculty sponsor and the department. A total of no more than six credits of SOC 447, 487, and 488 may be counted toward the major.

*Prerequisite: Twelve credits in sociology; permission of instructor and department*  
0-6 credits, S/U grading

### **SOC 495: Senior Honors Project I**

First course of a two-semester project for candidates for the degree with honors in sociology, arranged in consultation with the director of undergraduate studies. The project involves independent readings or research and writing a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students receive only one grade upon completion of the sequence SOC 495-496.

*Prerequisite: Admission to the sociology honors program*  
3 credits

### **SOC 496: Senior Honors Project II**

Second course of a two-semester project for candidates for the degree with honors in sociology, arranged in consultation with the director of undergraduate studies. The project involves independent readings or research and writing a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students receive only one grade upon completion of the sequence SOC 495-496.

*Prerequisite: SOC 495*  
3 credits

## **SPN**

### **Hispanic Languages and Literature**

#### **SPN 111: Elementary Spanish I**

An introduction to spoken and written Spanish, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory supplements class work. Intended for students without any prior knowledge of the language, or those with a High School Regents score of less than 74. All entering students who have not taken the Regents exam should take a placement exam to evaluate their proficiency. Please see <https://llrc.stonybrook.edu/placement-exams> for more information.

4 credits

#### **SPN 112 - S3: Elementary Spanish II**

An introduction to spoken and written Spanish, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory supplements class work. Intended for students with a High School Regents score of 75 - 84. All entering students who have not taken the Regents exam should take a placement exam to evaluate their proficiency. Please see <https://llrc.stonybrook.edu/placement-exams> for more information.

*Prerequisite: SPN 111*

4 credits

#### **SPN 211 - S3: Intermediate Spanish I**

A comprehensive review of the Spanish language. The course is intended to develop competence in reading, writing, and speaking Spanish through the study of grammar and interpretation of selected literary texts. Intended for students with a High School Regents score of 85 and above. All entering students who have not taken the Regents exam should take a placement exam to evaluate their proficiency. Please see <https://llrc.stonybrook.edu/placement-exams> for more information. Not intended for students of Spanish-speaking background.

*Prerequisite: SPN 112*

3 credits

#### **SPN 212 - S3: Intermediate Spanish II**

A comprehensive study of the Spanish language, taking into account its regional variations. The course is intended to develop greater competence in reading, writing, and speaking Spanish through continued study of grammar and interpretation of more advanced literary texts. Not intended for students of Spanish-speaking background.

*Prerequisite: SPN 211*

3 credits

#### **SPN 310 - S3: Spanish Grammar and Composition for Students of Hispanic-American Background**

A course designed to improve writing through the study of Hispanic-American literature and culture. May not be taken for credit in addition to SPN 311.

*Prerequisite: fluency in Spanish equivalent to SPN 212*

3 credits

#### **SPN 311 - S3: Spanish Conversation and Composition**

A thorough review of Spanish grammar and of the active use of spoken and written forms. Not intended for students of Spanish-speaking background. May not be taken for credit in addition to SPN 310.

*Prerequisite: SPN 212*

3 credits

#### **SPN 312- G & 3: Introduction to Literary Studies**

Reading of selected passages of prose and poetry in class, with special concentration on improving students' written and oral skills, and introducing them to the basic elements of literary analysis of Spanish and Latin American works.

*Prerequisite: SPN 310 or 311*

3 credits

#### **SPN 321 - S3: Advanced Spanish Grammar and Composition**

A review of advanced Spanish grammar with emphasis on improving writing skills and increasing mastery of Spanish syntax. Extensive practice in composition and in translation.

*Prerequisites: SPN 312*

3 credits

#### **SPN 322 - S3: Practical Spanish**

A course for students who wish to become more proficient in reading, writing, and translating Spanish, to be used in business, administration, and in other fields of everyday professional life. Emphasis is placed on the idiomatic peculiarities of the Spanish language and the relation of Spanish to the structure of English.

*Prerequisites: SPN 312*

3 credits

#### **SPN 323 - S3: Advanced Spanish Conversation**

A course designed to develop and maintain complete fluency in the language. Not open to native-background speakers or students who have been in a Spanish-speaking country for a considerable length of time.

*Prerequisites: SPN 312*

3 credits

#### **SPN 391- I & 3: The Culture and Civilization of Spain**

The evolution of the culture and civilization of Spain as seen through its history, art, and literature.

*Prerequisites: SPN 312*

3 credits

**SPN 392- G & 3: The Culture and Civilization of Spanish America**

The evolution of the culture and civilization of Spanish America as seen through its history, art, and literature.

*Prerequisites:* SPN 312

3 credits

**SPN 393: Introduction to Hispanic Linguistics**

The study of Spanish linguistics, including an analysis of the Spanish sound system and the structure of words and sentences. Topics include the origin and evolution of the Spanish language and the dialects of Latin American and Peninsular Spanish.

*Prerequisite:* SPN 321

3 credits

**SPN 395- J & 3: Introduction to Spanish-American Literature I**

Readings in Spanish-American literature from its native origins through colonial rule.

*Prerequisites:* SPN 312

3 credits

**SPN 396- J & 3: Introduction to Spanish-American Literature II**

Readings in Spanish-American literature from the late colonial period to the present.

*Prerequisites:* SPN 312

3 credits

**SPN 397- I & 3: Introduction to Spanish Literature I**

Readings in Peninsular literature from its origins through the 17th century.

*Prerequisites:* SPN 312

3 credits

**SPN 398- I & 3: Introduction to Spanish Literature II**

Readings in Peninsular literature from the 18th century to the present.

*Prerequisites:* SPN 312

3 credits

**SPN 405 - S3: Issues in Hispanic Cultural Studies**

Readings, viewings, and theoretical discussion of Spanish or Latin American culture with special focus on one or more issues (colonialism, imperialism, national identity, indigenism, subjectivity) as manifested in a specific cultural form or forms (testimonial literature, popular culture, cinema, novel, short story, poetry, television). Semester supplements to this Bulletin contain specific

description when course is offered. May be repeated as the topic changes.

*Prerequisite(s):* SPN 391 or 397 or 398 (for a Spanish topic), or SPN 392 or 395 or 396 (for a Latin American topic), or one course from each group (for a cross-cultural topic)

3 credits

**SPN 410 - S3: Theory in Contexts**

The critical analysis of texts as they relate to Spanish or Latin American political, social, and gender relations and institutions. Sample topics include gender and representation, Marxism and Freudianism, the body, carnival, orality, the picaresque. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite(s):* SPN 391 or 397 or 398 (for a Spanish topic), or SPN 392 or 395 or 396 (for a Latin American topic), or one course from each group (for a cross-cultural topic)

3 credits

**SPN 415 - S3: Hispanic Cultures in Contact**

Contemporary perspectives on Hispanic cultures in contact with each other and with non-Hispanic cultures. Sample topics include the literature of exile, border literature, ethnicity and culture, Amerindian literatures, Latino/Latina literature, Spanish and Latin American cultural contacts. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite(s):* SPN 391 or 397 or 398 (for a Spanish topic), or SPN 392 or 395 or 396 (for a Latin American topic), or one course from each group (for a cross-cultural topic)

3 credits

**SPN 420: Topics in Spanish and Latin American Cinema**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite(s):* SPN 391 or 397 or 398 (for a Spanish topic), or SPN 392 or 395 or 396 (for a Latin American topic), or one course from each group (for a cross-cultural topic)

3 credits

**SPN 435 - S3: Topics in Latin American Literature from the Colonial Period to the Present**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* SPN 392 or 396

3 credits

**SPN 445 - S3: Topics in Spanish Literature from the Middle Ages to the Present**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* SPN 391 or 397 or 398

3 credits

**SPN 447 - S3: Directed Readings**

Individually supervised studies in selected topics of Hispanic language, literature, and culture. May be repeated. Normally no more than three credits are allowed toward the major requirements; other credits are considered as electives.

*Prerequisites:* Permission of instructor and department

1-6 credits

**SPN 462 - S3: Contrastive Spanish-English Phonology**

A study of Spanish and English phonology and phonetics from a contrastive linguistics perspective. Its relation to the analysis of bilingualism.

*Prerequisite:* SPN 393 or LIN 101 or HUL 324

3 credits

**SPN 463 - S3: Contrastive Spanish-English Grammar**

In-depth investigation of particular areas of Spanish and English grammar for purposes of language teaching.

*Prerequisite:* SPN 393 or LIN 101 or HUL 324

3 credits

**SPN 465 - S3: Topics in Hispanic Linguistics**

Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes.

*Prerequisite:* SPN 393 or LIN 101 or HUL 324

3 credits

**SPN 475 - S3: Undergraduate Teaching Practicum in Spanish**

An opportunity for selected upper-division students to collaborate with the faculty in teaching a language class. Responsibilities may include preparing material for practice sessions and helping students with problems. Application for approval must be submitted to the director of undergraduate studies the previous semester.

*Prerequisites: U3 or U4 Spanish major; preferably U4 standing; permission of director of undergraduate studies*  
3 credits, S/U grading

**SPN 495 - S3: Spanish Senior Honors**

*Prerequisites: 3.50 g.p.a. in major; Spanish courses in major; 3.00 overall g.p.a.; U4 standing; permission of department*  
3 credits

# SSE

## Social Studies Education

**SSE 100- F: Economics for Social Studies Teachers**

An introduction to the principles of micro- and macroeconomics for students planning to become social studies teachers. The course will focus on economic concepts and reasoning with the goal of teaching prospective teachers how to apply these ideas to important public policy issues. Not for economics major credit. Formerly ECO 100. Not for credit in addition to ECO 100.

*Prerequisite: Admission to the teacher preparation program in social studies*  
3 credits

**SSE 350: Foundations of Education**

An interdisciplinary study of the foundations of education focusing on the findings of the social and behavioral sciences as related to education and teaching. The course is designed to meet the needs of students enrolled in the secondary teacher preparation programs.

*Prerequisite: Junior or Senior Standing*  
3 credits

**SSE 397: Teaching Social Studies**

Social studies as taught in the secondary schools: the nature of the social studies, curricula models, scope and sequence of topics offered, new programs of social studies instruction, etc. Designed for prospective teachers of social studies in secondary schools.

*Prerequisites: Admission to a Social Studies Teacher Preparation program;*  
*Corequisite: SSE 449 (formerly SSI 449)*  
3 credits

**SSE 398: Social Studies Teaching Strategies**

An examination of the instructional methods and materials for teaching social studies at the secondary school level. Designed for prospective teachers of social studies in secondary schools.

*Prerequisite: Admission into a Social Studies Teacher Preparation program; C or higher in SSE 397 (formerly SSI 397)*  
*Corequisite: SSE 450 (formerly SSI 450)*  
3 credits

**SSE 447: Directed Readings in Social Studies Education**

Individually supervised reading in selected topics of the social sciences. May be repeated, but total credit may not exceed more than six credits.

*Prerequisite: Permission of instructor*  
1-3 credits

**SSE 449: Field Experience, Grades 7-12**

Observation, inquiry, and practice in social studies education at the secondary level including 50 hours of documented visitations and observation at documented sites. Field experience writing logs are the basis for group discussion. Satisfactory/Unsatisfactory grading.

*Prerequisites: Admission to a Social Studies Teacher Preparation program;*  
*Corequisite: SSE 397 (formerly SSI 397)*  
1 credit, S/U grading

**SSE 450: Field Experience, Grades 7-12**

Observation, inquiry, and practice in social studies education at the secondary level including 50 hours of documented visitations and observation at documented sites. Field experience writing logs are the basis for group discussion. Satisfactory/Unsatisfactory grading.

*Prerequisite: Admission to a Social Studies Teacher Preparation program*  
*Corequisite: SSE 398 (formerly SSI 398)*  
1 credit, S/U grading

**SSE 451: Supervised Student Teaching -- Middle Level Grades 7-9**

Prospective secondary school social studies teachers receive supervised practice teaching by arrangements with selected Long Island secondary schools. The student teacher reports to the school to which he or she is assigned each full school day for the entire semester. Frequent consultation with the supervising teacher helps the student to interpret and evaluate the student teaching experience. Applications must be filed in the semester preceding that in which the student plans to student teach. The dates by which applications must be completed are announced in PEP Guide to Teacher Education.

*Prerequisites: C or higher in SSE 398 (formerly SSI 398); 3.00 g.p.a. in the major; enrollment in the Social Studies Secondary Teacher Preparation Program; approval of social studies director*  
*Corequisites: SSE 452 and 454 (formerly SSI 452 and 454)*  
6 credits, S/U grading

**SSE 452: Supervised Student Teaching-High School Grades 10-12**

Prospective secondary school social studies teachers receive supervised practice teaching by arrangements with selected Long Island secondary schools. The student teacher reports to the school to which he or she is assigned each full school day for the entire semester. Frequent consultation with the supervising teacher helps the student to interpret and evaluate the student teaching experience. Applications must be filed in the semester preceding that in which the student plans to student teach. The dates by which applications must be completed are announced in PEP Guide to Teacher Education.

*Prerequisites: C or higher in SSE 398 (formerly SSI 398); 3.00 g.p.a. in the major; enrollment in the Social Studies Secondary Teacher Preparation Program; approval of social studies director*  
*Corequisites: SSE 451 and 454 (formerly SSI 451 and 454)*  
6 credits, S/U grading

**SSE 454: Student Teaching Seminar**

Seminar on problems and issues of teaching social studies at the secondary school level. Analysis of actual problems and issues encountered by the student in his or her student teaching experience. The course includes a unit on identifying and reporting child abuse and maltreatment. Students in this course are required to pay a fee that is used solely to secure the New York State Certificate in Identifying and Reporting Child Abuse and Maltreatment.

*Prerequisite: C or higher in SSE 398 (formerly SSI 398)*  
*Corequisites: SSE 451 and 452 (formerly SSI 451 and 452)*  
3 credits

**SSE 475: Undergrad Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss

the intellectual and pedagogical matters relating to the course.

3 credits, S/U grading

### **SSE 476: Undergrad Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In SSE 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

3 credits, S/U grading

### **SSE 487: Independent Project in Social Sciences Education**

Independent projects in social studies secondary school education designed for students enrolled in the social studies teacher preparation program. May be repeated.

*Prerequisites:* 18 credits in the social and behavioral sciences; permission of program

0-6 credits

## **SSO**

### **Science and Society**

#### **SSO 101: Introduction to Stony Brook**

A seminar intended to integrate students into the Undergraduate College of Science and Society and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Required for all first year students. Not for credit in addition to ADV 101, ACH 101, LDS 101, GLS 101, HDV 101, ITS 101, SBU 101, SCH 101, or LSE 101.

*Prerequisites:* admission to the SSO Undergraduate College

1 credit, S/U grading

#### **SSO 102: Undergraduate College Seminar: Science and Society**

A seminar for all first year students in the Science and Society Undergraduate College. The seminar covers various topics under the general scope of science and related topics such as medicine, disease, and human impacts on the environment. Topics vary by section and may include: the traditional

scientific disciplines (e.g. chemistry and physics), multidisciplinary scientific subjects (e.g., environmental science, global change), environmental conservation, and human biology, ecology, evolution, and medicine. Required for all first year students. Not for credit in addition to ACH 102, GLS 102, HDV 102, ITS 102, or LDS 102.

*Prerequisites:* admission to the SSO Undergraduate College

1 credit, ABC/U grading

#### **SSO 275: Undergraduate College Fellows Seminar**

Creates a curricular component for the second year of the Undergraduate College Experience. College fellows will enroll in SSO 275 in the spring semester of their freshman year and SSO 276 in the fall semester of their sophomore year. 275 (spring) engages students in four main content areas: student development theory, scholarship on mentoring and leadership development, concepts of teaching and learning, and programming and event planning. These areas prepare students for supervised learning and teaching experiences that will occur primarily in the fall 276 course.

*Prerequisites:* Grade of "S" in SSO 101 and a strong desire to help other students. Enrollment in the corresponding Undergraduate College; permission of the instructor.

1 credit, S/U grading

#### **SSO 276: Undergraduate College Fellows Practicum**

The second semester in the sequence following SSO 275. Students assume higher responsibility and are given opportunities to apply teaching theories and concepts as learned in SSO 275. Students act as a TA for SSO 101.

*Prerequisites:* A grade of "S" in SSO 275. Enrollment in the corresponding Undergraduate College; permission of the instructor

1 credit, S/U grading

#### **SSO 475: Undergraduate College Teaching Practicum**

The purpose of this course is to allow upper-division students the opportunity to work with a faculty member as an assistant in one of the faculty member's scheduled Undergraduate College seminars. The student must attend all classes and carry out tasks assigned by the faculty member to assist in teaching the course. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to

the course. May be repeated up to a limit of 2 credits.

*Prerequisite:* Permission of the instructor and department

1 credit, S/U grading

#### **SSO 488: Undergraduate College Internship**

Students learn about contemporary issues in higher education, community building, and teaching at a research university through hands-on work with faculty mentors. Work assigned will include participation in the planning and operation of events and initiatives sponsored by the Undergraduate Colleges. Students are required to submit written reports on their experiences to the Undergraduate Colleges office and Faculty Directors. May be repeated up to a limit of 6 credits.

*Prerequisite:* Permission of the instructor and department

0-3 credits, S/U grading

## **SUS**

### **Sustainability Studies**

#### **SUS 301: Environmental Ethics**

Historically, ethical and moral notions have been concerned with the relations of humans to one another. How does the natural world fit into those traditional views about ethical and moral obligations? Do these views need revision? A selection from issues such as the following will be discussed: animal rights; the intrinsic value of nature; our obligations to nature; the "land ethic"; global environmental justice; "deep ecology", and ecofeminism. Readings will include both historical sources, and recent and contemporary authors.

*Prerequisite:* SBC 104 or PHI 104

3 credits

#### **SUS 302: Integrative Assessment Models**

Use, evaluation, and development of integrated assessment models. These model typically integrate environmental concerns with variables from other disciplines for the purpose of providing policy advice to decision-makers. Students will learn about the most frequently used integrated assessment models and what we can learn from them. The models studies will include the World3 model, which was the basis of the famous book "The Limits to Growth."

*Prerequisite:* SBC 201; U3/U4 status

3 credits

**SUS 303: Demographic Change and Sustainability**

This course will assess the unprecedented demographic changes and diversity of the 21st century, through an interdisciplinary approach. It will explore themes such as population ageing and decline, migration in population replacement, demographic change and sustainable public health, social welfare programs, environmental degradation, and differential vulnerabilities (e.g., gender, poverty, age, education, ethnicity and race, empowerment and rights).

*Prerequisite:* SBC 115

3 credits

**SUS 305- F: Collective Action and Advocacy**

This course will address the ways in which people act collectively to address social problems or to change social policy. The course will be divided into two sections: a general introduction to the study of collective action, and a set of case studies in environmental activism.

*Prerequisite:* SBC 111, ENS 101 or GEO 101; POL 102 or SOC 105

3 credits

**SUS 306: Business and Sustainability**

This course examines the interface between business and sustainability. It considers opportunities for the development and growth of profit and not-for-profit businesses associated with the promotion of sustainability. It also covers how environmental concerns and related governmental regulations influence business operations and profitability. Students will apply career skills and concepts from environmental economics to understand how business functions (e.g., operations, public relations, sales, health and safety, and corporate social responsibility) are influenced by environmental concerns. The course will highlight current issues and cases, provide an overview of theory and practice, and generate research to test students' hypotheses, and generally explore opportunities and threats to business viability. Review of current affairs, case analyses, role plays, field trips, and guest speakers will be included along with required reading in seminal theory and research.

*Prerequisite:* SBC 206

3 credits

**SUS 307: Environmental Economics and Management**

This course presents advanced concepts in environmental economics and management through a series of detailed case studies. The cases include those concerning the US sulfur-

dioxide permit trading system, the Kyoto Protocol, zoning, coastal fisheries, the use of ethanol in gasoline, tradable development rights in the Long Island Pine Barrens and the conservation of endangered species.

*Prerequisite:* SBC 206

3 credits

**SUS 308: Economic Development**

This course teaches students about economic development and its relationship to the environment. Students learn about both the theory of economic growth and the way development has proceeded in various regions of the world. Examples will come from the Asian tiger economies of East Asia and the development disasters in Sub-Saharan Africa. The relationships between the levels and rates of growth of output and various environmental indices will be explored.

*Prerequisite:* SBC 206

3 credits

**SUS 341- H: Environmental Treaties and Protocols**

A multi-disciplinary study of the scientific basis, objective, development, implementation, and intended and unintended consequences of a single major Environmental Treatise or Protocol, such as the Kyoto Protocol. Official documents, secondary literature, as well as commentary on the Treatise or Protocol are studied.

*Prerequisite:* SBC 111, or ENS 101, or GEO 101; U3 or U4 standing

3 credits

**SUS 342- H: Energy and Mineral Resources**

This class will explore the origin, distribution, and importance of energy and mineral resources to modern civilization, with an emphasis on fossil fuels and non-renewable mineral resources extracted from Earth. Geological processes responsible for the formation and distribution of energy and mineral resources, as well as current and future supply and demand are discussed. The environmental implications of the extraction and use of energy and mineral resources as well as techniques to minimize the impact on the environment will be discussed.

*Prerequisite:* One DEC E course

3 credits

**SUS 350: Contemporary Topics in Sustainability**

This course deals with the meaning and the application of the idea of sustainability. First, the mathematics of exponential and

linear growth, and the concept of stability in complex systems will be developed. The idea of stable equilibrium and the long-term/short term distinction will also be discussed. Then, various subjects of sustainability--populations, species, habitats, ecosystems, resources, cultures, modes of production, economic systems, and political systems will be considered. Various purposes of sustainability for its own sake, for human welfare, for the welfare of nature will also be discussed. May be repeated as the topic changes.

*Prerequisite:* SBC 111; U3/U4 status

3 credits

**SUS 487: Research in Sustainability Studies**

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. May be repeated.

*Prerequisite:* Permission of instructor

1-6 credits, S/U grading

**SWA****Swahili****SWA 101 - S3: Intensive Elementary Swahili**

An intensive course covering the elementary Swahili program in one semester, satisfying the language requirement. This course is designed for students who have no prior knowledge of the language.

6 credits

**THR****Theatre Arts****THR 100- D: Performing and Performance**

Study and practice in performance and communications: interpersonal communication, public presentations, and theatrical performance.

3 credits

**THR 101- D: Introduction to Theatre Arts**

An overview of performance, design, and production in the theatre. Specific texts are explored through lectures, demonstrations, and a close examination of the rehearsal process. Professionals working in the theatre are invited to speak on such topics as stage management,

technical production, and direction. Not for theatre arts major credit.

3 credits

### **THR 103- D: Theatre and Technology**

An introduction to theatrical design and technology using examples from Broadway to the avant-garde. The course will examine genres, innovations, cultural context, and creative processes for the use of theatre space and the creation of design. The course will take a cross-disciplinary approach while examining traditional modes of design and the rapidly expanding use of media arts and new technologies in theatre productions.

3 credits

### **THR 104- B: Play Analysis**

A close reading of several plays of different periods and styles and a general examination of the elements out of which all plays are made -- dialogue, character, plot.

3 credits

### **THR 105- D: Acting I**

The basic vocabulary and skills of the actor's craft. Students explore acting techniques through theatre games and improvisation.

3 credits

### **THR 110: Public Speaking**

An introduction to public speaking techniques that includes increased awareness of physical and vocal expression and speech content. Not for theatre arts major credit.

3 credits

### **THR 115: Stagecraft**

An introduction to theatre stagecraft, this course teaches practical skills in set, lighting and costume construction. In addition to class periods and independent projects, labs are required.

4 credits

### **THR 117: Media: Analysis and Culture**

This introductory course addresses the cultural production and reception of media that influence public discourse. It involves textual, social, and cultural analysis of film, television, and new media. Debates about mass culture, interpretation, media characteristics, aesthetic choices, and the effect of content choices are explored.

3 credits

### **THR 201- B: Theatre History I: Greeks to Moliere**

A survey of the developments in theatre from the ancient Greeks to Moliere. The course will introduce the major periods and dramatic forms in theatre history, and explore the historical and social context in which dramatic work was created. Topics will include major plays and dramatists, theatre practitioners, innovations, and the role of theatre in a particular culture and society.

*Advisory Prerequisites: THR 101 or THR 104*

3 credits

### **THR 202- B: Theatre History II: Restoration to the 20th Century**

A survey of the developments in theatre from the English Restoration to the 20th Century. The course will introduce the major periods and dramatic forms in theatre history, and explore the historical and social context in which dramatic work was created. Topics will include major plays and dramatists, theatre practitioners, innovations, and the role of theatre in a particular culture or society.

*Prerequisite: THR 201*

*Advisory Prerequisites: THR 101 or THR 104*

3 credits

### **THR 205: Acting II**

The development of acting skills through improvisation and selected scenes and monologues from the contemporary theatre. Requires significant rehearsal hours outside of class. Designed for students seriously interested in performing.

*Prerequisites: THR 105; permission of instructor*

3 credits

### **THR 215: Introduction to Design**

A course covering the aesthetics and traditions of scenic, costume and lighting design. The lighting portion of the course includes an exploration of color, intensity and control through projects with theatre light boards as well as lighting design and drafting principles. The costume portion of the course introduces design and rendering basics as well as intermediate skill projects. The scenic part of the course includes exercises in design rendering, drafting and modeling which allow students to conceive and develop design concepts and ideas.

*Prerequisite: THR 115*

3 credits

### **THR 216- D: Introduction to Visual Interpretation**

A design and analysis course emphasizing the construction of space in the two dimensions of the computer screen and the three dimensions

of everyday reality. The course examines the way space is constructed and meanings are assigned to it and considers the effects of race, gender, ethnicity, and class on those interpretations. Projects involve use of digital programs for video manipulation and editing.

3 credits

### **THR 230: Voice for the Actor**

A practical course in voice production for the actor designed for theatre arts majors. Students participate in exercises for developing the speaking voice with an emphasis on the involvement of the body. Increasing resonance, range, and articulation and their link to acting and improvisation are explored.

*Prerequisite: THR 105*

3 credits

### **THR 232: Improvisation**

Drill in both verbal and nonverbal exercises and assorted theatre games leading to the development of improvisational skills.

*Prerequisite: THR 105*

3 credits

### **THR 245: Movement for Actors**

This class investigates movement unique to theatre performances. In addition to enhancing physical flexibility students explore the use of masks and character development. Range of motion as it relates to the details of alignment, support, weight, space, and time are linked to an understanding of anatomy in the process of creating movement-based performances, including neutral mask, character building and abstracts compositions. Course assignments will combine readings in acting theory with practical application. Students will learn the basic principles of solo movement-based performance as well as ensemble work. Requires significant physical participation.

*Prerequisite: THR 105*

3 credits

### **THR 277: The Media Industry**

A seminar in which the interlocking structure of media production firms, advertising agencies, sponsors, broadcasters, and cable and satellite operators is examined. Among the many political and social issues arising from the making and distribution of media that are considered is the effect of this structure on a democratic society's need for a free exchange of opinion and information.

3 credits

### **THR 298: Student Media Leadership**

A review of the decision-making processes involved in campus media organizations

and an investigation of the similarities and differences between the obligations of student and professional media managers. Class meetings are devoted to the discussion of problems related to media production and management, to talks by professionals about their specialties, and to the development of critical skills useful to practitioners and managers.

*Prerequisite: Permission of instructor*

*1 credit, S/U grading*

### **THR 301: Stage Management Laboratory**

Development of skills needed to accomplish the functions of the stage manager. May be repeated once.

*Prerequisite: Permission of department*

*1 credit*

### **THR 303: Costume Crafts Laboratory**

Development of skills needed for costume and accessory construction. May be repeated once.

*Prerequisite: Permission of department*

*1 credit*

### **THR 304: Marketing Laboratory**

Development of skills needed in marketing theatre. May be repeated once.

*Prerequisite: Permission of department*

*1 credit*

### **THR 305: Lighting and Sound Laboratory**

Development of skills needed in installation and control of lighting and sound equipment. May be repeated once.

*Prerequisite: Permission of department*

*1 credit*

### **THR 306: Stagecraft Laboratory**

Development of skills needed in theatre construction. May be repeated once.

*Prerequisite: Permission of department*

*1 credit*

### **THR 307: Performance Laboratory**

Development of skills in performance through the preparation and rehearsal of a production. Student must audition, be cast in a role in a major department production, and engage in the entire rehearsal process. May be repeated once.

*Prerequisite: Permission of department*

*0-3 credits*

### **THR 308: Prevention Through the Arts**

Prevention through the Arts is a project-based class that creates and performs an educational

theatre piece about alcohol, tobacco, and other drug use. Participants will experience writing and performing as well as peer education and leadership. Admission into this class is through audition, and accepted participants are expected to commit a full year to the project and register for the continuation course in the spring of the same year.

*Prerequisite: Enrollment by audition only*

*3 credits*

### **THR 309: Prevention Through the Arts II**

The second half of this two-semester course focuses heavily on performing. A rigorous show schedule is required of the show that was created during the fall semester. Students will develop advanced improvisational techniques and explore different actor/audience/peer relationships. This course is only open to students who took THR 308 the preceding fall semester.

*Prerequisite: THR 308*

*3 credits*

### **THR 312- K: American Theatre and Drama**

The history of American theatre and dramatic literature from its earliest origins through the influence of the European tradition, emphasizing major events and various cultural, religious, and ethnic influences in American society. Original American contributions to world theatre in the 19th century, particularly staging techniques and the development and growth of the musical theatre, are covered.

*Prerequisites: Completion of D.E.C.*

*categories A, B, and D*

*Advisory Prerequisites: Completion of D.E.C. categories I and J*

*3 credits*

### **THR 313- J: Asian Theatre and Drama**

A comprehensive overview of Asian theatre with special emphasis on drama, theatrical aesthetics, conventions of production, and actor training in India, China, Korea, and Japan.

*Prerequisites: Completion of D.E.C.*

*categories A, B, and D*

*3 credits*

### **THR 314- G: Modern Drama on Stage**

A seminar examining the forms of modern drama in the context of production from 1860 to the present.

*Prerequisites: Completion of D.E.C.*

*categories A, B, and D*

*3 credits*

### **THR 315- I: European History and Drama: The Classical Era**

Advanced studies in select topics in theatre history. Developments in theatre from its origins to the 17th century. Periods covered include ancient Greek and Roman theatre, the Middle Ages, Italian Renaissance, Commedia dell'Arte, the English Renaissance, the Golden Age of Spain, French neo-classicism, German theatre, the English Restoration, and the early 18th century. Discussions cover the historical and cultural context in which different forms of theatre occurred, changes in theatrical convention, and the drama of the period.

*Prerequisite: THR 201 and THR 202*

*3 credits*

### **THR 316- I: European History and Drama: The Modern Era**

Advanced studies in select topics in theatre history. Developments in theatre from the beginnings of the Industrial Revolution to the present. Topics covered include melodrama, romanticism, realism, expressionism, the birth of the avant garde, post-war modernism, and trends at the end of the twentieth century. Discussions cover the historical and cultural context in which different forms of theatre occurred, changes in theatrical convention, and the drama of the period.

*Prerequisite: THR 201 and THR 202*

*3 credits*

### **THR 318: Movie Making: Shoot, Edit, Score**

An investigation of the relationship between music and film and video. Students script, shoot, edit, and create short videos with soundtracks, exploring different aspects of visuals and music. All editing is done digitally. Works may be made for screen, installation, or performance. Also examines historical and contemporary artistic exploration with such media. This course has an associated fee. Please see [www.stonybrook.edu/coursefees](http://www.stonybrook.edu/coursefees) for more information.

*Prerequisite: ARS/MUS/THR 208 or ARS 225 or CCS 101*

*3 credits*

### **THR 320: Production I**

The application of practical skills in a theatrical production environment. The course provides experience in several areas of theatre technology through participation in full-scale theatrical productions. Costume crafts, stage management, lighting, and sound may be among the areas of focus. THR 320 and 321 may be taken in either order.

*Prerequisite: THR 115*

3 credits

### THR 321: Production II

The application of practical skills through participation in full-scale theatrical productions. Marketing, performance, theatre management, and stagecraft may be among the areas of focus. THR 320 and 321 may be taken in either order.

*Prerequisite: THR 115*

3 credits

### THR 322: Acting III

Advanced work in scene study limited to one or two major playwrights.

*Prerequisites: THR 205, THR 230, and THR 245*

3 credits

### THR 323: Costume Design

Advanced study in costume design involving play analysis, design, and presentation techniques with special emphasis on historical research.

*Prerequisite: THR 223*

3 credits

### THR 325: Scriptwriting for Film and Television

Preparation and construction of scripts for use in media: radio, television, and motion pictures.

*Prerequisites: Completion of D.E.C. categories A, B, and D*

3 credits

### THR 326: Playwrighting

A workshop devoted to planning and writing finished scripts for the stage. This course offered as both EGL 387 and THR 326.

*Prerequisites: Completion of D.E.C. categories A, B, and D*

3 credits

### THR 334- G: Performance Art I: The European Avant-Garde

This course explores the history and theory of avant-garde performance from its inception in the early 20th century through Surrealism. Questions addressed focus on the choices made by artists, and the forces within the culture that encourage the forms they use. Course projects include a performance that reconstructs an event from one of the periods studied and a term paper. This course is offered as both ARH 334 and THR 334.

*Prerequisites: U3 or U4 standing; one ARH, ARS, MUS, or THR course*

*Advisory Prerequisite: ARS/MUS/THR 208*

3 credits

### THR 336: Stage Management

Various aspects of stage management, including analysis of scripts and reading of blueprints and light plots.

*Prerequisite: THR 321*

3 credits

### THR 337: Advanced Technical Theatre

Advanced study of materials and techniques of problem solving in stagecraft, including theatre sound, technical direction, advanced drafting, budgeting, crew organization, and planning.

*Prerequisite: THR 115*

3 credits

### THR 344- G: Performance Art II: World War II to the Present

This course explores the history and theory of performance art from World War II to the present, using an international perspective to identify different forms and practices from Happenings to Body Art and the introduction of new technologies. Questions addressed focus on the choices made by artists, and the forces within the culture that encourage the forms they use. Course projects include developing a site specific performance and a term paper. This course is offered as both ARH 344 and THR 344.

*Prerequisites: U3 or U4 standing; one ARH, ARS, MUS, or THR course*

*Advisory Prerequisite: ARH/THR 334*

3 credits

### THR 346: Lighting Design

Advanced topics in lighting design intended to acquaint the student with highly specialized lighting genres. Subjects include lighting for repertory theatres, the dance, and musical theatre.

*Prerequisite: THR 246*

3 credits

### THR 351: Special Topics in Performance

A concentration in one aspect of acting, such as preparation for the work of a specific playwright, readers' theatre, oral interpretation, improvisation, or musical theatre. May be repeated once, as the topic changes. THR 351 and THR 352 are treated as equivalent courses.

*Prerequisite: Permission of instructor*

3 credits

### THR 352: Special Topics in Performance

A concentration in one aspect of acting, such as preparation for the work of a specific

playwright, readers' theatre, oral interpretation, improvisation, or musical theatre. May be repeated once, as the topic changes. THR 351 and THR 352 are treated as equivalent courses.

3 credits

### THR 354: Topics in Dramaturgy

In-depth study of a specific subject in the history, theory, aesthetics, criticism, or dramatic tradition of the theatre. May be repeated as the topic changes.

*Prerequisites: Completion of D.E.C. categories A, B, and D*

3 credits

### THR 355: Media and Production Design for Theatre

Uses analysis and design to explore how media and projections can be used to construct narrative in theatre and support non-narrative forms of performance. Digital and analog media are explored for their potentials and limitations. Students learn how the media is produced and transmitted will be discussed as part of creating a video design. Students will produce projection projects using different kinds of media during the course requiring work outside of class time.

*Prerequisite: THR 115 and THR 215*

3 credits

### THR 356: Scene Design

Principles of design for the theatre, including color composition and rendering techniques. These techniques are related to the aesthetics of dramatic composition and the flexibility of modern staging.

*Pre-requisite: THR 216*

3 credits

### THR 380: Creative Process in Theatre I

Students in this course prepare a theatrical event for a future production. Students will undertake dramaturgical work including analysis of the subject matter, study of the historical context, and examination of controversies in public discourse. Depending on the subject of the proposed production, students will generate material through improvisation, creating scenarios, and constructing images that may be used in the final project. The course will require in-class presentations, small group work, and participation in final class projects. Students are expected to spend time outside of class gathering material and completing computer-based assignments relevant to the production.

*Prerequisite: U3 and U4 status and permission of the instructor*

3 credits

**THR 381: Creative Process in Theatre II**

A continuation of THR 380. Students rehearse, design, build, market, and perform projects initiated during the first course in the sequence. The course culminates in a public performance. Students are expected to spend time outside of class researching, developing material, rehearsing, and completing other assignments needed for the success of the production.

*Prerequisite:* THR 380

3 credits

**THR 401: Senior Seminar**

An intensive investigation of theatre theorists with particular emphasis on the application of theory to practice. This course is offered as both LIA 401 and THR 401.

*Prerequisites:* U4 standing; permission of instructor

3 credits

**THR 403: Media: Theory and Criticism**

Theoretical approaches and practices are used for a critical analysis of the content, structure, and context of significant media in our society. Background readings and examination of current theories of media are used to develop a practice in media criticism.

*Prerequisite:* Junior or Senior Standing

3 credits

**THR 405: Advanced Topics in Acting**

Advanced work in classical or contemporary text analysis, scene study, monologues and/or soliloquies limited to one or two major playwrights. May be repeated for credit once as the topic changes.

*Prerequisites:* THR 205 and THR 230

*Advisory Prerequisite:* THR 322

3 credits

**THR 406: Eastern Styles in Acting**

Study in and practice of the various principles of stylized acting, based on Asian models. Possible models include, but are not limited to, noh, kabuki, the Suzuki method, Beijing opera, and kutiyattam of India. Topics may vary by semester according to availability of guest artists and to productions scheduled in the season. May be repeated once.

*Prerequisites:* THR 205, THR 230, and THR 245

3 credits

**THR 438: Directing I**

The work of the director, including selection of a play for production; problems of style, interpretation, and execution; and the director's

approach to the actor. Not for credit in addition to THR 333.

*Prerequisites:* THR 205; THR 320 or 321

3 credits

**THR 447: Readings In Theatre Arts**

Special readings in a special area, to be arranged by the student and the instructor.

*Prerequisites:* At least four theatre arts courses; sponsorship of a faculty member; permission of department

3 credits

**THR 475: Undergraduate Teaching Practicum I**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Not for major credit.

*Prerequisite:* Theatre arts major; U4 standing; permission of instructor and department

3 credits, S/U grading

**THR 476: Undergraduate Teaching Practicum II**

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served. Not for major credit.

*Prerequisite:* THR 475; permission of instructor and department

3 credits, S/U grading

**THR 480: Projects in Media**

Advanced work on a particular problem in media. May be repeated up to a maximum of six credits. Only six credits of THR 480, 483, 484 and 487 may be used to satisfy major requirements.

*Prerequisite:* Permission of department

0-3 credits

**THR 483: Projects in Theatrical Design**

Advanced work on a particular problem in theatrical design. May be repeated up to a maximum of six credits. Only six credits of THR 480, 483, and 487 may be used to satisfy major requirements.

*Prerequisite:* Permission of department

0-3 credits

**THR 484: Projects in Theater**

Advanced work on a particular problem in theatre. May be repeated up to a maximum of six credits. Only six credits of THR 480, 483, and 487 may be used to satisfy major requirements.

*Prerequisite:* Permission of department

0-3 credits

**THR 487: Independent Research**

Designing and developing a research project selected by the student in consultation with a faculty member. May be repeated. Only six credits of THR 480, 483, 484 and 487 may be used to satisfy major requirements.

*Prerequisite:* Permission of department

0-6 credits

**THR 488: Internship**

Participation in a professional organization that creates and presents public performances, creates and presents, to the public, works in the media arts, or concerns itself with the management or funding of arts organizations. Students are required to submit written progress reports to their department sponsors and a final written report to the department faculty. Supplementary reading may be assigned. May be repeated up to a limit of 12 credits.

*Prerequisites:* Permission of instructor and department

0-6 credits, S/U grading

## TRK

### Turkish

**TRK 101 - S3: Intensive Elementary Turkish**

An intensive course covering the elementary Turkish program in one semester, satisfying the language requirement. This course is designed for students who have no prior knowledge of the language.

6 credits

## WRT

### Writing

**WRT 101- A & 1: Introductory Writing Workshop**

Frequent short papers are designed to help students develop fluency and correctness. The basic requirements of academic writing are introduced. A through C/Unsatisfactory

grading only. The Pass/No credit option may not be selected for this course. WRT 101 Does not count towards D.E.C. A requirement for students matriculating before fall 1999. WRT 101 is not for credit in addition to EGC 100. Due to the content of the course, enrollment after the first week of class is not permitted.

*Prerequisite: successful completion of ESL 193; or a score of less than 1050 on the combined SAT verbal and written exams; or less than 24 on the combined English and writing portions of the ACT*

3 credits, ABC/U grading

### **WRT 102- A & 2: Intermediate Writing Workshop A**

Writing for academic purposes is emphasized. Students learn strategies for extended writing assignments at the university. At least three major essays, multiple drafts, and short papers are required. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used. Due to the content of the course, enrollment after the first week of class is not permitted.

*Prerequisite: WRT 101; 3 or higher on the AP English Comp Lit exams; 1050 or higher on the combined verbal + writing SAT I components; 24 or higher on the combined English/Writing ACT components; C or higher in an approved transfer course*

3 credits, ABC/U grading

### **WRT 200: Grammar and Style for Writers**

Students will study the aspects of grammar that are most relevant to punctuation and to clear writing, including nouns, verbs, adjectives, adverbs, conjunctions, nominative and accusative cases, phrases, clauses, gerunds, participles, infinitives, and complete sentences. Sentence imitation, sentence combining, and sentence invention techniques will also be used to help students become more flexible in their syntactic fluidity. There will be five tests, three short papers, and a final exam.

3 credits

### **WRT 201: Writing in the Disciplines: Special Topics**

Writing in specified academic disciplines is taught through the analysis of texts in appropriate fields to discover discourse conventions. Students produce extended written projects. Different sections emphasize different disciplines.

*Prerequisite: Completion of D.E.C. category A*  
3 credits

### **WRT 205- B: Writing about Global Literature**

In this lecture course, we will read literature from countries such as Indonesia, Botswana, Burma, Nigeria, Brazil, Egypt, Kenya, Vietnam, and Trinidad. Students will write a one-page response to their reading for every class, and principles of thoughtful writing, including correct punctuation, will be reinforced. There will be two tests and a final exam.

3 credits

### **WRT 206- K: Writing about African-American Literature and History**

In this lecture course, we will read American Literature written by African-Americans and study that literature in its historical context. Readings will include works such as Frederick Douglass's Narrative, Harriet Wilson's Our Nig, William Wells Brown's Clotel, Charles Chesnutt's "The Sheriff's Children", W.E.B. Dubois's The Souls of Black Folk, Ida B. Wells's Lynch Law in all its Phases, James Weldon Johnson's Autobiography of an Ex-Colored Man, Langston Hughes's The Big Sea, Zora Neale Hurston's Their Eyes were Watching God, Richard Wright's Uncle Tom's Children, Chester Himes's Real Cool Killers, Alice Walker's The Color Purple, Toni Morrison's Beloved, and Walter Mosley's Always Outnumbered, Always Outgunned. Literary readings will be supplemented by documents and essays that provide historical context. Students will write a one-page response to their reading for every class, and principles of thoughtful writing, including correct grammar, will be reinforced. There will be two tests and a final exam.

*Prerequisite: WRT 102*

3 credits

### **WRT 301: Writing in the Disciplines: Special Topics**

Writing in specified academic disciplines is taught through the analysis of texts in appropriate fields to discover discourse conventions. Students produce a variety of written projects typical of the genres in the field. Different sections emphasize different disciplines. Typical topics will be Technical Writing, Business Writing, Legal Writing, and Writing for the Health Professions. May be repeated for credit as the topic changes.

*Prerequisite: Completion of D.E.C. category A*  
3 credits

### **WRT 302- G: Critical Writing Seminar: Special Topics**

A writing seminar, with rotating historical, political, social, literary, and artistic topics suggested by the professors each semester. Frequent substantial writing projects are

central to every version of the course. May be repeated for credit as the topic changes.

*Prerequisite: Completion of D.E.C. category A*  
3 credits

### **WRT 303: The Personal Essay**

The personal essay is a form that has recently come back into fashion. In this class we will engage the form by writing our own personal essays as well as reading and responding to the work of writers who have come to define the genre: examples include E. B. White, Langston Hughes, and Raymond Carver as well as more contemporary writers such as Joan Didion and Gene Shepherd. We will explore the differences between shaping experience as truth in a personal essay or memoir and as a work of fiction. As a definition of personal essay evolves, we will consider whether personal writing and essay writing (or 'essaying') have a place in academic writing. Students in this class will also be able to prepare a personal statement for their application for graduate or professional school.

*Prerequisite: Completion of D.E.C. category A*  
3 credits

### **WRT 304: Writing for Your Profession**

In this course students learn about types of documents, rhetorical principles, and composing practices necessary for writing effectively in and about professional contexts. Coursework emphasizes each student's career interests, but lessons also address a variety of general professional issues, including audience awareness, research methods, ethics, collaboration, and verbal and visual communication. Students complete the course with practical knowledge and experience in composing business letters, proposals, and various kinds of professional reports. A creative, self-reflexive assignment also contextualizes each individual's professional aspirations within a bigger picture of his/her life and culture.

*Prerequisite: Completion of D.E.C. category A*  
3 credits

### **WRT 305: Writing for the Health Professions**

This course will enable students interested in a health care career to strengthen their critical writing skills. While learning to gather information and to apply ethical principles in a logical, persuasive fashion, students will explore and write about various types of evidence concerning the health care needs of different populations: a field research project on a health issue affecting a local target population of their choice, a critique of government documents that

contain data on that issue and population, and a review of scholarly research on the same issue as it affects the larger national population represented by that local one. Writing assignments will include drafts and final versions of a research proposal, field research results, data analysis, literature review and a 20-30 page project incorporating all of the previous work conducted about that issue and population. Students will also write a reflective paper which can serve as the basis for a personal statement for medical or other health-related graduate school applications. This course will fulfill the second half of the Writing Pre-Med/Pre-Health prerequisite.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **WRT 380: Advanced Research Writing: Theories, Methods, Practices**

Good research skills are critical to academic success. Most disciplines require writing based upon research, as arguments and explanations make little impact on audiences without effective supporting evidence, drawn from relevant scholarship on the subject. This involves knowing how to use appropriate databases, source materials, and composing processes, as well as negotiating the values, genres, and languages of the scholarly communities in which one is researching. In this course, students will learn fundamentals of research methods, practice these methods in a series of integrated research and writing assignments, and engage in critical reflection about research and writing. Students will focus on an area of disciplinary interest to them, and practice these essential research and writing skills through a series of projects: library assignments, annotated bibliography, literature review, I-Search composing, and presentation of results.

*Prerequisite:* WRT 102  
3 credits

### **WRT 381: Advanced Analytic and Argumentative Writing**

Argumentative writing involves making a claim and supporting it with specific, related points and appropriate evidence—in other words, it is thesis-driven writing. Whenever we don't quite like someone else's idea and we want him or her to come closer to ours, argumentative writing is the most efficient method for such persuasion, in whatever profession you're considering. This class, therefore, will focus on learning how to effectively utilize argumentative and counter-argumentative writing strategies. Students will explore an area of disciplinary interest to them through several stages—proposal,

preliminary draft, multiple versions, literature review—culminating in a 20-30 page piece of writing in which they make a claim about a particular subject in that area of interest and support it with scholarly research and extensive elaboration. This course will fulfill the second half of the Writing Pre-Med/Pre-Health prerequisite. This course is offered as both EGL 381 and WRT 381.

*Prerequisite:* Completion of D.E.C. category A  
3 credits

### **WRT 392: Theories and Methods of Mentoring Writers**

Closely examines the difficulties implicit in mentoring writers, with special consideration for the roles of cultural expectations and social dynamics on both the teaching of writing and writers themselves. In small groups and one-to-one interactions, students explore theories and practices upon which composition instruction and writing center work depend. Building on the understanding that writing is a recursive process (a cycle of planning, drafting, revising, and editing), students also learn to analyze and problem-solve issues that become barriers for effective writing and communication.

*Prerequisites:* WRT 102 or 103; permission of instructor  
3 credits

### **WRT 487: Independent Project**

Qualified upper-division students may carry out advanced independent work under the supervision of an instructor in the program. May be repeated.

*Prerequisite:* Permission of instructor and program director  
0-6 credits

### **WRT 488: Internship**

Participation in local, state, and national public and private agencies and organizations. May be repeated to a limit of 12 credits.

*Prerequisites:* g.p.a. of 2.50 or higher; permission of instructor and program director  
0-6 credits, S/U grading

## **WSE**

### **Women in Science & Engineering**

#### **WSE 187: Women in the Laboratory: Introduction to Science, Engineering, and Mathematics Research**

An introduction to and hands-on experience in doing research in mathematics, engineering,

and several science disciplines within a group setting. The students rotate among several research environments: computer science, mathematics, social sciences, natural sciences and engineering. Within each environment they are given background readings, instructed in the problem to be studied, jointly carry out a small experiment related to the problem, and discuss the social implications of the research problem. Students make presentations related to one of the projects in which they participate. Enrollment limited to first-year women in the WISE program.

3 credits

### **WSE 242- H: Society and Gender in Science and Engineering**

A study of the social and gender dimensions of science and engineering, the social context in which modern science and engineering operates, and the role of women in these fields. The course focuses on (1) women's historic and current participation in Science, Mathematics and Engineering disciplines, including why so few women are involved in these fields, and (2) the relationship of social forces and scientific knowledge, by considering the role of ethics, politics, and economics.

*Prerequisite:* One of the following: BIO 201, BIO 202, CHE 131, CHE 141, GEO 102/112, GEO 122, PHY 125, PHY 131/133, or PHY 141

3 credits

### **WSE 487: Independent Project in WISE**

The design and implementation of a research project selected by the student and arranged by the student and the instructor. May be repeated once.

*Prerequisites:* Permission of instructor and department  
0-6 credits

### **WSE 488: WISE Internship**

Participation in public and private agencies, laboratories and organizations. Students are required to submit written reports on their experiences to the faculty sponsor and the WISE program. May be repeated up to a limit of six credits.

*Prerequisites:* Permission of instructor and department  
0-6 credits, S/U grading

## **WST**

### **Women's Studies**

**WST 102- F: Introduction to Women's and Gender Studies in the Social Sciences**

An introductory social sciences survey examining the continuities and changes women have made in marriage systems, child-rearing practices, and work patterns inside and outside the home. Within this context, the course considers how women have balanced labor force participation and changing child-care responsibilities in a variety of countries. Using the experimental design and case study methods of anthropology, sociology, economics, psychology, and history, and employing texts drawn from these disciplines, the course shows the changes women's lives have undergone over the past 150 years.

3 credits

**WST 103- G: Women, Culture, and Difference**

An introductory humanities survey focusing on women's traditional association with the home and men's association with public life and how writers, artists, philosophers, and religious thinkers have reflected upon those relationships over the past 150 years. Through lectures and critical analyses of novels, poetry, art, philosophy, and religious texts, the course explores how changing intellectual, artistic, and religious precepts have affected gender identity and different genres in the humanities.

3 credits

**WST 111- G: Introduction to Queer Studies in the Humanities**

A survey of historical representations of queer difference from the late 19th century to the present. Works of visual art, literary representations and poetry are examined as evidence of the shifting understanding of lesbian/gay/bisexual/transgendered/queer identity.

3 credits

**WST 112- F: Introduction to Queer Studies in the Social Sciences**

An introduction to the field of queer studies from the perspectives of the social and behavioral sciences. Themes include the construction of sexual and political difference, heterosexism and the nature of oppression, race/class/gender and sexuality, psychological theories of sexuality, and historical roots of these issues.

3 credits

**WST 210- F: Contemporary Issues in Women's and Gender Studies**

A survey of contemporary issues in the field of Women's and Gender Studies. Potential topics for the course are timely and topical. Topics examples include Gender and Political Activism, Gender and Music Culture, Gender and Reality TV, Gender, Race, and Sports, Gender and Education, Sexual Medicine, and Gender and Social Media. May not be repeated for credit.

*Prerequisite:* WST 102 or WST 103

3 credits

**WST 237- K: Images of Italian-American Women**

Examination of the role of Italian-American women through literature, film, politics, and music. The specific ways they have contributed artistically and socially to the American cultural scene from the first wave of Italian-American immigration to the present is considered. This course is offered as both HUI 237 and WST 237.

*Advisory Prerequisite:* Completion of D.E.C. category B

3 credits

**WST 247- K: Sociology of Gender**

The historical and contemporary roles of women and men in American society; changing relations between the sexes; women's liberation and related movements. Themes are situated within the context of historical developments in the U.S. This course is offered as both SOC 247 and WST 247.

3 credits

**WST 276- B: Feminism: Literature and Cultural Contexts**

An examination of works written by or about women reflecting conceptions of women in drama, poetry, and fiction. The course focuses on literature seen in relation to women's sociocultural and historical position. This course is offered as both EGL 276 and WST 276.

*Prerequisite:* Completion of D.E.C. category A

3 credits

**WST 284- G: Introduction to Feminist Theory (III)**

The social construction of gender and how this construction affects philosophical thought and practice. The course provides an introductory survey of current feminist issues and analyses. It also examines the meaning of feminism for philosophy by examining the effect of introducing a political analysis of gender into a discipline that is supposedly universal and neutral. This course is offered as both PHI 284 and WST 284.

*Advisory Prerequisite:* U2 standing or one PHI or WST course

3 credits

**WST 287: Research in Women's and Gender Studies**

Supervised research under the sponsorship of a women's studies faculty member. Students assist faculty in various aspects of ongoing research. Assignments depend on the nature of the project. May be repeated up to a limit of six credits, but only three credits may count toward the minor or major.

*Prerequisite:* Permission of the program research coordinator

0-6 credits, S/U grading

**WST 291- G: Introduction to Feminist Theory**

An introductory survey of historical and contemporary interdisciplinary theories used in Women's and Gender Studies. Theoretical debates on sex, gender, sexuality, race, class, knowledge, discourse, representation are among the topics to be considered. The course will provide a strong theoretical foundation for further studies in Women's and Gender Studies.

*Prerequisite:* WST 102 or WST 103

3 credits

**WST 301- K: Histories of Feminism**

An historical study of the theoretical and practical developments that form contemporary feminism. Beginning with the 18th century critiques of women's rights, the course traces the expansion of feminist concerns to include a global perspective, as well as attention to race and class. Representative texts include Mary Wollstonecraft's *A Vindication of the Rights of Women*, poems by Phyllis Wheatley and Sojourner Truth, Charlotte Perkins Gilman's *The Yellow Wallpaper*, Virginia Woolf's *Three Guineas*, and Simone de Beauvoir's *The Second Sex*.

*Advisory prerequisite:* WST major or minor or WST 102 or WST 103

3 credits

**WST 305- G: Feminist Theories in Context**

A study of major texts of the feminist tradition in social sciences and humanities, focusing on theories of subjectivity from a feminist point of view. Theoretical debates on gender, feminism, psychoanalysis, discourse, ideology, and representational systems are included.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or

WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

3 credits

### **WST 310- F: Contemporary Feminist Issues**

An analysis of major issues affecting women in today's society. Reproductive rights, women's employment, and political power are among the topics discussed.

*Prerequisites:* 12 credits in the social and behavioral sciences, or WST major or minor, or WST 102 or 103 or 301 or WST/PHI 284, or 6 credits of departmentally approved courses

3 credits

### **WST 314- G: Women Making Music**

A study of the contributions made by women to music-making in various contemporary and historical cultures of the world, with emphasis on Western traditions. Topics include women as composers, performers, and listeners; genres designed for women; women's roles in relation to men's; gender implications in musical style; and depictions of women in musical dramas. All types of music are considered: "classical," rock, pop, folk, jazz, various "fusions," and non-Western musics such as those from India, China, Indonesia, and the Middle East. This course is offered as both MUS 314 and WST 314.

*Prerequisite:* MUS 101 or 119 or 130

3 credits

### **WST 315- I: Gender and Sexuality in Ancient Greek Literature**

This course offers a comparative overview of the ways in which the roles of men and women were depicted in the literature and thought of ancient Greece. Major issues will include: the shift from matriarchal to patriarchal pantheons, sanctioned and unsanctioned homoeroticism, the sorceress and the hysteric as dominant tropes in the mythology of the period, and the role of women in the polis, among others. This course is offered as both CLL 315 and WST 315.

*Prerequisite:* Completion of DEC G

3 credits

### **WST 320- F: Women in Judaism**

A survey of women in Judaism and in Jewish life from the Biblical period to the present, focusing on such topics as the representation of women in the Bible, Jewish law concerning women, the role of women in the Enlightenment in Germany and America, immigrant women in America, women in the Holocaust, and women in Israel.

*Prerequisite:* One JDS or WST course

3 credits

### **WST 330- K: Gender Issues in the Law**

A critical exploration of American law that specifically addresses the issues of (in)equality of women and men in the United States.

The course surveys and analyzes cases from the pre-Civil War era to the end of the 20th century dealing with various manifestations of sex discrimination, decided in the federal court system, typically by the Supreme Court, and the state court system. The course also considers how the political nature of the adjudicative process has ramifications for the decisions rendered by a court. This course is offered as both POL 330 and WST 330.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 102 or 105 or WST 102 (formerly SSI/WST 102)

3 credits

### **WST 331- J: Japanese Literature in the Feminine Domain**

This course examines both writings of Japanese women and writings about Japanese women. It will challenge the application of current Western feminist standards to Japanese culture through the analysis of Japanese literary works. We will begin with Japanese mythology focusing on the stories of the creator goddess and Amaterasu, the sun goddess, from whom the imperial line was descended. We will consider the great Heian Era women writers and their culture, examining the difference between men's and women's writing. From the Heian era we will move to the Meiji Era, when Japan's isolationist period had ended and centuries' worth of Western literature was introduced to Japan. We will concentrate on the writings of Higuchi Ichiyo, noting how the position of women had changed by her day and how it affected her literary style. The course will close with a focus how literature treats Japanese women in our own time. This course is offered as AAS 331 and WST 331.

3 credits

### **WST 333- K & 4: Women in U.S. History**

An interpretation of the history of women in relation to the major themes in American history such as industrialization and urbanization. Emphasis is placed on topics of special interest to women, i.e., the cult of domesticity, the birth control movement, feminism, women and reform, and changing attitudes toward female sexuality. This course is offered as both HIS 333 and WST 333.

*Prerequisite:* one of the following: HIS 103, HIS 104, WST 102 (formerly SSI/WST 102), or WST 103

*Advisory Prerequisites:* Completion of D.E.C. categories I and J

3 credits

### **WST 334- I: Women, Work, and Family in Modern European History**

An analysis of the effect of urbanization and industrialization on women and the family in Europe from 1750 to the present. Special emphasis is placed on the development of the ideology of the "angel in the house" and the growth of female participation in the work force. Among the topics covered are domestic work, prostitution, sexual attitudes and mores, child-rearing practices, women and revolutionary movements, and the growth of feminism. This course is offered as both HIS 336 and WST 334.

*Prerequisite:* HIS 102 or WST 102 (formerly SSI/WST 102) or WST 103

3 credits

### **WST 335- K & 4: Women at Work in Twentieth-Century America**

Women have always worked but as Americans entered the 20th century the conditions of labor--and workers' relationship to their work--changed for both men and women wage-earners. This course will explore the various changes as they directly affected American women economically, socially, and politically and will open up discussions of the impact of race and class as well as gender. This course is offered as both HIS 335 and WST 335.

3 credits

### **WST 340- H: Sociology of Human Reproduction**

A study of the links between biological reproduction and the socioeconomic and cultural processes that affect and are affected by it. The history of the transition from high levels of fertility and mortality to low levels of both; different kinship, gender, and family systems around the world and their links to human reproduction; the value of children in different social contexts; and the social implications of new reproductive technologies. This course is offered as both SOC 340 and WST 340.

*Prerequisites:* SOC 105; one D.E.C. category E course in biology

3 credits

### **WST 345- J: Women and Gender in Chinese History**

Exploration of traditional cultural practices and values, and the 20th-century changes in Western and Asian relations in China brought about by nationalism, interaction with Western

influences, and socialist rule. This course is offered as HIS 345 and WST 345.

*Prerequisite:* One of the following: HIS 219, HIS 220, CNS 249, CNS 250, or any WST course

3 credits

### **WST 347- K: Women and Politics**

Analysis of the role of women in current American politics -- their electoral participation, office seeking, and political beliefs -- and policy issues that have special relevance to women. The course traces the history of American women's political involvement and the historical trajectory of gender-related policy from the mid-19th century to today. This course is offered as both POL 347 and WST 347.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* POL 102 or 105

3 credits

### **WST 350- J: Black Women and Social Change: A Cross-Cultural Perspective**

A cross-cultural survey of the history of black women in the context of the struggles for social justice in the Caribbean (English- and Spanish-speaking), Africa, and the United States. Several major topics are covered: the slave resistance and the anti-slavery movement; the anti-colonial struggle in Africa and the Caribbean; the trade union movement in the United States and Africa; the struggle against underdevelopment in Cuba, Puerto Rico, and Jamaica; and the anti-apartheid movement in South Africa. This course is offered as both AFS 350 and WST 350.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisites:* Completion of D.E.C. category F

3 credits

### **WST 360- I: Women in Premodern Europe**

An examination of the position of women in European society from ancient Greece through the Italian Renaissance. The course examines women's roles in the family and political life; women's economic activities; women and the Christian church; cultural attitudes concerning women; and women's own writing and creativity. This course is offered as both HIS 360 and WST 360.

*Prerequisite:* One HIS course or any WST course

3 credits

### **WST 361- G: Women in the Biblical World**

Consideration of how we define, on the basis of biblical and other contemporaneous literature, women's position in the socio-political sphere, including women in professions and institutions, such as goddesses, leaders of the community, queens, "wise women", writers, prophetesses, magicians, and prostitutes; and examination of literary types such as the Wife (and concubine), the Mother, the Daughter, the Temptress, and the Ancestress.

*Prerequisite:* One JDH or JDS or WST or literature course at the 200 level or higher

3 credits

### **WST 371- K: Gender and Work**

Gender differences in workforce participation and occupational attainment as they have changed throughout U.S. history. Covers such topics as historical changes in workforce participation; economic, legal, and social factors affecting employment; career options; and pay equity. Readings and lectures focus on the historical and contemporary experience of American men and women, including differences by ethnicity and class. This course is offered as both SOC 371 and WST 371.

*Prerequisites:* SOC 105 or WST 102 (formerly SSI/WST 102) or WST 103; two other courses in the social sciences

3 credits

### **WST 372- G: Topics in Women and Literature**

The study of texts written by and about women and of issues they raise relating to gender and literature. May be repeated as the topic changes. This course is offered as both EGL 372 and WST 372.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One literature course at the 200 level or higher

3 credits

### **WST 374- F: Historical Perspectives on Gender Orientation**

An examination of contemporary American gender orientation from an historical perspective. Topics include gay marriage, gay clergy, medical definitions of gender orientation and gays in the military.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One HIS or WST course

3 credits

### **WST 377- F: Psychology of Women**

The psychological impact of important physiological and sociological events and epochs in the lives of women; menstruation,

female sexuality, marriage, childbirth, and menopause; women and mental health, mental illness and psychotherapy; the role of women in the field of psychology. This course is offered as both PSY 347 and WST 377.

*Prerequisite:* WST major or minor; or one of the following: WST 102, WST 103, PSY 103, WST/SOC 247

3 credits

### **WST 381- H: AIDS, Race, and Gender in the Black Community**

Review of current biological and epidemiological knowledge about the HIV virus, and examination of the virus' social impact on the Black community. This course is offered as both AFS 381 and WST 381.

*Prerequisites:* U3 or U4 standing; one D.E.C. category E course

3 credits

### **WST 382- G: Black Women's Literature of the African Diaspora**

Black women's literature presents students with the opportunity to examine through literature the political, social, and historical experiences of Black women from the African Diaspora. The course is structured around five major themes commonly addressed in Black women's writing: Black female oppression, sexual politics of Black womanhood, Black female sexuality, Black male/female relationships, and Black women and defining self. This course is offered as AFH 382, EGL 382, and WST 382.

3 credits

### **WST 383- G: Philosophical Issues of Race and Gender (III)**

Issues of race and gender and how the notion that racism and sexism are analogous forms of oppression aids and detracts from consideration of these issues. Examination of the dynamics of race and gender in various contexts such as activism, art, law, literature, the media, medicine, and philosophy. This course is offered as both PHI 383 and WST 383.

*Prerequisite:* U3 or U4 standing

*Advisory Prerequisite:* One PHI or WST course

3 credits

### **WST 384- G: Advanced Topics in Feminist Philosophy (III)**

An intensive philosophical study of selected topics of feminist concern. Topics are selected to further the understanding of what effect feminism has upon traditional areas of philosophy as well as providing a detailed

understanding of particular feminist theories. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated as the topic changes. This course is offered as both PHI 384 and WST 384.

*Prerequisites:* One PHI course; one WST course

*Advisory Prerequisites:* PHI/WST 284; one other PHI or WST course

3 credits

### **WST 390- G: Special Topics in Women's and Gender Studies in the Humanities**

Designed for upper-division students, this course provides an in-depth study of specific current topics in women's and gender studies within humanities disciplines such as literature, art, music, religion, and philosophy. Past topics include World Women Writers, Music and Sexuality, Contemporary Memoirs, and Alice Walker. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 391- G: Special Topics in Women's and Gender Studies in the Humanities**

Designed for upper-division students, this course provides an in-depth study of specific current topics in women's and gender studies within humanities disciplines such as literature, art, music, religion, and philosophy. Past topics include World Women Writers, Music and Sexuality, Contemporary Memoirs, and Alice Walker. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 392- H: Special Topics in Women and Science**

Current topics in women's studies such as social issues in science or women in science. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 394- H: Special Topics in Medicine, Reproduction, and Gender**

Selected topics in gender and medicine and in human reproduction. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 395- J: Topics in Global Feminism**

Designed for upper-division students, this course provides an in-depth study of a specific topic relating to non-western world civilizations. With a focus on the development of feminism beyond the United States and Europe, topics may include such titles as Global Feminism and Latinas: History, Society, and Culture. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 396- K & 4: Special Topics in the History of American Women**

The changing roles of women in the family, community and the work force in historical perspective. Topics may include the suffragette movement, before and after; and women's roles in America's wars. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 397- F: Social Sciences Topics in Women's and Gender Studies**

Designed for upper-division students, this course provides an in-depth study of a specific topic within social sciences disciplines such as history, economics, sociology, political science, and linguistics. Past topics have included Gender, War, and Peacemaking, and The Psychology of Sexual Orientation. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 398- K: Topics in Gender, Race, and Ethnicity**

Past topics include 20th-Century Latina Literature; Race and Gender in Opera; and Gender, Ethnicity, and Capitalism. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 399- G: Topics in Gender and Sexuality**

Past topics have included titles such as Sexual Citizens and Queer Theory. Designed for upper-division students, this course provides an in-depth study of a specific topic within humanities disciplines such as music, art, literature, religion, and philosophy. Students will be expected to demonstrate knowledge of the conventions and methods used in the humanities discipline(s) studied. May be repeated as the topic changes.

*Prerequisite:* WST major or minor, or WST 102 (formerly SSI/WST 102), or WST 103, or WST 301, or WST/PHI 284, or 6 credits of departmentally approved courses

*Advisory prerequisites:* may be announced with topic

3 credits

### **WST 401: Seminar in Women's and Gender Studies**

Seminars on selected topics in women's and gender studies. May be repeated as the topic changes.

*Prerequisites:* WST major or minor, or WST 102, or WST 103, or WST 301, or WST/PHI 284, or 6 credits of WST or related classes in other departments (approved list in the WST office); and at least one other course specified when the topic is announced

3 credits

### **WST 402: Seminar in Women's and Gender Studies**

Seminars on selected topics in women's and gender studies. May be repeated as the topic changes.

*Prerequisites: WST major or minor, or WST 102, or WST 103, or WST 301, or WST/PHI 284, or 6 credits of WST or related classes in other departments (approved list in the WST office); and at least one other course specified when the topic is announced*

*3 credits*

**WST 407: Senior Research Seminar for Women's and Gender Studies Minors**

An exploration of significant feminist scholarship in various disciplines designed for students who are majoring in disciplines other than women's and gender studies. Seminar participants present and discuss reports on reading and research.

*Prerequisites: WST 301; 15 credits of the women's studies minor*

*3 credits*

**WST 408: Senior Research Seminar for Women's and Gender Studies Majors**

An exploration of significant feminist scholarship in various disciplines, designed for senior women's and gender studies majors. Seminar participants present and discuss reports on their reading and research.

*Prerequisites: WST 301 and 305; 15 additional credits in the major; U4 standing; women's studies major*

*3 credits*

**WST 447: Directed Readings in Women's and Gender Studies**

Intensive readings in women's and gender studies for qualified juniors and seniors under close supervision of a faculty instructor. Topic to be chosen in consultation with the faculty member. May be repeated once.

*Prerequisites: Permission of instructor and undergraduate director*

*1-3 credits*

**WST 475: Undergraduate Teaching Practicum I**

Students aid instructors and students in women's studies courses in one or several of the following ways: leading discussion sections, helping students improve writing and research skills, and library research. Students meet regularly with the supervising instructor.

*Prerequisites: U3 or U4 standing; permission of instructor; WST major or minor*

*3 credits, S/U grading*

**WST 476: Undergraduate Teaching Practicum in Women's and Gender Studies II**

Work with a faculty member as an assistant in one of the faculty member's regularly

scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

*Prerequisite: Permission of department*

*3 credits, S/U grading*

**WST 487: Independent Project in Women's and Gender Studies**

The design and conduct of a research project selected by the student and arranged by the student and the instructor. May be repeated once.

*Prerequisites: Permission of instructor and undergraduate director*

*0-6 credits*

**WST 488: Internship**

Participation in public and private agencies and organizations. Students are required to submit written reports on their experiences to the faculty sponsor and the women's studies program. May be repeated up to a limit of six credits.

*Prerequisites: Six credits toward the women's studies minor; permission of instructor and undergraduate director*

*0-6 credits, S/U grading*

**WST 495: Senior Honors Project in Women's and Gender Studies**

First course of a two-semester project for Women's and Gender Studies majors who are candidates for the degree with honors. Arranged in consultation with the department through the mentoring faculty member and the Director of Undergraduate Studies, the project involves independent readings or research and the writing of a paper under the supervision and guidance of a faculty member. Students enrolled in WST 495 are obliged to complete WST 496 the following semester. Students receive only one grade upon complete of the two-course sequence.

*Prerequisite: U4 standing; permission of instructor and department*

*3 credits*

**WST 496: Senior Honors Project in Women's and Gender Studies**

Second course of a two-semester project for Women's and Gender Studies majors who are candidates for the degree with honors. Arranged in consultation with the department through the mentoring faculty member and the Director of Undergraduate Studies, the project involves independent readings or research and the writing of a paper under the supervision

and guidance of a faculty member. Students enrolled in WST 495 are obliged to complete WST 496 the following semester. Students receive only one grade upon complete of the two-course sequence.

*Prerequisite: U4 standing; permission of instructor and department*

*3 credits*