

Academic Skills Program

ASP 050 3 hrs. Speaking, Reading, and Writing in English as a Second Language

Reading, speaking, and writing formal and colloquial English for students with limited English proficiency. English language skills in everyday and academic contexts stressed. Satisfactory/Unsatisfactory grading only. No graduation credit.

ASP 051 3 hrs. Advanced Communication Skills in English as a Second Language

Discipline-specific reading, writing, and speaking strategies necessary for coping with complex ideas in textbooks, class discussions, and writing tasks. Principles of formal English language in the American academic context stressed. Satisfactory/Unsatisfactory grading only. No graduation credit. **Prerequisite(s):** ASP 050 or an appropriate score on the reading placement test, or consent of the instructor.

ASP 052 3 hrs. Vocabulary Enrichment in English as a Second Language

Strategies for increasing, building, and retaining better vocabularies. Instruction in combining forms, analogies, and using the dictionary. Satisfactory/Unsatisfactory grading only. No graduation credit.

ASP 055 3 hrs. Communication Skills for International Graduate Students

Instruction and practice in formal and informal English language usage in the context of intercultural learning are provided for international graduate students with limited English proficiency. Satisfactory/Unsatisfactory grading only. No graduation credit.

ASP 060 3 hrs. Studying/Learning Across the Disciplines

Offers practical methods for applying learning strategies to tasks typical of course work in various disciplines. Satisfactory/Unsatisfactory grading only. No graduation credit.

ASP 062 2 hrs. Topics in Learning Support Instruction

Specially designed course that introduces and provides practice in special topics related to reading, writing, learning, and thinking strategies geared to specific course demands and specific populations. Satisfactory/Unsatisfactory grading only. No graduation credit. **Prerequisite(s):** Consent of the instructor.

ASP 063 2–3 hrs. Topics in Learning Support Instruction for LARES Students

Specially designed course that introduces and provides practice in special topics related to reading, writing, learning, and thinking strategies geared to specific course demands. Satisfactory/Unsatisfactory grading only. May be repeated. No graduation credit. **Prerequisite(s):** Consent of the instructor. Restricted to students in the Latin American Recruitment and Educational Services Program.

ASP 086 3 hrs. Critical Reading and Thinking I-LARES

Strategies for comprehending and learning textbook material representing different academic disciplines and for writing summaries and syntheses. Cultural and language concerns of Latino students addressed. Satisfactory/Unsatisfactory grading only. No graduation credit. Restricted to students in the Latin American Recruitment and Educational Services Program.

ASP 087 3 hrs. Critical Reading and Thinking II-LARES

Advanced, discipline-specific reading, writing, and thinking strategies for practice in comprehending and writing about complex textbook material. Cultural and language concerns of Latino students addressed. Satisfactory/Unsatisfactory grading only. No graduation credit.

Prerequisite(s): ASP 086; or an appropriate score on the reading placement test or consent of the instructor. Restricted to students enrolled in the Latin American Recruitment and Educational Services Program.

ASP 088 3 hrs. Intensive Writing Workshop for LARES Students

Practice in basic writing skills for students who are enrolled, or intending to enroll, in the required composition courses, or courses requiring writing. Cultural and language concerns of Latino students addressed. Satisfactory/Unsatisfactory grading only. No graduation credit. Restricted to students in the Latin American Recruitment and Educational Services Program.

ASP 090 3 hrs. Critical Reading and Thinking I

Strategies for comprehending, writing about, and learning textbook material representing different academic disciplines. Instruction in writing summaries and syntheses of readings included. Satisfactory/Unsatisfactory grading only. No graduation credit.

ASP 091 3 hrs. Critical Reading and Thinking II

Advanced, discipline-specific reading, writing, and thinking strategies for practice in comprehending and writing about com-

plex textbook material. Instruction in writing syntheses and critical analyses of readings included. Satisfactory/Unsatisfactory grading only. No graduation credit. **Prerequisite(s):** ASP 090 or an appropriate score on the reading placement test, or consent of instructor.

ASP 092 2 hrs. Vocabulary Enrichment

Strategies for increasing the number of words students understand in their reading/listening and use in their speaking/writing. Techniques for learning unfamiliar technical terms in textbooks. Satisfactory/Unsatisfactory grading only. No graduation credit. Meets 8 weeks of the semester.

ASP 095 3 hrs. Academic and Professional Writing

Academic and professional writing principles and their application are introduced and practiced. Practice in writing resumes, business and professional correspondence, reports, and theses. Satisfactory/Unsatisfactory grading only. No graduation credit.

ASP 096 0–3 hrs. Independent Study

For those who wish to supplement regular courses or undertake individual study projects. Satisfactory/Unsatisfactory grading only. No graduation credit. **Prerequisite(s):** Approval of the department.

Accounting

ACTG 210 3 hrs. Introduction to Financial Accounting

Concepts and standards underlying the preparation and analysis of external reports; alternative effects and role of accounting in the business environment and capital markets. Previously listed as ACTG 110. Extensive computer use required. **Prerequisite(s):** Sophomore standing.

ACTG 211 3 hrs. Introduction to Managerial Accounting

Management planning and control; cost concepts and measurement; cost accounting systems; analysis of cost and volume-profit relationships; standard costs and variances; and budget preparation. Previously listed as ACTG 111. Extensive computer use required. **Prerequisite(s):** ACTG 210 and sophomore standing. Accounting majors need a grade of C or better in ACTG 210.

ACTG 315 3 hrs. Intermediate Financial Accounting I

Theory and standards related to asset valuation, revenue recognition, gain and loss recognition, and their impact on income measurement and financial position. For satisfactory progress in the Accounting major, students must receive a grade of C or better in

ACTG 315. ACTG 315 may be repeated only once. Transfer credit from another college or university is not accepted for ACTG 315. **Prerequisite(s):** Average grade of B or higher in ACTG 210 and ACTG 211, with both taken at UIC; or a grade C or better in ACTG 210 or equivalent and ACTG 211 or equivalent and a passing grade in the Accounting Qualifying Exam (AQE). Registration for this course is only through Department of Accounting Web site: <http://accounting.cba.uic.edu>. Information on AQE is also available there.

ACTG 316 3 hrs. Intermediate Financial Accounting II

Selected topics in accounting and financial reporting including: cash flow statements, income taxes, long-term debt and leases, investments, derivative securities, and contingencies and employee retirement benefits and stockholders' equity. **Prerequisite(s):** Grade of C or better or concurrent registration in ACTG 315.

ACTG 326 3 hrs. Cost Accounting

Design of cost accounting systems; alternate costing methods; costing for decision making; budgeting and performance evaluation. Extensive computer use required. For satisfactory progress in the Accounting major, students must receive a C or better in ACTG 326. ACTG 326 may be repeated only once. **Prerequisite(s):** Grade of C or better in ACTG 210 and grade of C or better in ACTG 211.

ACTG 355 3 hrs. Business Law I: Commercial Transactions

Commercial transactions including: contracts, sales of goods, negotiable instruments, and secured transactions. **Prerequisite(s):** ACTG 211 or the equivalent.

ACTG 394 3 hrs. Special Topics in Accounting—Undergraduate

Investigates selected contemporary accounting topics using readings in both academic and professional journals as well as cases for analysis. **Prerequisite(s):** ACTG 316 and ACTG 326.

ACTG 396 1–3 hrs. Independent Study in Accounting—Undergraduate

Independent study in approved topics; written report prepared under the guidance of a faculty member is required. **Prerequisite(s):** ACTG 316 and ACTG 326, declaration of a major and approval of the department.

ACTG 417 3 OR 4 hrs.**Advanced Financial Accounting**

Financial accounting theory for business combinations, consolidated financial statements, international transactions and investments, and partnership accounting. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ACTG 316.

ACTG 435 4 hrs.**Auditing**

Introduction to the audit function; ethical and legal environment; audit standards; objectives and procedures; materiality and audit risk; sampling; auditing in a computer environment; reporting. Extensive computer use required. **Prerequisite(s):** ACTG 316.

ACTG 445 3 OR 4 hrs.**Federal Income Tax I**

Concepts and provisions of federal income taxation as applicable to individual taxpayers, partnerships, individuals, and trusts. 3 undergraduate hrs. 4 graduate hrs. Credit is not given for ACTG 445 if the student has credit for ACTG 508. Extensive computer use required. **Prerequisite(s):** ACTG 315.

ACTG 446 3 OR 4 hrs.**Federal Income Tax II**

Concepts and provisions of federal income taxation on corporations and partnerships; special problems in reorganization, liquidations, and personal holding companies. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** ACTG 445 or the equivalent.

ACTG 456 3 OR 4 hrs.**Business Law II: Business Organizations**

Business organizations, including agency, general partnerships, limited partnerships, corporations, limited liability companies, securities regulations, bankruptcy, suretyship, bailments, real property, wills and trusts, accounting liability. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ACTG 355 or the equivalent.

ACTG 465 3 OR 4 hrs.**Governmental and Nonprofit Accounting**

Financial transaction analysis and recording system; budget preparation and control; concepts and principles underlying the financial reports of governmental and nonprofit organizations. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ACTG 316.

ACTG 474 3 OR 4 hrs.**Accounting Information Systems**

Skills and concepts that enable the documentation, design, and use of accounting information systems, understanding transaction cycles, sound internal controls, accounting software and the electronic business environment. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** Grade of C or better in ACTG 210 and grade of C or better in ACTG 211; and IDS 200.

ACTG 475 3 OR 4 hrs.**Database Accounting Systems**

Concepts and principles of designing database systems to perform accounting functions, applications of microcomputer accounting software packages systems design tools, and computerized transaction cycles. **Same as** IDS 475. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** ACTG 211 and IDS 200.

ACTG 484 3 OR 4 hrs.**International Accounting**

Financial accounting for international operations, multinational managerial accounting and control, comparative international accounting, international reporting issues, and international taxation. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ACTG 316.

ACTG 485 3 OR 4 hrs.**Valuation and Analysis**

Financial analysis and valuation of firms. Corporate strategies, financial reporting issues and market perceptions. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** ACTG 315 and FIN 300 for undergraduate students. One accounting and one finance class or consent of the instructor for graduate students.

ACTG 494 1–4 hrs.**Special Topics in Accounting**

Topics rotate in various areas of accounting, including but not restricted to financial, managerial, governmental, and nonprofit accounting, law, and business ethics. Explores current issues and proposed alternatives. **Prerequisite(s):** Two courses in accounting or finance beyond ACTG 211 and FIN 300 or the equivalent.

ACTG 495 4 hrs.**Competitive Strategy**

Multidisciplinary analysis of organization strategy and policy, using case method and/or business simulation. Assignments involve extensive library research and oral and written reports. **Prerequisite(s):** Senior standing in the College of Business Administration and completion of all other CBA Core courses, or consent of the instructor.

African American Studies**AAST 100 3 hrs.****Introduction to African American Studies**

The African American experience, focusing on African and African American culture, the slave trade, slavery, and emancipation in the Americas, social structure, and civil rights. *Individual and Society, and U.S. Society course.*

AAST 103 3 hrs.**African American Politics and Culture**

A survey of African American political and cultural activism from the Black Convention Movement of the 1830's to con-

temporary times. **Same as** POLS 112. *Individual and Society, and U.S. Society course.*

AAST 104 3 hrs.**Race, Place, and Schooling: African Americans and Education**

Examination of the social, political, cultural, and economic factors shaping African American's educational experiences in the United States historically and currently. **Same as** EDPS 104. *Individual and Society, and U.S. Society course.*

AAST 105 3 hrs.**African Americans in Film, 1900—Present: Images, Individuals and Ideas on Screen**

Examination of the history of African Americans in film from Oscar Micheaux to Spike Lee and Julie Dash; the careers of Black filmmakers, actors, images, themes, and ideas in films by and about people of African descent in the 20th century. **Same as** COMM 105. *Creative Arts, and U.S. Society course.*

AAST 110 3 hrs.**Introduction to African American Literature, 1760–1910**

Comprehensive survey, 1760–1910, from earliest folk roots to formal literary tradition. **Same as** ENGL 118. *Creative Arts, and Individual and Society course.*

AAST 111 3 hrs.**Introduction to African American Literature since 1910**

Comprehensive survey of African American literature from 1910 to the present. **Same as** ENGL 119. *Creative Arts, and U.S. Society course.*

AAST 120 3 hrs.**African American Religious Traditions**

Introduction to the significance of religion and religious institutions in African American history. Examination of Christian and non-Christian traditions, mainstream and sectarian. *Past, and U.S. Society course.*

AAST 141 3 hrs.**African Civilization**

Introduction to history and historical methods through the study of African history. **Same as** HIST 141. *Past, and World Cultures course.*

AAST 191 3 hrs.**African and Caribbean Francophone Literature in Translation**

An introduction to the Francophone literature of Africa and the Caribbean and to its historical and cultural contexts. **Same as** FR 191. *Creative Arts, and World Cultures course.*

AAST 200 3 hrs.**History of Race Relations in America**

An examination of American racial thought and racial discrimination to determine how the content and function of both have changed over time. **Same as** HIST 251 and LALS 251.

AAST 201 3 hrs.**The Psychology of African Americans**

Historical analysis of various psychological approaches to the African American experience and identity. Special attention to development of African American psychology as a disciplinary orientation. **Same as** PSCH 201. **Prerequisite(s):** AAST 100 or PSCH 100 or consent of the instructor. *Individual and Society, and U.S. Society course.*

AAST 202 3 hrs.**African American Behavioral Patterns**

Formal theories on personality in terms of interdependence between personal characteristics, African American culture, and oppression; social-psychological aspects of black identity and interpersonal behavior. **Same as** PSCH 202. **Prerequisite(s):** PSCH 100 or consent of the instructor. **Recommended background:** Credit in AAST 201 or PSCH 201. *Individual and Society, and U.S. Society course.*

AAST 203 3 hrs.**The African American Family in the United States**

Examination of the structure and functioning of the African American family. Historical and contemporary analyses. **Same as** SOC 203. **Prerequisite(s):** AAST 100 or SOC 100 or consent of the instructor. *Individual and Society, and U.S. Society course.*

AAST 206 3 hrs.**Interdisciplinary Research Methods in African American Studies**

Introduction to the use of interdisciplinary research methods as a means of studying the African American experience.

Prerequisite(s): Credit or concurrent registration in AAST 100; or consent of the instructor. For African American Studies majors and minors only.

AAST 210 3 hrs.**The Art and Archaeology of Ancient Egypt**

Ancient Egypt from 6000 BC–400 AD. Architecture, sculpture, and painting in their social and historical contexts. **Same as** AH 210 and ARST 210.

Prerequisite(s): Sophomore standing. *Creative Arts, and Past course.*

AAST 212 3 hrs.**Techniques of African American Creative Writing**

Exploration of the relationship between African American culture and literary styles. Specific emphasis on Dunbar, Hughes, Toomer, Brown, Ellison, Baldwin, Brooks, Morrison, and Jones. **Prerequisite(s):** AAST 100 or ENGL 160.

AAST 225 3 hrs.
Racial and Ethnic Groups
 Sociological and social-psychological analysis of racial, religious, and other ethnic groups; consideration of historical and current social problems arising from their relationships in society. **Same as** LALS 225 and SOC 225.
Prerequisite(s): SOC 100; or consent of the instructor.
Individual and Society, and U.S. Society course.

AAST 229 3 hrs.
Africa and its Diasporas
 This course on the African diaspora critically analyzes the cultural, economic, geographic, and historical implications of population movements from Africa from the 15th century to the present. **Same as** HIST 229.
Prerequisite(s): AAST 100 or AAST 241 or HIST 241 or AAST 242 or HIST 242 or AAST 247 or HIST 247 or AAST 248 or HIST 248. *Past, and World Cultures course.*

AAST 241 3 hrs.
Precolonial Africa
 Development of human civilization; the rise of kingdoms and territorial states; migration of peoples; the spread and impact of Islam; west African trading networks. **Same as** HIST 241. *Past, and World Cultures course.*

AAST 242 3 hrs.
Modern Africa
 The effect of European partition and colonialism; African military and political resistance; economic imperialism; the rise of nationalism; the problems of independence. **Same as** HIST 242. *Past, and World Cultures course.*

AAST 245 3 hrs.
Politics and Government of Africa
 Contemporary political systems of selected African countries with emphasis on political leadership, nationalism, ideological trends, and economic development. **Same as** POLS 245.
Prerequisite(s): POLS 130 or POLS 190 or AAST 100; or consent of the instructor. *World Cultures course.*

AAST 247 3 hrs.
African American History to 1877
 Survey of major social, economic, political, and cultural developments in African American history from the rise of the Atlantic Slave Trade to Reconstruction. **Same as** HIST 247.
Prerequisite(s): One course in African American studies or history, or consent of the instructor.
Past, and U.S. Society course.

AAST 248 3 hrs.
African American History since 1877
 Survey of major social, economic, and political developments in African American history since Reconstruction. Topics include Jim Crow, black leadership, migration, civil rights, and nationalism. **Same as** HIST 248.
Prerequisite(s): One course in African American studies or history, or consent of the instructor.
Past, and U.S. Society course.

AAST 249 3 hrs.
African Freedom Movements in the U.S.
 A survey of African American resistance and social change movements from the 1900s through the 1970s; the political ideologies and practices of various leaders and organizations that have had an impact on African American politics. *Past, and U.S. Society course.*

AAST 250 3 hrs.
Comparative Black Literatures
 The study and analysis of selected works of literature and criticism in the context of the African diaspora. **Same as** ENGL 260. *Creative Arts, and U.S. Society course.*

AAST 251 3 hrs.
African Americans and the Law to 1954
 Survey of the African American constitutional experience from the 1600s until the landmark *Brown* decision in 1954 striking down state-sponsored racial segregation and de jure discrimination. **Same as** POLS 251.
Prerequisite(s): Grade of C or better in AAST 100 or grade of C or better in POLS 101 or grade of C or better in POLS 103 or grade of C or better in POLS 190; or consent of the instructor. *Past, and U.S. Society course.*

AAST 252 3 hrs.
African Americans and the Law, since 1954
 Survey of the African American constitutional experience since the landmark 1954 *Brown* decision to the present day. **Same as** POLS 252. **Prerequisite(s):** Grade of C or better in AAST 100 or grade of C or better in POLS 101 or grade of C or better in POLS 103 or grade of C or better in POLS 190; or consent of the instructor. **Recommended background:** AAST 251 or POLS 251. *Past, and U.S. Society course.*

AAST 258 3 hrs.
Race and Urban Life
 Examines the experiences of Blacks in urban areas since the 1900's. **Same as** SOC 258.

AAST 261 3 hrs.
Reading Black Women Writing
 Examines inscriptions of race, gender, class, and sexuality as they shape the literary and critical practices of nineteenth- and twentieth-century black women writers. **Same as** GWS 261 and

ENGL 261. Previously listed as AAST 470. **Prerequisite(s):** Grade of C or better in AAST 100 or grade of C or better in AAST 110 or grade of C or better in AAST 111 or grade of C or better in ENGL 118 or grade of C or better in ENGL 119 or grade of C or better in ENGL 240; or consent of the instructor.

AAST 262 3 hrs.
Black Cultural Studies
 Introduction to approaches, methods, and key debates in the study of black culture in a transnational and diasporic context. **Same as** ENGL 262.
Prerequisite(s): AAST 100. *Creative Arts, and U.S. Society course.*

AAST 263 3 hrs.
African American Intellectual History
 Introduction to key figures, developments, and debates in African American intellectual history. **Same as** HIST 263.
Prerequisite(s): AAST 100. *Individual and Society, and Past course.*

AAST 264 3 hrs.
African American Art
 Interdisciplinary survey of the artistic production of African American artists from the nineteenth century to the present. **Same as** AH 264. *Creative Arts, and World Cultures course.*

AAST 265 3 hrs.
The Harlem Renaissance
 The intellectual, cultural, and artistic expressions among African Americans from 1912 to 1933, with an emphasis on the literary texts and social history. **Same as** ENGL 265. Previously listed as AAST 350.
Prerequisite(s): Grade of C or better in AAST 100; and grade of C or better in AAST 110 or grade of C or better in AAST 111; or grade of C or better in ENGL 240 and grade of C or better in ENGL 243; or consent of the instructor. *Past, and U.S. Society course.*

AAST 266 3 hrs.
Topics in African Literature
 The study and analysis of selected works of African literature, history, and criticism. **Same as** ENGL 266. May be repeated. *Creative Arts, and World Cultures course.*

AAST 270 3 hrs.
African Art
 Survey of the arts of the major tribal cultures of sub-Saharan Africa. **Same as** AH 270.
Prerequisite(s): 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts, and World Cultures course.*

AAST 271 3 hrs.
African Americans and the Politics of Incarceration
 Examination of the status of African Americans as offenders, victims, and personnel within the criminal justice system. **Same as** CLJ 271 and SOC 271. Previously listed as AAST 371.
Prerequisite(s): AAST 100 or

CLJ 101 or SOC 100; or consent of the instructor. *Individual and Society, and U.S. Society course.*

AAST 272 3 hrs.
Race, Gender, and Sexuality
 The course will focus on the various ways that African American Studies has conceptualized issues of gender and sexuality. **Same as** GWS 272. **Prerequisite(s):** AAST 100. *Individual and Society, and U.S. Society course.*

AAST 294 3 hrs.
Topics in African American Studies
 Selected topics. May be repeated to a maximum of 6 hrs. Students may register in more than one section per term. **Prerequisite(s):** Junior standing or consent of the instructor.

AAST 306 3 hrs.
Black Politics in the United States
 Historical analysis of Black electoral politics in the U.S., including traditional political party participation and movement politics. **Same as** POLS 311.
Prerequisite(s): Three courses in political science, history, or sociology, or consent of the instructor.

AAST 340 3 hrs.
Advanced Interdisciplinary Seminar in African American Studies
 Provides a theoretical and critical examination of contemporary issues in African American Studies from an interdisciplinary framework. **Prerequisite(s):** Junior standing and declared major in African American studies, or consent of the instructor.

AAST 351 3 hrs.
Topics in Black Art and Literature
 Study of literature and the other arts in the context of the African diaspora. Topics vary. **Same as** ENGL 351. **Prerequisite(s):** Grade of C or better in AAST 100; and grade of C or better in AAST 110 or grade of C or better in AAST 111; or grade of C or better in ENGL 240 and grade of C or better in ENGL 243.

AAST 356 3 hrs.
Constitutional Law: Women, Gender, and Privacy
 A multidisciplinary examination of U.S. constitutional law and politics in shaping issues of gender, privacy, race, and sexual orientation; including reproduction, labor, sexual harassment, political participation, and women and crime. **Same as** GWS 356 and POLS 356. **Prerequisite(s):** Grade of C or better in POLS 101 or grade of C or better in POLS 112 or grade of C or better in AAST 100 or grade of C or better in AAST 103 or grade of C or better in GWS 101; or consent of the instructor.

AAST 390 3 hrs.
Senior Seminar in African American Studies
Facilitates completion of the final project in African American studies required of all majors. In a seminar setting, students will work on individual projects, give feedback to one another, and learn the key skills of academic writing. **Prerequisite(s):** AAST 206 and junior standing or above or consent of the instructor.

AAST 398 3 hrs.
Independent Study: Special Topics
Selected topics for individual research. May be repeated to a maximum of 9 hrs. **Prerequisite(s):** Consent of the instructor and approval of the head of the Department of African American Studies.

AAST 405 3 OR 4 hrs.
Urban Ethnography
The study of processes and meanings in African American communities in urban areas, interviews, participant observation, focus groups. **Same as** SOC 406. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** AAST 100; and junior standing or above.

AAST 406 3 OR 4 hrs.
Politics of Race, Gender, and Class
Formation of social status categories, individual and collective identity construction, the mechanisms of group-based marginalization and stigmatization; relationship between social status categories. **Same as** GWS 406. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** AAST 100 or GWS 102 or GWS 101; or graduate or professional standing; or consent of the instructor.

AAST 407 3 OR 4 hrs.
Seminar in Comparative Racialization
Provides an interdisciplinary and comparative approach to the making and remaking of "race" and the resultant racialized experiences of different groups in the U.S. and globally. **Same as** SOC 407. **Prerequisite(s):** AAST 247 or AAST 248 or AAST 340 or SOC 225; and senior standing or above; or consent of the instructor.

AAST 410 3 OR 4 hrs.
Seminar in Black Child Development
Race, class, and cultural theories of black child development. Examination of socialization process and developmental outcomes, with particular attention to social attitudes and behaviors. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** AAST 201 or PSCH 100 or consent of instructor.

AAST 431 3 OR 4 hrs.
The History and Politics of Africa on Film
Key moments and issues in African history through the eyes of African film and documentary makers. **Same as** MOVI 431. **Prerequisite(s):** Junior standing or above.

AAST 441 3 OR 4 hrs.
Topics in African History
Specific topics are announced each term. **Same as** HIST 441. 3 undergraduate hrs. 4 graduate hrs. May be repeated. **Prerequisite(s):** 3 hours of African history, African American studies, or consent of the instructor.

AAST 445 3 OR 4 hrs.
History of Islam in the African World
A comprehensive study of the history of Islam and its role among the people of African descent in sub-Saharan Africa and the United States. **Same as** HIST 445. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Consent of the instructor.

AAST 481 3 OR 4 hrs.
Topics in African and African American History
African and/or African American history for students with significant background in the field. Topics vary. **Same as** HIST 485. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. Students may register in more than one section per term. **Prerequisite(s):** AAST 247 or AAST 248 or HIST 104 or HIST 247 or HIST 248 or consent of the instructor.

AAST 490 3 OR 4 hrs.
Topics in African American Literature
African American literature and culture for students with significant background in the field. Topics vary. **Same as** ENGL 473. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** AAST 357 or AAST 360 or ENGL 357; and senior standing or above; or consent of the instructor.

AAST 492 3 OR 4 hrs.
Topics in Social Science Research
Inclusive examination of a selected specialized topic based on instructor's field. Topics are drawn from research in political science, psychology, sociology, and history. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. Students may register in more than one section per term. **Prerequisite(s):** AAST 100 or consent of the instructor.

AAST 496 3 OR 4 hrs.
Topics in Race, Ethnic, and Minority History
Specific topics are announced each term. **Same as** HIST 496. 3 undergraduate hrs. 4 graduate hrs. May be repeated. **Prerequisite(s):** 3 hours of history or consent of the instructor.

Anatomy and Cell Biology

ANAT 414 3 hrs.
Neuroanatomy for Allied Health Program
Basic development and gross features of the central nervous system and systems neuroanatomy; motor, sensory and integrative functional areas.

Ancient Greek

GKA 101 4 hrs.
Elementary Ancient Greek I
The fundamentals of ancient classical Greek, including the reading of simple prose.

GKA 102 4 hrs.
Elementary Ancient Greek II
Continues GKA 101. Grammar and reading. **Prerequisite(s):** GKA 101.

GKA 103 4 hrs.
Intermediate Ancient Greek I
Introduction to Greek philosophers and historians. Selections from Plato, Thucydides, Demosthenes, and other Attic prose writers. **Prerequisite(s):** GKA 102.

GKA 104 4 hrs.
Intermediate Ancient Greek II
Introduction to Greek epic and tragedy. Readings from Homer and Euripides. **Prerequisite(s):** GKA 103.

GKA 299 3 hrs.
Independent Reading
Individual study under faculty direction. For students qualified by preparation and interest. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** GKA 104 or the equivalent.

GKA 498 3 OR 4 hrs.
Advanced Topics in Ancient Greek Literature
Intensive reading of ancient Greek literature. Topics vary. 3 undergraduate hrs. 4 graduate hrs. May be repeated to a maximum of 9 hrs. Students may register in more than one section per term. **Prerequisite(s):** 4 hours of ancient Greek at the 200-level or the equivalent.

GKA 499 3 OR 4 hrs.
Independent Reading
Individual study under faculty direction. For students qualified by preparation and interest. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 4 hours of ancient Greek at the 200-level or the equivalent.

Anthropology

ANTH 100 3 hrs.
The Human Adventure
A survey of approaches to the study of the origins and the cultural and biological development of humankind. No credit toward the anthropology major for students with previous courses in anthropology. *Individual and Society, Past, and World Cultures course.*

ANTH 101 3 hrs.
World Cultures: Introduction to Social Anthropology
Concepts and methods in the study of world cultures from a comparative anthropological perspective, emphasizing selected non-U.S. societies, cultures, and ethnographic regions. *Individual and Society, and World Cultures course.*

ANTH 102 4 hrs.
Introduction to Archaeology
This course surveys world prehistory and introduces students to the theories and methods archaeologists use to understand the past. *Natural World—With Lab, and Past course.*

ANTH 105 4 hrs.
Human Evolution
Human evolution and variability; methods of assessing fossil evidence for evolutionary change; principles of biological adaptation. *Natural World—With Lab, and Past course.*

ANTH 110 3 hrs.
Cybernetic Systems
Nontechnical introduction to the major ideas of cybernetics and their applications to learning and evolution, communication and culture, sanity, machines, and what context means. *Individual and Society course.*

ANTH 200 3 hrs.
Anthropological Theory
Theoretical approaches to the study of culture and society in terms of structure, function, and process. **Prerequisite(s):** ANTH 101 or consent of the instructor.

ANTH 210 3 hrs.
Cybernetic Thinking
The logic of cybernetic concepts: stability, change, hierarchy, coupling, feedback, variety, regulation, and their applications to living, social, and cultural systems.

ANTH 211 3 hrs.
Visual Anthropology
History and criticism of documentary films on anthropology. Discussion of the applications of film in field research and viewing of representative examples. **Prerequisite(s):** 3 hours in social sciences or consent of the instructor.

ANTH 212 3 hrs.**Folklore**

Surveying the major folklore genres: proverbs, riddles, games, folksong, and the folk tale, their forms, and how people use them.

ANTH 214 3 hrs.
Sex and Gender in World Cultures

Comparative study of sex roles, gender identity, and male-female relationships, emphasizing biological, ecological, ideological, and symbolic factors associated with cross-cultural variability. **Same as** GWS 214.

Prerequisite(s): 3 hours of social sciences or consent of the instructor. *Individual and Society, and World Cultures course.*

ANTH 215 3 hrs.
Anthropology of Religion

Exploration of varieties of religious experience, including magic and witchcraft, with emphasis on non-Western religions and the role of religious institutions in social integration.

ANTH 216 3 hrs.
Medicine, Culture, and Society

Medical anthropology is the study of human health and illness across culture, time, and location. The cultural, political, and moral components of disease, illness, suffering, health, and well-being will be discussed. **Prerequisite(s):** ANTH 101; or consent of the instructor. *Individual and Society, and World Cultures course.*

ANTH 217 3 hrs.
Special Topics in Cultural Anthropology

Covers special topics in cultural anthropology. May be repeated. Students may register for more than one section per term. **Prerequisite(s):** ANTH 101; or consent of the instructor.

ANTH 218 3 hrs.
Anthropology of Children and Childhood

Examines childhood, a uniquely human life stage, both across cultures and from a biosocial perspective that includes both physical and social development. **Prerequisite(s):** ANTH 101 and ANTH 105; or consent of the instructor. *Individual and Society, and Natural World—No Lab course.*

ANTH 219 3 hrs.
Anthropology of Globalization

Explores capitalism as a culture, its origins, and the problems of consumer culture in the U.S. and the world. **Prerequisite(s):** ANTH 101; or consent of the instructor. *U.S. Society, and World Cultures course.*

ANTH 220 3 hrs.
Method and Theory in Archaeology

Introduction to techniques and methods in archaeology, archaeological reasoning, research design, and methods of analysis. Archaeological methods for the analysis of prehistoric technology, economy, social and political organization. Introduction to

general theories in archaeology. **Prerequisite(s):** ANTH 102 or consent of the instructor.

ANTH 221 3 hrs.
Old World Archaeology I

The evolution of the Old World hunting-gathering cultures to the end of the Pleistocene Age. **Prerequisite(s):** ANTH 102 or consent of the instructor.

ANTH 222 3 hrs.
Hunter-Gatherers, Farmers, and Herders

Introduction to the prehistoric cultures of the Old World. Analysis of the shift from hunting-gathering to agriculture. **Prerequisite(s):** ANTH 102 or consent of the instructor.

ANTH 226 3 hrs.
Archaeology of North America

Introduction to the prehistoric cultures of North America from earliest times until the arrival of Europeans. **Same as** LALS 257. **Prerequisite(s):** ANTH 102 or consent of the instructor.

ANTH 227 3 hrs.
Ancient Civilizations of Mexico and Central America

Analysis and interpretation of the archaeological evidence on the process of development of native civilization in the Mesoamerican area from the beginnings of agricultural settlement to the eve of the Spanish conquest. **Same as** GEOG 207 and LALS 258. **Prerequisite(s):** ANTH 102; or sophomore standing or above; or consent of the instructor.

ANTH 228 3 hrs.
Ancient Civilizations of South America

Analysis of the developmental process and social institutions of indigenous civilizations of South America. Emphasis on origins of sedentary life, evolution of cities, and dynamics of the native Andean states. **Same as** LALS 259. **Prerequisite(s):** ANTH 102; or sophomore standing or above, or consent of the instructor.

ANTH 229 3 hrs.
Special Topics in Archaeology

Covers special topics in archaeology. May be repeated. Students may register for more than one section per term. **Prerequisite(s):** ANTH 102; or consent of the instructor. *Past course.*

ANTH 231 4 hrs.
Fossil Humans

The fossil record as it applies to different interpretations of human evolution; principles of evolutionary biology; survey of the biology and behavior of living primates.

ANTH 232 3 hrs.
Evolutionary Medicine

By considering human health and disease from an evolutionary and biocultural perspective, this course offers new insights into why diseases occur and how the human body is adapted to respond to them. **Prerequisite(s):** Grade of B or better in ANTH

105; or grade of B or better in BIOS 101; or grade of B or better in BIOS 104; or consent of the instructor.

ANTH 234 4 hrs.
Modern Human Variation and Adaptation

A broad overview of genetic variation and biosocial adaptation in contemporary human groups. **Prerequisite(s):** ANTH 105.

ANTH 235 4 hrs.
Biological Bases and Evolution of Human Behavior

Comparative behavior of human and nonhuman primates; biological bases of primate behavior in terms of general evolutionary trends.

ANTH 237 4 hrs.
The Human Skeleton

Examination of the human skeleton, emphasizing bone identification and the functional anatomy of locomotion and dentition.

ANTH 238 3 hrs.
Biology of Women

An evolutionary perspective on the biology of women from conception to menopause, in light of current research on genetics, hormones, and development. Topics include sexual differentiation, sex differences, and life history. **Same as** GWS 238. **Prerequisite(s):** Grade of C or better in ANTH 105; or consent of the instructor. *Natural World—No Lab course.*

ANTH 239 3 hrs.
Special Topics in Physical Anthropology

Special topics in Physical Anthropology. May be repeated. Students may register for more than one section per term. **Prerequisite(s):** ANTH 105; or consent of the instructor.

ANTH 241 3 hrs.
Culture and Personality

Introduction to the concepts, theories, and techniques of studies relating the psychology of the individual to the culture; selected non-Western civilizations and preliterate societies. **Prerequisite(s):** ANTH 101, an introductory course in psychology or consent of the instructor.

ANTH 256 3 hrs.
European-Indigenous Interaction in Latin America

Responses of indigenous societies in Latin America to colonization by people from the Old World. The historical and social circumstances of contact and culture change will be covered. **Same as** LALS 256. *World Cultures course.*

ANTH 269 3 hrs.
Art and Archaeology of South America

Survey of Andean prehistory and the development of complex societies from pre-Chavin through Inca as reflected in art, architecture, and other material culture. **Same as** AH 269. Credit is not given for ANTH 269 if the student has credit for ANTH 228 or AH 273 or LALS 239 or LALS 259. **Prerequisite(s):** ANTH 100 or ANTH 102 or AH 100 or AH 110 or AH 111; and sophomore

standing or above; or consent of the instructor. *World Cultures course.*

ANTH 270 3 hrs.
The First Americans

An introduction to the aboriginal Indian cultures of native North America, their ecological adaptations, social organization, and world views. *Individual and Society, and U.S. Society course.*

ANTH 271 3 hrs.
American Indian Religion and Philosophy

Survey of American Indian beliefs about nature and the spirit world, and the rituals connected with those beliefs, including the changes that resulted from European contact. *Individual and Society, and U.S. Society course.*

ANTH 272 3 hrs.
North American Indians

Survey of the indigenous culture of North America as viewed through the generations by early explorers, missionaries, nineteenth century ethnologists, and contemporary social scientists.

ANTH 273 3 hrs.
Ethnography of Southeast Asia

Survey of selected cultures of mainland Southeast Asia, with emphasis on cultural ecology, tribal formation, and nationalism. **Same as** GEOG 273. *Individual and Society, and World Cultures course.*

ANTH 274 3 hrs.
Ethnography of Africa

A survey of the culture areas of sub-Saharan Africa and the study of societies typical of each area. *Individual and Society, and World Cultures course.*

ANTH 275 3 hrs.
South American Indians

Social and cultural practices of the native peoples of the Amazonian tropical forest and the Andes. **Same as** LALS 255. *Individual and Society, and World Cultures course.*

ANTH 276 3 hrs.
Pacific Island Cultures

Polynesian, Micronesian, and Melanesian island societies; their ecosystems and cultures, emphasizing their unity and diversity.

ANTH 277 3 hrs.
Ethnography of Mesoamerica

Survey of the contemporary indigenous cultures of Mesoamerica, studied against their pre-conquest history and in their development since the Spanish Conquest. **Same as** LALS 270. *Individual and Society, and World Cultures course.*

ANTH 278 3 hrs.
Brazil: A Multiethnic Society
 The diverse political, economic, artistic, and folkloric themes of Brazilian life are traced in such national festivals as Carnival and Sao Joao, and folk religions such as Candomble. **Same as** LALS 272. *Individual and Society, and World Cultures course.*

ANTH 279 3 hrs.
South Asian Cultures and Societies
 Survey of the people and cultures of South Asian Cultures; emphasis on social structure, religion, and recent cultural changes. **Same as** ASST 279. *Individual and Society, and World Cultures course.*

ANTH 280 3 hrs.
China and Japan: Society and Culture
 Survey of social and economic organization during the recent past of China and Japan: analysis of traditional family structure; impact of urbanization and industrialization. **Same as** ASST 280. *Individual and Society, and World Cultures course.*

ANTH 281 3 hrs.
Ethnography of North Africa and the Middle East
 Anthropological introduction to the peoples and cultures of North Africa and the Middle East. Emphasis on contemporary religious, ethnic, political, and gender issues. *Individual and Society, and World Cultures course.*

ANTH 309 3 hrs.
Writing Culture
 A survey of genres of anthropological reporting with a critical examination of the process by which observations are transformed into written form as well as continued development of composition skills. **Prerequisite(s):** ANTH 101 and completion of the University Writing requirement (or its equivalent); or consent of the instructor.

ANTH 310 3 hrs.
An Introduction to the Anthropology of the Body
 Theoretical and methodological approaches to the body as the interface between nature and culture. It considers how culture is embodied, how the body is encultured, and how cultures of perception vary through time and space.

ANTH 311 3 hrs.
The Anthropology of Consumption
 The nature, experience, and cultural politics of consumption from historical and cross-cultural perspectives paying particular attention to the emergence of consumption as a crucial domain within the culture of capitalism.

ANTH 312 3 hrs.
Cross-Cultural and Historical Perspectives of Youth Culture
 The cultural construction of "youth" and "youth culture" through time and around the world. The ways in which age

designations are used to naturalize a variety of broader cultural/ideological projects.

ANTH 313 3 hrs.
Language, Culture, and Society
 Anthropological approaches to the interaction between language, culture, and society traced through ethnographic case studies. Topics include language socialization, gender, class, ethnicity, toponyms, and multilingualism. **Prerequisite(s):** Grade of C or better in ANTH 101; and completion of the University Writing requirement; and junior standing or above; or consent of the instructor.

ANTH 320 3 hrs.
Topics in Archaeology
 Readings, study, and discussion of selected problems in archaeology. Topics will vary. **Prerequisite(s):** ANTH 102 and successful completion of one archaeology class at the 200-level.

ANTH 321 3 hrs.
Prehistory of the Near East
 Consideration of Southwestern Asia as the core area for the development of Homo sapiens and the emergence of the earliest civilizations.

ANTH 330 4 hrs.
Primate Evolution
 Paleontology and systematics of fossil primates, emphasizing the adaptive radiations of the major living groups. **Same as** BIOS 313.

ANTH 335 3 hrs.
Topics in Physical Anthropology
 Theoretical and substantive issues in the study of both human and nonhuman primates as well as hominids, as represented in current journals and topical volumes. May be repeated to a maximum of 9 hrs. Students may register in more than one section per term. **Prerequisite(s):** ANTH 105 and one 200-level course in physical anthropology.

ANTH 386 3 hrs.
Elements of Spatial Analysis
 Implications of geographic concerns for data gathering and analysis. Spatial sampling and weighting of areal data. Reconciling record and zone inconsistencies when merging data from several sources. **Same as** GEOG 386. **Prerequisite(s):** Consent of the instructor.

ANTH 390 3 hrs.
Honors Research
 Individual study or research projects for students seeking departmental distinction. May be repeated to a maximum of 6 hrs. Successful completion necessary for Departmental Distinction with final paper submitted to three-member honors committee for approval. **Prerequisite(s):** Junior standing or above, approval of the department, a 3.00 University grade point average, and a 3.50 grade point average in Anthropology.

ANTH 394 3 hrs.
Topics in Anthropology
 Reading, study, and discussion of selected problems in anthropology. May be repeated to a maximum of 9 hrs. Students may register in more than one section per term. **Prerequisite(s):** ANTH 101 or consent of the instructor.

ANTH 401 3 OR 4 hrs.
Linguistic Anthropology
 Exploration of the relationship between language and culture in a cross-cultural perspective. Attention to methods of field research as well as theory and substantive issues. Course information: 3 undergraduate hrs. 4 graduate hrs.

ANTH 405 3 hrs.
Human Growth and Nutrition
 Worldwide variation in human growth and the factors that contribute to differences between populations and individuals in the timing and pattern of growth and development. **Same as** EPID 405.

ANTH 409 3 OR 4 hrs.
Ancient Maya Writing, Language, and Culture
 Recent trends in Maya epigraphy, information gained from Maya hieroglyphs, linguistics, and historical ethnographies are applied to anthropological analyses of past lifeways. **Same as** LALS 409. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Junior standing or above; and consent of the instructor.

ANTH 411 3 OR 4 hrs.
Urban Cultural Problems
 A study of the processes of urbanization and of cultural and social adjustments to the city; illustrated by case studies. 3 undergraduate hrs. 4 graduate hrs.

ANTH 413 3 OR 4 hrs.
Social Organization
 Theory and method in the study of kinship and social organization, for advanced undergraduate and graduate students. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 213 or graduate standing or consent of the instructor.

ANTH 414 3 OR 4 hrs.
Symbolic Anthropology
 The interpretation of cultures through their ritual, religions, culture, and other types of symbolism. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 101 or consent of the instructor.

ANTH 415 3 OR 4 hrs.
Foundations in Anthropology and Global Health I
 Explores the field of cultural medical anthropology and provides a theoretical foundation allowing for understanding and exploration of anthropology's role in international health. **Same as** IPHS 415. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Grade of B or better in ANTH 216; and junior standing or above; or consent of the instructor.

ANTH 416 3 OR 4 hrs.
Foundations in Anthropology and Global Health II
 Provides an evolutionary and biocultural approach to human biology, physiology, health, and disease. **Same as** IPHS 416. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Grade of B or better in ANTH 232; and junior standing or above; or consent of the instructor.

ANTH 417 3 OR 4 hrs.
Marxist Approaches to Anthropology
 Issues concerning Marx's theories on primitive societies, the development of his evolutionary model from Morgan's work, and current use of Marxist concepts in anthropology. 3 undergraduate hrs. 4 graduate hrs.

ANTH 418 3 OR 4 hrs.
Ethnographic and Qualitative Research Methods
 Practical introduction to the techniques of social scientists for research in natural social settings: participant observation/nonparticipant observation, interviewing, use of documentary sources, etc. **Same as** GEOG 418. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Junior standing or above.

ANTH 420 3 OR 4 hrs.
Seminar in Archaeology and Ethnography
 Case studies of investigations in archeology using research monographs and other primary sources. Substantive data and related theoretical problems are examined simultaneously. 3 undergraduate hrs. 4 graduate hrs. May be repeated to a maximum of 15 hrs. **Prerequisite(s):** Junior standing or consent of the instructor.

ANTH 421 3 OR 4 hrs.
Geomorphology and Archaeology
 Relevance of geomorphic processes and landform development to archaeology; role of geomorphology in archaeological surveys, paleogeographic reconstruction, and archaeological interpretation. Elements of geoarchaeology. **Same as** GEOG 432. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** GEOG 131 or EAES 101 or consent of the instructor.

ANTH 422 3 OR 4 hrs.
Prehistory of the Levant and the Nile Valley
 Detailed analysis of Levantine and Nile Valley prehistory during the Pleistocene and early Holocene. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 221 or ANTH 222 or consent of the instructor.

ANTH 423 3 OR 4 hrs.**Andean Prehistory**

An overview of the cultural evolution of the Andean region from the arrival of the first inhabitants to the development of the Inca empire. **Same as** LALS 423. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 228 or ANTH 269; or consent of the instructor.

ANTH 424 3 OR 4 hrs.
Violence

Explores how men and women have experienced violence historically and in modern times. Students examine how violence is perpetrated through words, pictures, physical harm, and silences. **Same as** CLJ 423. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CLJ 101 and CLJ 200.

ANTH 425 4 hrs.
Field Techniques in Archaeology

Exposure to field methods in archaeology through participation in an actual research project. Students are instructed in field excavation techniques. Usually offered in summer session. **Same as** GEOG 425. May be repeated to a maximum of 8 hrs. **Prerequisite(s):** ANTH 102 or consent of the instructor. **Recommended:** Concurrent registration in ANTH 426 or GEOG 426.

ANTH 426 4 hrs.
Laboratory Techniques in Archaeology

Exposes students to laboratory methods in archaeology through the analysis of excavated materials. Students are instructed in laboratory techniques. **Same as** GEOG 426. May be repeated to a maximum of 8 hrs. **Prerequisite(s):** ANTH 102 or consent of the instructor. **Recommended:** Concurrent registration in ANTH 425 or GEOG 425.

ANTH 427 3 OR 4 hrs.
Theory and Application in Ethnoarchaeology

Focuses on the application of scientific experimentation and ethnographic information to enhance our understanding of the archaeological record, material culture, and past human behavior. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One 100- or 200-level archaeology course; or graduate standing and consent of the instructor.

ANTH 428 3 OR 4 hrs.
Chiefdoms

Focus on traditional nonstate, yet complex, societies known as chiefdoms. Examine the organization and evolution of such societies through a combination of ethnographic, historical, and archaeological data. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 101 or ANTH 102; or consent of the instructor.

ANTH 429 3 OR 4 hrs.**Archaeological Methods**

This course will familiarize students with various methodologies used by archaeologists and geoarchaeologists. Course will concentrate on a different method each time it is taught. Course information: **Same as** GEOG 429. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 2 time(s). Students may register for more than one section per term.

ANTH 430 4 OR 5 hrs.
Seminar in Primate Biology

Theoretical and substantive issues in the study of nonhuman primates and hominids, as represented in current journals and topical volumes. 4 undergraduate hrs. 5 graduate hrs. May be repeated up to 2 time(s). Students may register for more than one section per term.

ANTH 432 3 OR 4 hrs.
Mortuary Archaeology

Provides a cross-cultural survey of mortuary customs, an overview of general theoretical approaches, and a critical analysis in the study of mortuary customs and human remains in archaeological contexts. 3 undergraduate hours; 4 graduate hrs. **Prerequisite(s):** Undergraduates only: Grade of C or better in ANTH 237. **Recommended background:** Undergraduates only: 200-level courses in archaeology and cultural anthropology.

ANTH 437 5 hrs.
Bioarchaeology

Provides an overview of mortuary theory and the bioarchaeological methods used to study health and disease, diet, activity patterns, kinship, and cultural practices in archaeological populations. **Prerequisite(s):** Grade of B or better in ANTH 237; and consent of the instructor.

ANTH 438 3 OR 4 hrs.
Reproductive Ecology

Utilizes an evolutionary framework to consider both proximate (physiological) and ultimate (evolutionary) explanations for the relationship between female and male reproductive patterns and environmental challenges. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Grade of B or better in ANTH 238, and graduate or professional standing; or consent of the instructor.

ANTH 440 3 OR 4 hrs.
The Experience of Culture Difference: Culture Shock

Explores experience of different cultures, the process of learning a different culture, and issues arising from the nature of the encounter in fieldwork. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One course in social or cultural anthropology, or experience in another culture.

ANTH 441 3 OR 4 hrs.**Psychoanalytic Anthropology I: Cross-Cultural Theory**

Introduction for social scientists to psychoanalytic theory and methods including Freud's theories and more recent developments. Cross-cultural tests and applications of psychoanalytic theories. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One course in anthropology or psychology; or consent of the instructor.

ANTH 442 3 OR 4 hrs.
Psychoanalytic Anthropology II: Cross-Cultural Applications

Explores ways in which anthropologists and analysts have used psychoanalysis to understand individuals, practices, and institutions of other cultures. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 441 or consent of the instructor.

ANTH 443 3 OR 4 hrs.
Leadership: Psychology, Strategy, Culture

Psychological and anthropological theories of leadership developed on our culture will be tested against descriptions of leadership in diverse non-Western societies. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One course in anthropology.

ANTH 444 3 OR 4 hrs.
Dreams, Dreaming, and Dream Beliefs

The dreaming experience examined from the point of view of psychological interpretation, laboratory experiments, and anthropological study of dreams in other cultures. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One course in anthropology or psychology and junior or senior standing, or consent of the instructor.

ANTH 445 3 OR 4 hrs.
Structuralism in Anthropology

Explores the theoretical approach offered by structuralism emphasizing that elements of culture must be understood in terms of their relationship to the entire system. 3 undergraduate hrs. 4 graduate hrs.

ANTH 453 3 OR 4 hrs.
Seminar in Cultural Ecology

Cultural ecology and cultural evolution, emphasizing peasant farming and other subsistence systems. Soil management under shifting and sedentary agriculture. **Same as** GEOG 453. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 101 or GEOG 151 or consent of the instructor.

ANTH 454 3 OR 4 hrs.
A Dynamic Human Habitat: Amazonia Past, Present, and Future

Traces the dynamic interaction of humans and their habitats in Amazonia from prehistory until today, illustrating the coevolution of its environments and populations. 3 undergraduate hrs. 4 graduate hrs.

ANTH 455 3 OR 4 hrs.**Quantitative Methods**

Introductory statistics course in statistical methods for anthropological problem solving. Primary emphasis is on univariate and bivariate statistics, such as means standard deviations, correlation, chi square, t-tests, and simple regressions. **Same as** GEOG 455. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Junior standing or above; and consent of the instructor.

ANTH 461 4 hrs.
Museum Collecting: Documentation, Registration, and Curation

Introduction to the collection of anthropological objects for museum curation. Ethics of collecting, standards for documentation, legal aspects of collecting, ethnographic interviewing, registration of objects and archives, curation and housing.

ANTH 462 4 hrs.
Museum Exhibit Research and Design

Introduction to anthropological museum exhibitions. Issues of representation and cultural politics, museums; roles in the communities they serve, developing a story around objects, and the technical aspects of exhibit design.

ANTH 470 3 OR 4 hrs.
Classic Ethnographies

Analysis of method and theory reflected in selected classic anthropological works, studied in their historical contexts and contemporary uses. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 101 or ANTH 213 or consent of the instructor.

ANTH 473 3 OR 4 hrs.
Anthropology of Social Movements

Examines the causes of social change from the perspective of sociocultural anthropology. An ethnographic approach to political life, how communities describe and enact their experiences as individuals and citizens. 3 undergraduate hours; 4 graduate hrs.

ANTH 474 3 OR 4 hrs.
Urban Cultures of Africa

A study of the indigenous urban centers of sub-Saharan Africa; the multicultural cities of colonial and contemporary Africa, and the processes of detribalization. 3 undergraduate hrs. 4 graduate hrs.

ANTH 475 3 OR 4 hrs.
Indians of the Andes and the Amazon

Intensive research in theoretical and ethnographic problems in South American Indian social structures and cultures. Special attention will be given Levi-Strauss' ideas on the formulation of cultural theory in South America. **Same as** LALS 475. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ANTH 213 or consent of the instructor.

ANTH 476 3 hrs.
Rise and Fall of the Inca Empire

Using an integration of ethnographic, historical, and archaeological information, this course is designed to provide a thorough introduction to the study of the Incas. **Prerequisite(s):** Sophomore standing or above.

ANTH 477 4 hrs.
Remote Sensing of the Environment

Principles and practices of processing and interpretation of remotely sensed imagery including aerial photographs, radar, and multispectral satellite images. Hands-on use of image-processing software. **Same as** GEOG 477. Extensive computer use required.

ANTH 478 3 OR 4 hrs.
Paleo-Indians and Peopling of the Americas: From Alaska to Tierra del Fuego

Summarizes current knowledge of the first migration of humans to the New World, analyzes its significance, and evaluates the controversies. 3 undergraduate hrs. 4 graduate hrs.

ANTH 479 3 OR 4 hrs.
Culture and Colonialism in South Asia

Examines the emergence of colonial cultures of domination and resistance on the Indian subcontinent from the eighteenth century to 1947. **Same as** ASST 479 and HIST 479. 3 undergraduate hrs. 4 graduate hrs.

ANTH 480 3 OR 4 hrs.
Sociolinguistics

Variations in language that correlate with variation in societies and smaller social groups; interactions of languages and societies. **Same as** LING 480. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** LING 405 or junior standing and consent of the instructor.

ANTH 481 4 hrs.
Geographic Information Systems I

Components and performance properties of geographic information systems. Geographic hierarchies and data structures. Problems and solutions in handling large geographic files. Geocoding. **Same as** GEOG 481. **Prerequisite(s):** GEOG 100 and one from GEOG 278, GEOG 386, IDS 100; or consent of the instructor.

ANTH 482 4 hrs.
Geographic Information Systems II

Application of raster- or grid-based geographic information systems to the spatial analysis of landscapes. **Same as** GEOG 482.

ANTH 483 4 hrs.
Geographic Information Systems III

Problems encountered in the analysis and portrayal of geographic data. Topics include taxonomy, regionalization, trend surface analysis, time series,

markov probabilities, and computer cartographic procedures for displaying output from analytic procedures. **Same as** GEOG 483. **Prerequisite(s):** GEOG 482 or ANTH 482 or consent of the instructor.

ANTH 484 4 hrs.
Mapping with Microcomputers

Microcomputer applications, including computer principles for mapping, alternative design for coordinate files, kinds of devices for mapping, direct control of devices for mapping, characteristics and limitations of mapping programs. **Same as** GEOG 478. **Prerequisite(s):** GEOG 475 or consent of the instructor.

ANTH 485 4 hrs.
Computer Cartography

The fundamentals of cartography and cartographic design. The use of state-of-the-art, Windows-based computer mapping software for querying and displaying cartographic data contained in GIS databases. **Same as** GEOG 485.

ANTH 490 1–6 hrs.
Independent Study

Independent reading under the supervision of a faculty member. May be repeated to a maximum of 8 hours with approval. Students may register in more than one section per term. **Prerequisite(s):** Junior standing and consent of the instructor.

ANTH 494 3 OR 4 hrs.
Special Topics in Anthropology

Reading, study, and discussion of selected problems for graduate students and majors in anthropology. 3 undergraduate hrs. 4 graduate hrs. May be repeated to a maximum of 12 hrs. Students may register in more than one section per term. **Prerequisite(s):** Junior standing or approval of the department.

ANTH 496 1–4 hrs.
Internship

Professional field experience with an agency or organization in the private or public sector on projects related to the student's area of specialization. **Same as** GEOG 496. May be repeated to a maximum of 8 hrs. Only 4 hours of credit may be applied toward the Minor in Geography. **Prerequisite(s):** Declared major in Anthropology, minor in Geography or full graduate standing in Anthropology or Geography and consent of the faculty advisor, head of the department, or the director of internship programs.

Arabic**ARAB 101** 4 hrs.
Elementary Arabic I

Introduction to and practice in speaking, reading, and writing Arabic and comprehending spoken Arabic. Credit is not given for ARAB 101 if the student has credit for ARAB 115.

Prerequisite(s): For students who have not studied Arabic or placement as determined by test score or consent of the instructor.

ARAB 102 4 hrs.
Elementary Arabic II

Continues Arabic 101. Credit is not given for ARAB 102 if the student has credit for ARAB 115. **Prerequisite(s):** ARAB 101 or adequate performance on the placement test or consent of the instructor.

ARAB 103 4 hrs.
Intermediate Arabic I

Continuation of practice in speaking, reading, and writing Arabic and comprehending spoken Arabic. **Prerequisite(s):** ARAB 102 or ARAB 115 or appropriate score on the department placement test or consent of the instructor.

ARAB 104 4 hrs.
Intermediate Arabic II

Continuation of practice in comprehending spoken Arabic and reading Arabic with some work in speaking and writing Arabic. **Prerequisite(s):** ARAB 103 or adequate performance on the placement test or consent of the instructor.

ARAB 115 8 hrs.
Intensive Elementary Arabic

This course provides an intensive introduction to Modern Standard Arabic with emphasis on speaking, reading, and writing. Five additional hours each week in the language laboratory. Equivalent to Arabic 101 and 102 combined. Offered during selected summers only. **Prerequisite(s):** For students who have not studied Arabic. No credit given if the student has credit in ARAB 101 or ARAB 102.

ARAB 116 8 hrs.
Intensive Intermediate Arabic

Intermediate Arabic with emphasis on speaking, reading, and writing. Credit is not given for ARAB 116 if the student has credit for ARAB 103 or ARAB 104. Five additional hours each week in the language laboratory. Offered during selected summers only. **Prerequisite(s):** ARAB 101 and ARAB 102; or ARAB 115; or the equivalent.

ARAB 201 4 hrs.

Advanced Literary Arabic
Reading texts and advanced Arabic grammar focusing on the weak verbs and complex syntax. Texts include passages from the Qur'an, Kalila wa Dimna, and other stories, novels, newspaper articles, and academic articles. One additional hour each week in the language laboratory. **Prerequisite(s):** ARAB 104 or appropriate score on the departmental placement test and consent of the instructor.

ARAB 202 4 hrs.
Qur'an/Advanced Literary Arabic

Readings in the Qur'an, including further advanced Arabic grammar focusing on the weak verbs and complex syntax. One additional hour each week in the language laboratory. **Prerequisite(s):** ARAB 201 or appropriate score on the placement test and consent of the instructor.

ARAB 230 3 hrs.
Arabic Literature in Translation

Introduces students to the genres and themes of classical and modern Arabic literature in translation. Taught in English. *World Cultures course.*

ARAB 250 3 hrs.
The Heritage of Muslim Iberia

Examines the history, culture, and scientific achievements associated with the Muslim presence in Iberia from 711 CE to the fall of Grenada in 1492 CE, and the interplay of Arab and non-Arab cultures in the Western Mediterranean. Taught in English. *Past, and World Cultures course.*

ARAB 255 3 hrs.
Greek Science, Islamic Culture

Traces the reception and development of the ancient sciences in medieval Islamic culture. **Same as** CL 255. Taught in English. *Past, and World Cultures course.*

ARAB 298 3 hrs.
Topics in Arabic Studies

Selected topics at an intermediate level in Arabic Studies. May be repeated. Taught in English.

ARAB 299 1–3 hrs.
Independent Reading

Individually planned readings on selected topics under faculty supervision. May be repeated to a maximum of 3 hrs. Taught in English. **Prerequisite(s):** Consent of the instructor.

ARAB 310 3 hrs.
Aristotle and the Arabs

Traces the major topics of ancient Greek philosophy, especially those of Aristotle, and their transformation into the philosophy developed in the Arabic classical period. **Same as** CL 310 and PHIL 310. **Prerequisite(s):** CL 221 or PHIL 221 or RELS 230.

Archaeological Studies

ARST 209 3 hrs.
The Art and Archaeology of the Ancient Near East
Introduction to the ancient cultures of Mesopotamia and neighboring regions from the first settled villages of the early Neolithic to the Persian conquest of Babylon. **Same as** AH 209.
Prerequisite(s): Sophomore standing or above.

ARST 210 3 hrs.
The Art and Archaeology of Ancient Egypt
Ancient Egypt from 6000 BC–400 AD. Architecture, sculpture, and painting in their social and historical contexts. **Same as** AAST 210 and AH 210.
Prerequisite(s): Sophomore standing. *Creative Arts, and Past course.*

Architecture

ARCH 105 4 hrs.
Design Foundations: Visual Studies
Introduction to the visual and graphic principles of architectural design and production, with emphasis on observation, process, and composition, developed under the theme of representation and visual culture. Field trips required at a nominal fee.
Prerequisite(s): Approval of the department.

ARCH 106 4 hrs.
Design Foundations: Physical Studies
Introduction to materials and methods of assembly in architectural design and production, with emphasis on design process, problem solving, and construction, developed under the general theme of representation and visual culture. **Prerequisite(s):** ARCH 105 and approval of the department.

ARCH 163 6 hrs.
Introduction to Architecture I and II
Introduction to visual and graphic principles of architectural design and production and relation to materials and methods with emphasis on design process, problem solving, and construction. For students transferring into the Bachelor of Science in Architecture program from other institutions and qualifying UIC students changing majors.
Prerequisite(s): Approval of the school.

ARCH 205 4 hrs.
Building Design I
Principles of building design and representation explored through integrative analysis of program, site, structure, materials, mechanical systems, and composition, developed under the general theme of building science and technology. Extensive computer use required. Field trips required at a nominal fee. Fieldwork required. Students will use city as a research laboratory with field-

work on project sites. Additional scheduled field trips will be made to significant or historical architectural buildings as part of preliminary design research and analysis. **Prerequisite(s):** Average grade of C or better in both ARCH 105 and ARCH 106 and approval of the department.

ARCH 206 4 hrs.
Building Design II
Expands basic principles of building design and representation explored through integrative analysis of program, site, structure, materials, mechanical systems, and composition, developed under the general theme of building science and technology. Extensive computer use required. Field trips required at a nominal fee. Fieldwork required. Students will use city as a research laboratory with fieldwork on project sites. Additional scheduled field trips will be made to significant or historical architectural buildings as part of preliminary design research and analysis. **Prerequisite(s):** ARCH 205 and approval of the department.

ARCH 251 3 hrs.
Architectural Analysis
Analysis of the form and space of the built environment beginning with experiential and empirical inquiry and expanding to formal, visual, compositional, and perceptual techniques.
Prerequisite(s): ARCH 106 or approval of the department.
Corequisite(s): Concurrent registration in ARCH 205. **Schedule Information:** To be properly registered, students must enroll in one Lecture and one Laboratory.

ARCH 252 3 hrs.
Beginnings of Modern Architectural Theory
Introduction to the concept of architectural theory as an integral part of making, understanding, and interpreting works of architecture. **Prerequisite(s):** ARCH 205 and ARCH 251; and approval of the department.
Corequisite(s): Concurrent registration in ARCH 206. **Schedule Information:** To be properly registered, students must enroll in one Lecture and one Laboratory.

ARCH 331 1–6 hrs.
Architecture Seminar
Current problems. May be repeated to a maximum of 6 hrs.
Prerequisite(s): Consent of the instructor.

ARCH 332 1–6 hrs.
Architecture Reading Course
Individually planned readings on selected topics under the supervision of a faculty member. Prior to registration, the student should be advised by the instructor. May be repeated to a maximum of 6 hrs. **Prerequisite(s):** Consent of the instructor.

ARCH 359 4 hrs.
Introduction to Building Science I: Ethics in Building
Examines the architect's role in protecting the health, safety, and welfare of the public through

responsible and ethical building practices. **Prerequisite(s):** Third-year standing in the Bachelor of Science in Architecture program or approval of the school. Requires concurrent registration in ARCH 365.

ARCH 360 4 hrs.
Introduction to Building Science II: Technics in Building
Introduction to building construction processes, terminology, principles, conventions, standards, applications, restrictions, and communications pertaining to construction materials and assemblies. **Prerequisite(s):** ARCH 359 or approval of the school. Requires concurrent registration in ARCH 366.

ARCH 365 6 hrs.
Building Design Studio III
Intermediate exercises in building design and representation explored through integrative analysis of program, site, structure, materials, mechanical systems, and composition, developed under the general theme of city and environment. Extensive computer use required. Field trip required at a nominal fee. Fieldwork required. Students will use city as a research laboratory with fieldwork on project sites. Additional scheduled field trips will be made to significant or historical architectural buildings as part of preliminary design research and analysis.
Prerequisite(s): Average grade of C or better in ARCH 205 and ARCH 206 and approval of the department.

ARCH 366 6 hrs.
Building Design Studio IV
Extended intermediate exercises in building design and representation explored through integrative analysis of program, site, structure, materials, mechanical systems, and composition, developed under the general theme of city and environment. Extensive computer use required. Field trips required at a nominal fee. Fieldwork required. Students will use city as a research laboratory with fieldwork on project sites. Additional scheduled field trips will be made to significant or historical architectural buildings as part of preliminary design research and analysis.
Prerequisite(s): ARCH 365 and approval of the department.

ARCH 371 3 hrs.
Design and the Environment
Design of the built environment engaged with the natural environment. Influence of natural elements on the making of architecture. Relationship of architecture to site and landscape. Must enroll concurrently in ARCH 365.

ARCH 372 3 hrs.
Design and the City
Theory of the city, including typologies of urban form, transformation of the concept of the city through history, and contemporary urban design and planning issues. **Prerequisite(s):** ARCH 371.

ARCH 391 0–17 hrs.
Architectural Study Abroad
Lectures, seminars, studio, and independent travel/study abroad. Architectural/art history, architectural elective and/or architectural theory and analysis. May be repeated to a maximum of 34 hrs. **Prerequisite(s):** A 2.50 cumulative grade point average in architecture and approval of the school.

ARCH 395 1 hour.
Cooperative Education
Introduction to architectural practice. Offers students the opportunity to couple academic learning with professional experience in an off-campus placement. Satisfactory/Unsatisfactory grading only. May be repeated to a maximum of 3 hrs. Fieldwork required. **Prerequisite(s):** Consent of the instructor. Restricted to students with third- or fourth-year standing in the BS in Architecture program.

ARCH 399 3 hrs.
Architecture Elective I
Special topics in theory, design, building science, technology, or graphic skills. May be repeated to a maximum of 12 hrs. Students may register in more than one section per term. **Prerequisite(s):** Approval of the school.

ARCH 414 3 hrs.
Professional Practices
Relationship of the discipline of architecture to the profession. Exposure to interdisciplinary studies that may lead to alternative careers in allied businesses and professions. **Prerequisite(s):** ARCH 252 and approval of the department.

ARCH 443 2 hrs.
Professional Practice I
Legal and ethical considerations in architectural practice; operation and management guidelines. Overview of the history of the professional architectural practice. **Prerequisite(s):** Completion of the second plateau or approval of the school.

ARCH 444 2 hrs.
Professional Practice II
Business and financial considerations in architectural practice; scope of services communications and marketing guidelines. Interrelationship with clients, consultants, collaborators, and the manufacturing and construction industry. **Prerequisite(s):** ARCH 443 and approval of the school.

ARCH 465 6 hrs.**Comprehensive Studio**

Capstone senior design studio that culminates in a comprehensive project that explores the relationship of architecture to society, technological change, and structural and environmental innovation. Extensive computer use required. Field trip required at a nominal fee. Fieldwork required. Students will use city as a research laboratory with fieldwork on project sites. Additional scheduled field trips will be made to significant or historical architectural buildings as part of preliminary design research and analysis. **Prerequisite(s):** Average grade of C or better in both ARCH 365 and 366; ARCH 360 ARCH 372 and junior standing or above and approval of the department.

ARCH 466 6 hrs.**Option Studio**

Topic options studio that culminates Bachelor of Science studio sequence exploring topics at the scale of room, building, city, and region dependent on interests of faculty. Extensive computer use required. Field trip required at a nominal fee. Fieldwork required. Students will use city as a research laboratory with fieldwork on project sites. Additional scheduled field trips will be made to significant or historical architectural buildings as part of preliminary design research and analysis. **Prerequisite(s):** ARCH 465 and approval of the department.

ARCH 470 4 hrs.**Structures I: Statics**

Introduction to the analysis of structural elements. Introduction to fundamental structural planning criteria and relevant concepts of tension, compression, and bending. Introduction to historical and contemporary structural precedents. **Prerequisite(s):** MATH 180 and PHYS 105 and PHYS 106.

ARCH 471 3 hrs.**Structures II: Strength of Materials**

Introduction to material properties; strength characteristics of building materials and material assemblies; stress and strain; rigidity and deformation; temperature effects; torsion effects; combined loading of elements and systems. **Prerequisite(s):** ARCH 470 and approval of the school.

ARCH 486 4 hrs.**Urban Ecologies and Infrastructures**

Introduction to dynamic relationship of ecology and infrastructure in the context of contemporary urban landscape. Built and natural environments as inseparable networks of a dynamic process. **Prerequisite(s):** Graduate standing in the Master of Architecture program or, for students in the Bachelor of Science in Architecture program, consent of the instructor.

ARCH 499 3 OR 4 hrs.**Special Topics**

Special topics in theory, design, technology, or graphic skills and craft (manual or digital). 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 3 time(s). **Prerequisite(s):** Senior standing or above.

Art and Design**AD 102 4 hrs.****Drawing I: Beginning**

Introduction to drawing: orientation to the descriptive and expressive potential of drawing through exposure to a variety of subjects, media, and formal concepts. **Prerequisite(s):** Approval of the school.

AD 110 4 hrs.**Graphic Design I**

Introduction to graphic design: fundamental exploration of visual, abstract form making with the emphasis on the understanding of two- and three-dimensional perception as related to communication. **Prerequisite(s):** Approval of the school.

AD 120 4 hrs.**Industrial Design I**

Introduction to industrial design: problem solving in three-dimensional organization, with individual projects requiring advanced shop tooling, and supportive drawing systems in orthographic, isometric, and perspective representation. **Prerequisite(s):** Approval of the school.

AD 140 4 hrs.**Sculpture I: Beginning**

Major directions and underlying historical precedents in contemporary sculpture. Orientation to concepts of 3-dimensionality through use of relevant processes and techniques. **Prerequisite(s):** Approval of the school.

AD 160 4 hrs.**Photography I**

Introduction to analog and digital photography: basic familiarity with the camera, studio, wet darkroom processes, digital techniques and programs. Introduction to social, cultural, critical, and aesthetic considerations of the medium. **Prerequisite(s):** Approval of the school.

AD 170 4 hrs.**Introduction to Time-Based Visual Arts**

Introduction to time-based visual arts: basic experimentation with duration, image sequence, context, and perception effects as related to film, video, and electronic visualization. **Prerequisite(s):** Approval of the school.

AD 203 4 hrs.**Topics in Drawing Studio I**

Drawing for art majors: 2-D and 3-D process course focused on conceptual/contextual drawing, integration of technology and mediated images. Topics emphasize at direction of instructor. **Prerequisite(s):** Completion of the Art and Design First-Year Program, and faculty approval of student portfolio through Annual Spring Portfolio Review. Sophomore standing or above; or consent of the instructor.

AD 205 4 hrs.**Introduction to Computer Graphics**

Introduction to the microcomputer for personal expression, including graphics programming, real-time computer animation, sound, and interactive software design. Extensive computer use required. **Prerequisite(s):** Completion of the Art and Design First-Year Program, and faculty approval of the student portfolio through Annual Spring Portfolio Review. Sophomore standing or above.

AD 206 4 hrs.**Intermediate Computer Graphics**

Advanced concepts and methods for interactive media, computer graphics programming, and multimedia applications for the World Wide Web. Extensive computer use required. **Prerequisite(s):** AD 205 and sophomore standing or above; or consent of the instructor.

AD 209 4 hrs.**Color Theory**

To develop, through experience, observation and articulation, an understanding of color and color action, and a feeling for color relationships. **Prerequisite(s):** Completion of the Art and Design First-Year Program.

AD 210 4 hrs.**Graphic Design II**

Form comparison and sequencing. Introduction to symbols, images, and letterforms. **Prerequisite(s):** Completion of the Art and Design First-Year Program and approval of the school.

AD 211 4 hrs.**Graphic Design III**

Materials and processes in image making; the interaction of media in problem solving. Theory and practice of symbols and semiotic codes in society. **Prerequisite(s):** AD 210.

AD 219 4 hrs.**Typography I**

Introduction to the esthetics and mechanics of typography. **Prerequisite(s):** Credit or concurrent registration in AD 210 or credit or concurrent registration in AD 211.

AD 220 4 hrs.**Industrial Design II**

First of two skill-based courses that teach 2-D/3-D visualization through product prototyping, sketching, and solid modeling.

Emphasizes interconnection between digital and physical tools. Extensive computer use required. **Prerequisite(s):** Completion of the Art and Design First-Year Program, or the equivalent, and faculty approval of the student portfolio through Annual Spring Portfolio Review. Sophomore standing or above.

AD 221 4 hrs.**Industrial Design III**

Second of two skill-based courses that teach 2-D/3-D visualization through product prototyping, sketching, and solid modeling. Emphasizes interconnection between digital and physical tools. Extensive computer use required. **Prerequisite(s):** AD 220 and AD 223 and sophomore standing or above; or consent of the instructor.

AD 223 4 hrs.**Drawing for Designers**

Builds on the basic drawing skills needed in Industrial Design, including perspective drawing, orthographic drawing, freehand sketching and computer rendering. **Prerequisite(s):** Completion of the Art and Design First-Year Program, or the equivalent, and faculty approval of student portfolio through Annual Spring Portfolio Review. Sophomore standing or above.

AD 230 4 hrs.**Painting I**

Beginning painting: introduction to major directions of contemporary painting; underlying historical precedents; orientation to subjects and formal concepts using relevant materials and processes. **Prerequisite(s):** Completion of the Art and Design First-Year Program, and faculty approval of student portfolio through Annual Spring Portfolio Review. Sophomore standing or above, or consent of the instructor. For the Studio Arts minor: AD 102 and approval of the school.

AD 251 4 hrs.**Topics in Seriality and Replication**

2-D and 3-D drawing/printmaking/printing/object making process course focused on multiples, seriality, and replication; conceptual and contextual integration of technology and mediated images. May be repeated to a maximum of 8 hrs. **Prerequisite(s):** Completion of the Art and Design First-Year Program, and faculty approval of student portfolio through Annual Spring Portfolio Review; AD 203 and sophomore standing or above; or consent of the instructor.

AD 261 4 hrs.**Color Photography**

Processes, techniques, materials, and aesthetics of color photography and their application. **Prerequisite(s):** AD 209 and AD 267 and AD 268 and junior standing or above; or consent of the instructor.

AD 262 4 hrs.**View Camera and Lighting Studio**

Introduction to the view camera, advanced black and white film exposure/processing and the lighting studio; studio hot lights and studio flash. **Prerequisite(s):** AD 267 and AD 268 and junior standing or above; and consent of the instructor.

AD 267 4 hrs.**Methods and Techniques of Digital Photography**

Intermediate course addressing techniques and aesthetics of digital photography, including imaging and processing software and output. Extensive computer use required. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review; sophomore standing or above; or consent of the instructor.

AD 268 4 hrs.**Methods and Techniques of Analog Photography**

Intermediate course addressing techniques and aesthetics of analog photography, including imaging, processing, and output. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review; sophomore standing or above; or consent of the instructor.

AD 271 4 hrs.**16mm Film Production I**

An introduction to 16mm film production. Basic film handling, cinematography, and film editing as well as screenings, discussion, and readings on experimental cinema. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review; sophomore standing or above.

AD 274 4 hrs.**Motion Graphics I**

Introduction to basic motion picture animation techniques including stop-motion, cycles, metamorphosis, and special graphic processes and effects. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review; sophomore standing or above.

AD 275 4 hrs.**Writing for Moving Image**

Project-based course is an introduction to screenwriting. Students learn the principles of substance, structure and style, and how to write in proper script format. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review, sophomore standing or above; or consent of the instructor.

AD 276 4 hrs.**Audio**

Audio production for film, video and sound artists. Study of basic recording, mixing, and dissemination techniques and contemporary/historical overview of how artists engage with audio. Extensive computer use required. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review, sophomore standing or above; or consent of the instructor.

AD 278 4 hrs.**Moving Image I**

Introductory project-based course for basic video art production using small format video systems to teach historical relationship to tradition of avant-garde film, early television, performance, photography, and future media. Extensive computer use required. **Prerequisite(s):** Completion of the Art and Design First-Year Program, sophomore standing or above; or consent of the instructor.

AD 281 4 hrs.**Foundations of Art Education**

Contextualizes methods of teaching art within histories of art and education. Design and teach curriculum that emphasizes contemporary art, cultural diversity, adolescent development, and community issues. May be repeated once if grade lower than B. Fieldwork required. **Prerequisite(s):** ED 210 and junior standing or above and approval of the school.

AD 290 4 hrs.**Interdisciplinary Seminar I**

Topical seminar in contemporary art. Introductory seminar for art majors, topics vary from semester to semester at instructor's discretion. **Prerequisite(s):** Completion of the Art and Design First-Year Program and faculty approval of student portfolio through Annual Spring Portfolio Review. Open only to sophomores and juniors.

AD 304 4 hrs.**Advanced Topics in Drawing**

Advanced topics directed by the instructor; may include individual study and related readings in contemporary art; further investigation and expanded applications in drawing. May be repeated to a maximum of 8 hrs. **Prerequisite(s):** AD 203 and junior standing or above; or consent of the instructor. Studio Arts majors must have credit in AH 160.

AD 305 4 hrs.**Electronic Visualization I**

Electronic visualization and computer graphics programming for interactive applications and animations. Extensive computer use required. **Prerequisite(s):** AD 206 and credit or concurrent registration in AD 308, and junior standing or above; or consent of the instructor.

AD 306 4 hrs.**Special Topics in Art and Design**

Specialized topics in art and design directed and announced by the instructor. May be repeated. **Prerequisite(s):** Completion of the Art and Design First-Year Program and consent of the instructor.

AD 307 4 hrs.**Electronic Visualization II**

Advanced electronic visualization and computer graphics programming for interactive applications and animations. Extensive computer use required. **Prerequisite(s):** AD 305 and AD 308 and credit or concurrent registration in AD 309, and junior standing or above; or consent of the instructor.

AD 308 4 hrs.**3-D Modeling**

Concepts and methods of 3-D modeling for interactive applications. Extensive computer use required. **Prerequisite(s):** AD 206 and junior standing or above; or consent of the instructor.

AD 309 4 hrs.**Advanced 3-D Modeling/Animation**

Advanced concepts and methods of 3-D modeling for interactive applications and virtual reality projects. Extensive computer use required. **Prerequisite(s):** AD 308 and junior standing or above; or consent of the instructor.

AD 314 4 hrs.**Graphic Design IV**

Design and typographic practice and exploration with emphasis on current technology and grid systems in graphic design. **Prerequisite(s):** AD 211 and AD 219.

AD 315 4 hrs.**Graphic Design V**

Design in the third dimension. Architectural, environmental, packaging, and/or exhibition applications. The understanding of how graphic designers work beyond the studio emphasized. **Prerequisite(s):** AD 314.

AD 317 4 hrs.**Digital Media in Graphic Design**

Investigates the relationship between image, typography, and meaning within the context of the digital environment. Extensive computer use required. **Prerequisite(s):** AD 205 and AD 211; and credit or concurrent registration in AD 314, or credit or concurrent registration in AD 315; and junior standing or above or approval of the school.

AD 319 4 hrs.**Typography II**

Experimental typography. **Prerequisite(s):** AD 219 and AD 314.

AD 320 4 hrs.**Industrial Design I**

This is a process-based studio course that applies second year design skills to design problems focused on holistic, sustainable, or environmental concerns. Extensive computer use required. **Prerequisite(s):** AD 221 and credit or concurrent registration in AD 322, and junior standing or above; or consent of the instructor.

AD 321 4 hrs.**Industrial Design V**

This process-based studio course applies design skills to design problems using team/collaborative learning within an interdisciplinary context. Extensive computer use required. **Prerequisite(s):** AD 320 and AD 322 and credit or concurrent registration in AD 326, and junior standing or above; or consent of the instructor.

AD 322 4 hrs.**Interactive Product Design I**

Introduction to the design of interactive products and art works using information design, interaction design and presentation design methods. Applications include interactive Web site design. Extensive computer use required. Previously listed as AD 325. **Prerequisite(s):** AD 205 and junior standing or above; or consent of the instructor.

AD 326 4 hrs.**Industrial Design Materials and Methods**

Knowledge-based, primer/overview of manufacturing/materials processes utilized in everyday mass-produced products. Includes field trips. **Prerequisite(s):** AD 320 and AD 322 and credit or concurrent registration in AD 321, and junior standing or above; or consent of the instructor.

AD 332 4 hrs.**Topics in Painting**

In-depth focus regarding a specific topic/emphasis under the direction of the instructor; direct experience and related readings investigate innovations and major directions in contemporary painting. May be repeated to a maximum of 12 hrs. Previously listed as AD 231. **Prerequisite(s):** AD 230 and AD 290 and credit or concurrent registration in AD 391; junior standing or above; or consent of the instructor. Studio Arts majors must have a minimum of 16 hours of 200-level art and design courses.

AD 342 4 hrs.**Topics in Sculpture**

Studio class structured around a specific topic related to contemporary sculpture making. Topics will be directed by the instructor. May be repeated to a maximum of 12 hrs. Previously listed as AD 241. **Prerequisite(s):** Sophomore standing or above; AD 290 and credit or concurrent registration in AD 391; or consent of the instructor. Studio Arts majors must have a minimum of 16 hours of 200-level art and design courses.

AD 360 4 hrs.
Advanced Projects in Digital Media

Production of advanced projects in digital media art utilizing diverse software and equipment for input and output, display and distribution. May be repeated to a maximum of 8 hrs. Previously listed as AD 264. Extensive computer use required.

Prerequisite(s): AD 267 and AD 268 and junior standing or above; or consent of the instructor.

AD 362 4 hrs.
Documentary Media

Photographic and moving image media as applied to the documentation of real-life situations and events. Previously listed as AD 263. **Prerequisite(s):** AD 267 and AD 268; or AD 261; or AD 271; and junior standing or above; or consent of the instructor.

AD 371 4 hrs.
16mm Film Production II

A follow-up to AD 271. Advanced film production techniques, such as sync sound production, the use of color film, and digital editing of 16mm film. Previously listed as AD 272. **Prerequisite(s):** AD 271 and junior standing or above; or consent of the instructor.

AD 374 4 hrs.
Motion Graphics II

Applications of advanced methods in film animation. Creative projects utilizing sound synchronization, computer motion synthesis, and related techniques. Previously listed as AD 474. Extensive computer use required. **Prerequisite(s):** AD 274 and junior standing or above; or consent of the instructor.

AD 378 4 hrs.
Moving Image II

Project-oriented course emphasizes advanced art production from the areas of video, film, animation, and sound using small format systems. Previously listed as AD 478. Extensive computer use required. **Prerequisite(s):** AD 278 and junior standing or above; or consent of the instructor.

AD 382 4 hrs.
Art Education Practicum

Experience in classroom teaching and curriculum design, connecting practices of contemporary art making with practices of contemporary critical pedagogy. Design and teach interdisciplinary curriculum. May be repeated once if grade is lower than B.

Prerequisite(s): Grade of B or better or concurrent registration in AD 281 and junior standing or above and approval of the department.

AD 391 4 hrs.
Interdisciplinary Seminar II

Relationship between artist's studio practice, professional art making, and critical writing relevant to contemporary art practice, including research, criticism, and historical/biographical narrative. **Prerequisite(s):** AD 290 and junior standing or above; minimum of 8 hours of major-level course work and concurrent registration in one 200-level or 300-level major art course.

AD 400 1-16 hrs.
Foreign Studies in Art and Design

Study abroad within approved programs of foreign exchange and/or education. Satisfactory/Unsatisfactory grading only. May be repeated with approval. Approval to repeat course granted by the appropriate major area faculty committee, the director of the school and/or director of graduate studies. Graduate credit only with approval of the director of the school and the director of graduate studies. **Prerequisite(s):** Junior or graduate standing within a major program within the School of Art and Design and approval of the appropriate major area faculty committee, director of the school and/or director of graduate studies.

AD 405 0-5 hrs.
Smart Art: Physical Computing

A practical and conceptual exploration into electronic sensors, processors and effectors as applied to interactive media and interaction design. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 309 and credit or concurrent registration in AD 407; and senior standing or above; or consent of the instructor.

AD 406 0-5 hrs.
Advanced Special Topics in Art and Design

Intensive workshops in specific art and design related topics and techniques directed and announced by the instructor. 1 to 4 undergraduate hrs. 2 to 5 graduate hrs. May be repeated. **Prerequisite(s):** Junior or graduate standing, and consent of the instructor.

UH GM

AD 407 0-5 hrs.
Virtual Reality I

A practical and conceptual exploration into the production of interactive virtual reality experiences for art and design. Virtual reality authoring tools and scripting. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 309 and credit or concurrent registration in AD 405; and senior standing or above; or consent of the instructor.

AD 408 0-5 hrs.
Virtual Reality II

Advanced concepts and methods in interactive media and virtual reality production for art and design. Programming for customized software tool development. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 405 and AD 407 and credit or concurrent registration in AD 409; and credit or concurrent registration in AD 415; and senior standing or above; or consent of the instructor.

AD 409 0-5 hrs.
Electronic Visualization: Senior Project

A practical and conceptual exploration into the production of a public interactive media event. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 405 and AD 407 and credit or concurrent registration in AD 408; and senior standing or above; or consent of the instructor.

AD 410 1-5 hrs.
Advanced Special Topics in Graphic Design

Intensive workshops in specific graphic design related topics and techniques directed and announced by the instructor. 1 to 4 undergraduate hrs. 2 to 5 graduate hrs. May be repeated. A maximum of 8 hours of credit is allowed for undergraduates; 10 hours for graduate students. Extensive computer use required. **Prerequisite(s):** AD 315; and junior standing or above; and consent of the instructor. Portfolio review required.

UH GM

AD 411 0-5 hrs.
Graphic Design Professional Practice

Design projects with real-world clients in the private or public sector. The designer/client relationship. 4 undergraduate hrs. 5 graduate hrs. **Prerequisite(s):** AD 315 and AD 317; and senior standing or above; and consent of the instructor.

AD 412 0-5 hrs.
Graphic Design Thesis

Thesis topics chosen in consultation with graphic design faculty. 4 undergraduate hrs. 5 graduate hrs. May be repeated up to 1 time(s). **Prerequisite(s):** Credit or concurrent registration in AD 315 and credit or concurrent registration in AD 411; and consent of the instructor.

AD 413 0-5 hrs.
Interactive Design

Advanced examination of graphic design in the new media technologies. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 315 and credit or concurrent registration in AD 412, and senior standing or above.

AD 414 0-5 hrs.
Interactivity in Graphic Design

Advanced examination of graphic design in the new media technologies. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 315 and AD 317 and credit or concurrent registration in AD 412.

AD 415 4 OR 5 hrs.
Design Colloquium

Presentations, lectures, and discussions conducted by faculty, design professionals and individuals from design-related disciplines. Overview and contextual understanding of design theory, practice, process, and research. 4 undergraduate hrs. 5 graduate hrs. **Prerequisite(s):** Senior standing or above, and consent of the instructor. Senior students must be in their final semester and preparing to graduate at the end of that semester.

AD 418 1-5 hrs.
Independent Study in Graphic Design

Supervised independent study in graphic design. 1 to 4 undergraduate hrs. 2 to 5 graduate hrs. May be repeated. A maximum of 8 hours of credit is allowed for undergraduates; 10 hours for graduate students. Extensive computer use required. **Prerequisite(s):** Senior standing or above and consent of the instructor. Taken by faculty invitation only.

UH GM

AD 420 0-5 hrs.
Interdisciplinary Product Development I

"Real-world" simulation collaborating in teams with other disciplines gathering, assimilating, and synthesizing information for problem identification to investigate and solve a problem. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 321 and AD 326 and credit or concurrent registration in AD 422; and senior standing or above; or consent of the instructor.

AD 421 0-5 hrs.
Interdisciplinary Product Development II

"Real world" simulation collaborating in teams with other disciplines to assimilate and synthesize information into action plan, design development, and implementation within structured stage-gated product development process. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 420 and AD 422 and credit or concurrent registration in AD 423; and credit or concurrent registration in AD 415; and senior standing or above; or consent of the instructor.

AD 422 0–5 hrs.
Interactive Product Design II
Advanced 2-D and 3-D methods in the design of interactive products and art works. Includes human factors, 3-D modeling and design of 3-D virtual products. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 321 and AD 326 and credit or concurrent registration in AD 420; and senior standing or above; or consent of the instructor.

AD 423 0–5 hrs.
Industrial Design Thesis
Capstone course that enables students to select and explore an area of industrial design research. 4 undergraduate hrs. 5 graduate hrs. Extensive computer use required. **Prerequisite(s):** AD 420 and AD 422 and credit or concurrent registration in AD 421; and credit or concurrent registration in AD 415; and senior standing or above; and consent of the instructor.

AD 424 4 OR 5 hrs.
Industrial Design Independent Study
Supervised independent study in any area of industrial design activity not covered in the regular curriculum. 4 undergraduate hrs. 5 graduate hrs. May be repeated up to 1 time(s). **Prerequisite(s):** AD 320 and AD 321 and senior standing or above; and consent of the instructor.

AD 425 0–5 hrs.
Design Visualization
Advanced principles, methodologies, and tools for designing both mechanical and electronic interactive products using digital tools as well as analysis utilizing prototyping and user testing methods. Applications include interactive Web site design. 4 undergraduate hrs. 5 graduate hrs. May be repeated up to 1 time(s). Extensive computer use required. **Prerequisite(s):** AD 322 and senior standing or above; and consent of the instructor.

AD 462 6 hrs.
Advanced Art/Studio Critique
Critique/discussion for advanced art majors. **Prerequisite(s):** AD 391 and senior standing or above; and consent of the instructor. Open only to Studio Arts, Photography, Moving Image majors who have completed their major art requirements.

AD 463 6 hrs.
Art/Studio Thesis
Exhibition/thesis production and seminar culminating in an exhibition/final thesis show for graduating seniors. **Prerequisite(s):** AD 462 and senior standing or above; and consent of the instructor. Open only to Studio Arts, Photography, Moving Image majors who have completed all requirements and are prepared to graduate.

AD 471 0–5 hrs.
Advanced Film/Video/Animation
Investigation of contemporary concerns in various areas of film and/or video activity under the direction of an instructor. 4 undergraduate hrs. 5 graduate hrs. May be repeated up to 2 time(s). **Prerequisite(s):** AD 272 or AD 474, and consent of the instructor.

AD 472 4–12 hrs.
Independent Study in Film/Video/Electronic Visualization
Supervised independent study in any areas of cinema, video production, or electronic visualization. May be repeated to a maximum of 12 hrs. Students may register for more than one four-hour section per term, or repeat the course in four-hour sections in subsequent terms. **Prerequisite(s):** 12 hours in any film, video, and/or electronic visualization courses and consent of the instructor.

AD 482 4 hrs.
Visual and Verbal Literacy in Art Education
Explores relevance of critical theory, text-based contemporary art, cultural studies, and aesthetics to the school art curriculum. Strategies for incorporating reading and writing into arts education. May be repeated once if grade is lower than B. Fieldwork required. **Prerequisite(s):** Grade of B or better in AD 281; and credit or concurrent registration in AD 382; and junior standing or above; and approval of the school.

AD 484 6 hrs.
Educational Practice with Seminar I
The first half of a two-segment sequence of practice teaching, including seminar, to meet certification requirements for teaching in grades six through twelve. Field experience plus lecture, demonstration and discussion. May be repeated once if grade lower than B. Graduate credit only with approval of the school. **Prerequisite(s):** Grade of B or better in AD 281 and grade of B or better in AD 382 and grade of B or better in AD 482; and credit or concurrent registration in AD 485; and senior standing or above and completion of 100 clock hours of pre-student-teaching field experiences, and approval of the school.

AD 485 6 hrs.
Educational Practice with Seminar II
The second half of a two-segment sequence of practice teaching, including seminar, to meet certification requirements for teaching in grades six through twelve. Field experience, plus lecture, demonstration, and discussion. May be repeated once if grade lower than B. Graduate credit only with approval of the school. **Prerequisite(s):** Grade of B or better in AD 281 and grade of B or better in AD 382 and grade of

B or better in AD 482; and credit or concurrent registration in AD 484; and senior standing or above and good academic standing in a teacher education program and completion of 100 clock hours of pre-student-teaching field experience and approval of the school.

AD 488 0–4 hrs.
Computer Graphics I
Principles of interactive computer graphics. Raster and vector display, techniques and hardware considerations. Introduction to two-dimensional and three-dimensional rendering. Laboratory. **Same as** CS 488. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Credit or concurrent registration in CS 340.

AD 494 1–5 hrs.
Special Topics in Art Therapy
Specializations, new developments in the field, in-depth study of theory, process, application, or independent study. 1 to 4 undergraduate hrs. 2 to 5 graduate hrs. May be repeated. Students may register in more than one section per term. A maximum of 8 hours of credit is allowed for undergraduates; 10 hours for graduate students. **Prerequisite(s):** Consent of the instructor.

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AD 499 0–4 hrs.
Cooperative Education
Introduction to professional practice offering students the opportunity to couple academic learning with professional experience in an off-campus placement. Satisfactory/Unsatisfactory grading only. May be repeated. Only 8 hours of credit may be counted toward satisfying requirements for any art and design major. **Prerequisite(s):** Junior standing, a minimum cumulative grade point average of 3.00, and approval of the school.

Art History

AH 100 3 hrs.
Introduction to Art and Art History
Forms, meanings, and purposes, of art. Discussion of techniques, styles, and content as well as historical and social contexts, in various media and cultures. *Creative Arts course.*

AH 110 4 hrs.
Art History I
Survey of world art and architecture from prehistoric times to the end of the Middle Ages. *Creative Arts course.*

AH 111 4 hrs.
Art History II
Survey of world art and architecture from the Renaissance to the present. *Creative Arts course.*

AH 122 3 hrs.
History of Chicago Architecture
Survey of Chicago's architecture and built environment from 1803 to the present.

AH 160 3 hrs.
Trends in International Contemporary Art since 1960
Surveys international trends in art since 1960. Emphasis is on movements, new media, intermedia, criticism, and theory. **Prerequisite(s):** Consent of the instructor or major in studio arts.

AH 200 3 hrs.
Theories and Methods in Art History
The methodologies and theories of the discipline and their application to selected problems. Required for majors in art history. **Prerequisite(s):** Sophomore standing and major in Art History, or consent of the instructor.

AH 204 3 hrs.
Greek Art and Archaeology
Contributions of archaeological excavations to the study of ancient Greece, 600 BC to 31 BC. Architecture, sculpture, and painting in their social and historical contexts. **Same as** CL 204 and HIST 204. Credit is not given for AH 204 if the student has credit in CL 215. Taught in English. *Creative Arts, and Past course.*

AH 205 3 hrs.
Roman Art and Archaeology
Contributions of archaeological excavations to the study of ancient Rome and her empire 1000 BC–400 AD. Architecture, sculpture and painting in their social and historical contexts. **Same as** CL 205, and HIST 205. *Creative Arts, and Past course.*

AH 207 3 hrs.
Topics in Architecture, Art, and Design
Selected topics in the history of architecture, art, and design. May be repeated if topics vary. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 209 3 hrs.
The Art and Archaeology of the Ancient Near East
Introduction to the ancient cultures of Mesopotamia and neighboring regions from the first settled villages of the early Neolithic to the Persian conquest of Babylon. **Same as** ARST 209. **Prerequisite(s):** Sophomore standing or above.

AH 210 3 hrs.
The Art and Archaeology of Ancient Egypt
Ancient Egypt from 6000 BC–400 AD. Architecture, sculpture, and painting in their social and historical contexts. **Same as** AAST 210 and ARST 210. **Prerequisite(s):** Sophomore standing. *Creative Arts, and Past course.*

AH 211 3 hrs.
History of Urbanism
 The history of the city: Its form, meaning, function, and representation from classical antiquity to the present. Selected topics in the history of settlement patterns and the planning of cities.
Prerequisite(s): 3 hours of Art History at the 100-level or consent of the instructor.

AH 221 3 hrs.
Medieval Architecture
 The development of early Christian, Byzantine, Romanesque, and Gothic architecture. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 222 3 hrs.
Renaissance Architecture
 The development of architecture in Renaissance Europe, with emphasis on the Italian Peninsula, from 1400 to 1600. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 223 3 hrs.
Baroque Architecture
 The development of architecture in Europe from 1600 to 1750. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 224 3 hrs.
North American Architecture
 The development of architecture, urbanism, and architectural theory over the last 500 years. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 225 3 hrs.
European Architecture, 1750-1900
 The development of European architecture, urbanism, and architectural theory from 1750 to 1900. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 228 3 hrs.
History of Landscape Architecture
 Survey of developments in the history of gardens, parks, and other designed spaces over the past 1000 years. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor.

AH 230 3 hrs.
History of Photography I: 1820-1920
 History of photography from the 1820s to the beginning of the twentieth century. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 231 3 hrs.
History of Photography II: 1900 to Present
 History of photography from the beginning of the twentieth century to the present. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 232 3 hrs.
History of Film I: 1890 to World War II
 History of film from its beginnings in the 1890s up to World War II. **Same as ENGL 232 and MOVI 232.**

AH 233 3 hrs.
History of Film II: World War II to the Present
 History of film from World War II to contemporary movements in world cinema. **Same as ENGL 233 and MOVI 233.**

AH 235 3 hrs.
History of Design I: 1760-1925
 Survey of industrial and graphic design from the Industrial Revolution to 1925. **Prerequisite(s):** 3 hours of Art History at the 100-level or consent of the instructor.

AH 236 3 hrs.
History of Design II: 1925 to the Present
 Survey of industrial and graphic design from 1925 to the present. **Prerequisite(s):** 3 hours of Art History at the 100-level or consent of the instructor. **Recommended background:** AH 235.

AH 242 3 hrs.
Early Christian and Byzantine Art and Architecture
 The art, architecture, and built environment of the Early Christian and Byzantine world from the third to fifteenth century CE. Religious and secular arts are surveyed in their historical contexts, paying attention to political, social, and cultural circumstances. **Prerequisite(s):** Grade of C or better in AH 110 and grade of C or better in AH 111; or consent of the instructor. *Creative Arts course.*

AH 243 3 hrs.
Medieval Art and Architecture
 The art and architecture of the medieval west from 200 CE through the fifteenth century, including urbanism and the built environment. Religious and secular arts are surveyed in their historical context. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 244 3 hrs.
Islamic Art and Architecture
 The art and architecture of Islamic civilizations from the seventh century to the modern period. Religious and secular arts are surveyed in their historical contexts. **Prerequisite(s):** Consent of the instructor or 3 hours of Art History courses at the 100-level. *Creative Arts, and World Cultures course.*

AH 250 3 hrs.
Italian Renaissance Art
 Painting, sculpture, and architecture in Italy from the fourteenth through the sixteenth centuries. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 251 3 hrs.
Northern Renaissance Art and Architecture
 The art and architecture of the Low Countries, Germany, France, and England during the fifteenth and sixteenth centuries. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 252 3 hrs.
Art of the Baroque and Rococo
 European painting, sculpture, and architecture of the seventeenth and early eighteenth centuries. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 260 3 hrs.
European Art from 1750 to 1900
 Painting and sculpture in Western Europe from neoclassicism through early Modernism. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 261 3 hrs.
European and American Art from 1900 to the Present
 The art of Western Europe and the United States from high Modernism and the historic avant-garde movements through postmodernism and the new media arts. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 262 3 hrs.
American Art to 1945
 The visual arts in the United States from the colonial period through 1945. **Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts course.*

AH 263 3 hrs.
Latin American Colonial Art
 A survey of Latin American art and architecture from European contact to independence. **Same as LALS 263. Prerequisite(s):** Three hours of art history at the 100-level, or consent of the instructor. *Creative Arts, and World Cultures course.*

AH 264 3 hrs.
African American Art
 Interdisciplinary survey of the artistic production of African American artists from the nineteenth century to the present. **Same as AAST 264. Creative Arts, and World Cultures course.**

AH 269 3 hrs.
Art and Archaeology of South America
 Survey of Andean prehistory and the development of complex societies from pre-Chavin through Inca as reflected in art, architecture, and other material culture. **Same as ANTH 269.** Credit is not given for AH 269 if the student has credit for ANTH 228 or AH 273 or LALS 239 or LALS 259. **Prerequisite(s):** ANTH 100 or ANTH 102 or AH 100 or AH 110 or AH 111; and sophomore standing or above; or consent of the instructor. *World Cultures course.*

AH 270 3 hrs.
African Art
 Survey of the arts of the major tribal cultures of sub-Saharan Africa. **Same as AAST 270. Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *Creative Arts, and World Cultures course.*

AH 271 3 hrs.
Native American Art
 Survey of the arts of the indigenous peoples of the United States and Canada. **Same as NAST 271. Prerequisite(s):** 3 hours of art history at the 100-level or consent of the instructor. *World Cultures course.*

AH 273 3 hrs.
Pre-Columbian Art of South America
 The art and architecture of the Andean, southern Central American, and Caribbean cultures from 3000 BC to the sixteenth century, including Chavin, Moche, Inca, Taino, and gold-working cultures of northern South America and lower Central America. **Same as LALS 239. Prerequisite(s):** Three hours of art history at the 100-level or consent of the instructor. *World Cultures course.*

AH 274 3 hrs.
Pre-Columbian Art of Mesoamerica
 The art and architecture of pre-hispanic peoples of Mexico and northern Central America, including Olmec, Teotihuacan, Maya, Zapotec, and Aztec cultures. **Same as LALS 240. Prerequisite(s):** Three hours of art history at the 100-level or consent of the instructor. *World Cultures course.*

AH 275 3 hrs.
South Asian Visual Cultures
 Art and architectural traditions of South Asia, contextualizing their uses and meaning within Hindu, Buddhist, Islamic, and contemporary communities of India, Pakistan, and Bangladesh. **Prerequisite(s):** 3 hours of Art History at the 100-level or consent of the instructor. *Creative Arts, and World Cultures course.*

AH 304 3 hrs.
Alexander the Great and the Hellenistic World
Examines the career of Alexander the Great of Macedon and his legacy in Greece, Egypt, and the Near East, up until the arrival of the Romans. **Same as** CL 304.
Prerequisite(s): Sophomore standing or above.

AH 320 3 hrs.
Asian Architecture
Survey of the historic and contemporary architectures of West Asia, South Asia, Southeast Asia, China, and Japan, as well as the architecture of Asian diasporas. **Same as** ASST 320.
Prerequisite(s): Three hours of art history at the 100-level or consent of the instructor.

AH 322 3 hrs.
Contemporary Architecture
Worldwide trends in recent architecture, urbanism, architectural theory and criticism.
Prerequisite(s): AH 110 and AH 111; or consent of the instructor.

AH 370 3 hrs.
Chinese Visual Culture
Survey of Chinese art and architecture from the early Shang culture through artistic movements in contemporary Chinese art.
Same as ASST 370.
Prerequisite(s): Three hours of art history at the 100-level or consent of the instructor.

AH 371 3 hrs.
Japanese Art
Survey of Japanese architecture, sculpture, painting, woodblock prints, and related arts from Neolithic times to contemporary developments. **Same as** ASST 371.
Prerequisite(s): Three hours of art history at the 100-level or consent of the instructor.

AH 404 3 OR 4 hrs.
Topics in Architecture, Art, and Design
Selected topics in the history of European and North American architecture, art and design. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 2 time(s) if topics vary. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of art history at the 200-level or consent of the instructor.

AH 422 3 OR 4 hrs.
Topics in the Literature of Architecture
Discussion of selected readings in the theory and criticism of architecture. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours in the history of architecture or consent of the instructor.

AH 424 2–4 hrs.
Topics in Architecture and Urban Form in Chicago
Topics on the development of the built environment of the Chicago and metropolitan area, and the effect on its architecture of social, political, and economic forces.

AH 430 3 OR 4 hrs.
Contemporary Photography
Developments in the history of photography since 1950. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours in the history of photography or consent of the instructor.

AH 432 3 OR 4 hrs.
Topics in Film and Video
Selected studies in genres, schools, individual artists, critics, and theorists of film and video. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** Graduate standing or 3 hours in the history of film or consent of the instructor.

AH 434 3 OR 4 hrs.
Women and Film
Roles and representations of women in classical Hollywood, European art, and independent feminist cinemas. **Same as** ENGL 472 and GWS 472. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ENGL 302 or ENGL 342 or ENGL 361 or ENGL 362 or ENGL 363; and senior standing or above; or consent of instructor.

AH 435 3 OR 4 hrs.
Topics in Modern and Contemporary Design
Topics in modern and contemporary design. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours in the history of design or consent of the instructor.

AH 441 3 OR 4 hrs.
Topics in Medieval Art and Architecture
Selected topics in European art and architecture of the Middle Ages. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours of medieval art and architecture or consent of the instructor.

AH 450 3 OR 4 hrs.
Topics in Renaissance Art
Selected topics in Early Renaissance, High Renaissance, or Mannerist Art and Architecture. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** 3 hours in art history at the 200-level or above, or consent of the instructor.

AH 460 3 OR 4 hrs.
Topics in Modern and Contemporary Art
Selected topics in nineteenth- and twentieth-century modern and contemporary art. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours of modern art and architecture or consent of the instructor.

AH 463 3 OR 4 hrs.
Topics in North American Art and Architecture
Selected topics in North American art and architecture from colonial times to 1945. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours of North American art and architecture or consent of the instructor.

AH 464 2–4 hrs.
Topics on Art in Chicago
Topics on the survey of art in Chicago, from the nineteenth century to the present, with an emphasis on contemporary Chicago art expressions.

AH 465 3 OR 4 hrs.
Arts of the Black Atlantic
Interdisciplinary and discursive explorations of the visual and artistic expressions of artists of African descent in the New World. 3 undergraduate hrs. 4 graduate hrs.

AH 470 3 OR 4 hrs.
Topics in Non-Western Art and Architecture
Selected topics in the art and architecture of Africa, Asia, Oceania, and the indigenous peoples of the Americas. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary.

AH 471 3 OR 4 hrs.
Topics in Asian Art and Architecture
Selected topics in the art and architecture of Asia. **Same as** ASST 471. 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours of Asian art and/or architecture or consent of the instructor.

AH 480 3 OR 4 hrs.
History of Collecting and Museology
The history of collecting and patronage: public and private collections, museums, and commercial art galleries, government funding, and the arts. Exhibition planning, research, selection, and catalog preparation. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** AH 110 and AH 111 or consent of the instructor.

AH 481 3 OR 4 hrs.
Museum Practices
Administration of visual arts organizations, their budgets, staffing, structures, accreditation, and long-range planning. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** AH 480 or consent of the instructor.

AH 482 6 OR 8 hrs.
Museology Internship
Practical supervised experience in institutions serving the visual arts. Placements in museums, community art centers, college, commercial, or nontraditional galleries, and public agencies. **Prerequisite(s):** AH 481 or consent of the instructor.

AH 485 3 OR 4 hrs.
Introduction to Historic Preservation
Preservation planning, historic building restoration, and the

political and economic factors affecting the conservation of historic resources. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of art history at the 200-level or consent of the instructor.

AH 490 3 hrs.
Honors Thesis
Individual study on a project selected with the approval of the advisor. Satisfactory/Unsatisfactory grading only. **Prerequisite(s):** Open only to seniors.

AH 491 0–12 hrs.
Study Abroad in Art History
Study abroad within an approved foreign exchange program or department-sponsored program. May be repeated with approval. Approval to repeat course granted by the department. **Prerequisite(s):** Approval of the department.

AH 492 3 OR 4 hrs.
Readings in Art and Architecture History
Individually planned readings on selected topics under the supervision of a faculty member. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 2 time(s). Students may register in more than one section per term. **Prerequisite(s):** Junior standing and 3 hours of Art History above the 100-level and consent of the instructor. Enrollment priority will be given to majors and graduate students in Art History.

Asian American Studies

ASAM 123 3 hrs.
Introduction to Asian American Literature
Introductory survey of a wide range of Asian American cultural forms in their sociohistorical contexts. **Same as** ENGL 123. *Creative Arts, and U.S. Society course.*

ASAM 125 3 hrs.
Introduction to Asian American Studies
Overview of Asian American experiences and perspectives in sociohistorical context. Introduction to major concepts, issues, and debates in the field of Asian American Studies. **Same as** ENGL 125 and SOC 125. *Individual and Society, and U.S. Society course.*

ASAM 228 3 hrs.
Sociology of Asia and Asian Americans
Asian and Asian-American culture, institutions, and organization; immigration, population, settlement patterns; occupations and poverty; family and ethnic identification; inequality and politics; values, prejudice, discrimination. **Same as** ASST 228 and SOC 228. **Prerequisite(s):** SOC 100. *Individual and Society, and U.S. Society course.*

ASAM 290 3 hrs.
Special Topics in Asian American Studies
Study of a specific intermediate topic in Asian American studies. May be repeated if content does not duplicate previous course work. May be repeated to a maximum of 12 hrs.

ASAM 328 3 hrs.
Asian American Literature
Historical development of Asian American literature. It will identify specific cultural and political issues that have shaped the broad range and diverse ethnic interests of that writing. **Same as ENGL 328.** **Prerequisite(s):** Grade of C or better in ENGL 240; and grade of C or better in ENGL 243. **Recommended background:** ASAM 123 or ENGL 123.

ASAM 428 3 OR 4 hrs.
Asian/Asian American Women in the Global Economy
Examines the racialization and feminization of a global division of labor and focuses primarily on Asian and Asian American women's participation and incorporation as workers and key actors in the development of the global economy. **Same as GWS 428 and SOC 428.** 3 undergraduate hours; 4 graduate hrs. **Prerequisite(s):** ASAM 125 or ENGL 125 or SOC 125 or AAST 225 or LALS 225 or SOC 225 or ASAM 228 or ASST 228 or SOC 228 or ASAM 290 or Two 200-level courses in either SOC, GWS or ASAM, or a combination of these.

ASAM 441 3 OR 4 hrs.
Topics in Asian American Literature and Culture
An advanced seminar that examines various forms of cultural production by Asian American artists of diverse ethnic backgrounds. Topics vary. **Same as ENGL 441.** 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 1 time(s). **Prerequisite(s):** ENGL 327 or ENGL 328 or ENGL 359; and senior standing or above; or consent of the instructor.

ASAM 490 3 OR 4 hrs.
Advanced Topics in Asian American Studies
Study of a specific advanced topic within Asian American Studies. May be repeated if content does not duplicated previous course work. May be repeated to a maximum of 12 hrs.

Asian Studies

ASST 109 3 hrs.
East Asian Civilization: China
An introduction to Chinese civilization, including history, philosophy, and religions from earliest times to c. 1500. **Same as HIST 109.** *Past, and World Cultures course.*

ASST 110 3 hrs.
East Asian Civilization: Japan
An overview of Japanese history from earliest times to the mid-twentieth century: social structure, economic change, political institutions, religion, and culture. **Same as HIST 110.** *Past, and World Cultures course.*

ASST 228 3 hrs.
Sociology of Asia and Asian Americans
Asian and Asian-American culture, institutions, and organization; immigration, population, settlement patterns; occupations and poverty; family and ethnic identification; inequality and politics; values, prejudice, discrimination. **Same as ASAM 228 and SOC 228.** **Prerequisite(s):** SOC 100. *Individual and Society, and U.S. Society course.*

ASST 231 3 hrs.
Politics in China
The dynamics of the Chinese Communist revolution; post-Mao reforms; the structure and operation of key political institutions; relations with major powers. **Same as POLS 231.** **Prerequisite(s):** POLS 130 or POLS 190; or consent of the instructor. *World Cultures course.*

ASST 232 3 hrs.
Politics in Japan and Korea
Sources, dynamics, and patterns of politics in Japan and the two Koreas. Appraisal of the Japanese model. Comparison of Japan and Korea. **Same as POLS 232.** **Prerequisite(s):** POLS 130 or POLS 190; or consent of the instructor. *World Cultures course.*

ASST 271 3 hrs.
Late Imperial China: 1500 to 1911
A detailed survey of China's late imperial period, covering a broad range of issues from state institutions and elite power, to popular culture and peasant revolt. **Same as HIST 271.** *Past, and World Cultures course.*

ASST 272 3 hrs.
China since 1911
Twentieth-century China from 1911 to the present, including warfare; areas of intellectual inquiry; and changes in government, family, and the role of women. **Same as HIST 272.** *Past, and World Cultures course.*

ASST 273 3 hrs.
Japan to 1600
Topical survey from earliest times to 1600: Political and economic institutions, ideology, class structure, gender, culture, religions, and warfare. **Same as HIST 273.** *Past, and World Cultures course.*

ASST 274 3 hrs.
Japan since 1600
Topical overview of the development of modern Japan: political consolidation, economic growth, international relations, ideology, expansion, and colonialism, American occupation, social movements, environment, and law. **Same as HIST 274.** *Past, and World Cultures course.*

ASST 275 3 hrs.
History of South Asia
An outline of South Asian history from the earliest times to the present, in regional and global contexts. **Same as HIST 275.** *Past, and World Cultures course.*

ASST 276 3 hrs.
Modern South Asia, 1857 to the Present
Examines anticolonial resistance to British rule starting with the 1857 Revolt, Indian nationalism, and the formation of independent nation-states in South Asia. **Same as HIST 276.** *Past, and World Cultures course.*

ASST 279 3 hrs.
South Asian Cultures and Societies
Survey of the people and cultures of South Asian Cultures; emphasis on social structure, religion, and recent cultural changes. **Same as ANTH 279.** *Individual and Society, and World Cultures course.*

ASST 280 3 hrs.
China and Japan: Society and Culture
Survey of social and economic organization during the recent past of China and Japan: analysis of traditional family structure; impact of urbanization and industrialization. **Same as ANTH 280.** *Individual and Society, and World Cultures course.*

ASST 320 3 hrs.
Asian Architecture
Survey of the historic and contemporary architectures of West Asia, South Asia, Southeast Asia, China, and Japan, as well as the architecture of Asian diasporas. **Same as AH 320.** **Prerequisite(s):** Three hours of art history at the 100-level or consent of the instructor.

ASST 370 3 hrs.
Chinese Visual Culture
Survey of Chinese art and architecture from the early Shang culture through artistic movements in contemporary Chinese art. **Same as AH 370.** **Prerequisite(s):** Three hours of art history at the 100-level or consent of the instructor.

ASST 371 3 hrs.
Japanese Art
Survey of Japanese architecture, sculpture, painting, woodblock prints, and related arts from neolithic times to contemporary developments. **Same as AH 371.** **Prerequisite(s):** Three hours of art history at the 100-level or consent of the instructor.

ASST 471 3 OR 4 hrs.
Topics in Asian Art and Architecture
Selected topics in the art and architecture of Asia. **Same as AH 471.** 3 undergraduate hrs. 4 graduate hrs. May be repeated if topics vary. **Prerequisite(s):** 3 hours of Asian art and/or architecture or consent of the instructor.

ASST 472 3 OR 4 hrs.
Issues and Events in Twentieth-Century China
Covers the events, places, people, political movements, ideologies, and issues that shaped twentieth-century China, and considers different approaches to the writing of that history. **Same as HIST 472.** 3 undergraduate hrs. 4 graduate hrs. **Recommended background:** Previous course work in Chinese history at the 100- or 200-level.

ASST 473 3 OR 4 hrs.
Topics in East Asian History
Specific topics are announced each term. **Same as HIST 473.** 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of East Asian history or consent of the instructor.

ASST 478 3 OR 4 hrs.
Women in Chinese History
Focuses on scholarship on women in Chinese society throughout history, dealing with topics such as marriage and family, literacy, career options, women in revolution, and the historiography of the field. **Same as GWS 478 and HIST 478.** 3 undergraduate hrs. 4 graduate hrs. **Recommended background:** Previous course work in Chinese history or women's studies.

ASST 479 3 OR 4 hrs.
Culture and Colonialism in South Asia
Examines the emergence of colonial cultures of domination and resistance on the Indian subcontinent from the 18th century to 1947. **Same as ANTH 479 and HIST 479.** 3 undergraduate hrs. 4 graduate hrs.

Associated Health Sciences

AHS 495 1 hour.
Urban Health Multicultural Seminar
Students attend multicultural and urban health-related seminars, participate in faculty-student discussion, academic presentations, and directed reading groups to integrate issues of cultural difference into students' professional development. Satisfactory/Unsatisfactory grading only. May be repeated. All Academy seminars are preapproved: other approved events will be announced to students. Any off-campus events must have prior approval. One academic year is allotted for completion of seminar. Students should register the semester they begin attending lectures; grades will be deferred until course is completed. **Prerequisite(s):** Sophomore standing or above.

Biochemistry and Molecular Genetics

BCMG 307 3 hrs. Fundamentals of Biochemistry

Includes the chemistry of cellular constituents, enzymology, metabolism, and intracellular control and elements of molecular biology. **Prerequisite(s):** General and organic chemistry. Lecture course intended primarily for advanced undergraduate students in associated health sciences.

BCMG 399 1–4 hrs. Introduction to Research Methods

Designed primarily for advanced undergraduate students who will receive a closely supervised research experience in a biochemistry faculty laboratory. **Prerequisite(s):** Credit or concurrent registration in organic chemistry and analytical chemistry; and consent of the instructor.

Bioengineering

BIOE 101 2 hrs. Introduction to Bioengineering

Overview of how the principles and techniques of engineering are applied to help solve problems in the medical and biological sciences. Curricular and career paths discussed; projects, research lab, and facility tours.

BIOE 205 3 hrs. Bioengineering Thermodynamics

Introduction to equilibrium and non-equilibrium thermodynamics, with emphasis on nonequilibrium (living) systems. Applications include thermodynamics of living cells and the lung, molecular energy exchange, and energy exchange in exercise. **Prerequisite(s):** PHYS 142.

BIOE 240 3 hrs. Modeling Physiological Data and Systems

A lecture/discussion course introducing the use of mathematical models and statistics to describe, interpret and analyze physiological data and systems. **Prerequisite(s):** BIOS 100 and MATH 180. Open only to freshmen and sophomores.

BIOE 250 3 hrs. Clinical Problems in Bioengineering

Examination of three to four real problems in bioengineering. Student teams work with a faculty facilitator toward each solution. Problem identification, strategic planning, brainstorming, information gathering, and reporting are formalized. **Prerequisite(s):** BIOE 101. Open only to freshmen and sophomores.

BIOE 310 3 hrs. Biological Systems Analysis

System dynamics and frequency-domain analysis in bioengineering systems. Topics include population models, predator-prey models, metabolic networks, bio-

logical oscillation, dynamics of infectious diseases. No credit given if the student has credit in ECE 310 or ME 312.

Prerequisite(s): MATH 220.

BIOE 325 3 hrs. Biotransport

Transport phenomena in biomedical engineering and living systems, specifically processes vital to the design of medical devices for artificial clinical intervention. Topics include circulatory system dynamics and modeling of physiological systems. **Prerequisite(s):** MATH 220 and BIOS 100.

BIOE 339 3 hrs. Biostatistics I

Statistical treatment of data and model estimation treated in a framework of biological experiments, and attributes of data generated from such experiments. Experimental design is included. Extensive computer use required. **Prerequisite(s):** MATH 210; and CS 107 or CS 108 or CS 109. **Recommended background:** Prior knowledge of Excel.

BIOE 396 3 hrs. Senior Design I

Design considerations for biomedical devices emphasizing traditional engineering design concepts. **Prerequisite(s):** Credit or concurrent registration in BIOE 339.

BIOE 397 3 hrs. Senior Design II

Application of principles of engineering and engineering design methodology to the solution of a large scale biomedical engineering design problem. **Prerequisite(s):** BIOE 396.

BIOE 398 1–5 hrs. Undergraduate Research

Research under the close supervision of a faculty member. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

BIOE 402 2 OR 3 hrs. Medical Technology Assessment

Bioentrepreneur course. Assessment of medical technology in the context of commercialization. Objectives, competition, market share, funding, pricing, manufacturing, growth, and intellectual property; many issues unique to biomedical products. 2 undergraduate hrs. 3 graduate hrs. **Prerequisite(s):** Junior standing or above and consent of the instructor.

BIOE 405 3 OR 4 hrs. Atomic and Molecular Nanotechnology

Nanoscale structures and phenomena. Simulation methods for nano systems, and molecular assemblies. Molecular building blocks, scanning probe, and atomic force microscopy, quantum mechanical phenomena. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Senior standing or above. **Recommended background:** Engineering or physical science major.

BIOE 406 2 OR 3 hrs. Regulation and Manufacturing Practices in Medical Technology

Bioentrepreneur course. Product requirement definition, FDA, quality system regulation, community Europe, medical device directive, role of management, United States pharmacopoeia, toxicity testing, hazard analysis, risk assessment, import/export. 2 undergraduate hrs. 3 graduate hrs. **Prerequisite(s):** Junior standing or above and consent of the instructor.

BIOE 407 3 OR 4 hrs. Pattern Recognition I

The design of automated systems for detection, recognition, classification, and diagnosis. Parametric and nonparametric decision-making techniques. Applications in computerized medical and industrial image and waveform analysis. **Same as** ECE 407. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** MATH 220.

BIOE 408 2 OR 3 hrs. Medical Product Development

Bioentrepreneur course. Major stages of medical product development (investigative, feasibility, development, commercialization, maturation and growth), regulatory issues, product performance, failure mode and effect analysis, hazard analysis. 2 undergraduate hrs. 3 graduate hrs. **Prerequisite(s):** Junior standing or above and consent of the instructor.

BIOE 415 3 OR 4 hrs. Biomechanics

Use of rigid and deformable body statics and rigid body dynamics to analyze various aspects of the human musculoskeletal system. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 201 and ME 210; and BIOS 430 or BIOS 443 or BIOS 484 or BIOS 485.

BIOE 420 3 OR 4 hrs. Introduction to Field and Waves in Biological Tissues

Principles of electromagnetic and ultrasonic interaction with biological systems; characterization of biological materials; diagnostic and therapeutic uses; and techniques of dosimetry and measurement. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ECE 310.

BIOE 421 3 OR 4 hrs. Biomedical Imaging

Introduction to engineering and scientific principles associated with X-ray, magnetic resonance, ultrasound, computed tomographic, and nuclear imaging. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** MATH 210 and PHYS 142.

BIOE 430 3 OR 4 hrs. Bioinstrumentation and Measurements I

Theory and application of instrumentation used for physiological and medical measurements. Characteristics of physiological variables, signal conditioning devices, and transducers. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** BIOS 100; and ECE 115 or ECE 210 or ECE 225; and BIOE 310 or ECE 310 or ME 312.

BIOE 431 2 hrs. Bioinstrumentation and Measurement Laboratory

Practical experience in the use of biomedical instrumentation for physiological measurements. **Prerequisite(s):** Credit or concurrent registration in BIOE 430.

BIOE 432 3 OR 4 hrs. Bioinstrumentation and Measurements II

Principles of bioinstrumentation for the assessment of physiological function and therapeutic intervention. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** BIOE 430.

BIOE 433 1 hour. Bioinstrumentation and Measurements II Laboratory

Laboratory experiments using instruments to assess physiological function. **Prerequisite(s):** Credit or concurrent registration in BIOE 432.

BIOE 439 4 hrs. Biostatistics II

Statistical treatment of data, model estimation, and inference are treated in a framework of biological experiments and attributes of data generated from such experiments. Credit is not given for BIOE 439 if the student has credit for BSTT 400. Extensive computer use required. **Prerequisite(s):** MATH 210 and CS 108; and consent of the instructor. **Recommended background:** Knowledge of MATLAB.

BIOE 440 3 OR 4 hrs. Biological Signal Analysis

Analysis of signals of biological origin. Transient signals. Stability analysis. Control. Probabilities, stochastic processes. Medical applications. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** MATH 210 and senior or graduate standing.

BIOE 450 4 hrs.
Molecular Biophysics of the Cell

Introduction to force, time energies at nanometer scales; Boltzmann distribution; hydrodynamic drag; Brownian motions; DNA, RNA protein structure and function; sedimentation; chemical kinetics; general aspects of flexible polymers. **Same as** PHYS 450.

Prerequisite(s): PHYS 245 or the equivalent.

BIOE 452 3 OR 4 hrs.
Biocontrol

Considers the unique characteristics of physiological systems using the framework of linear systems and control theory. Static and dynamic operating characteristics, stability, and the relationship of pathology to control function. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ECE 310; and either BIOS 442 or BIOS 443.

BIOE 455 3 OR 4 hrs.
Introduction to Cell and Tissue Engineering

Foundation of cell and tissue engineering covering cell technology, construct technology, and cell-substrate interactions. Emphasis in emerging trends and technologies in tissue engineering. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 260; and credit or concurrent registration in BIOE 430 or BIOS 443 or BIOS 484 or BIOS 485.

BIOE 456 2 hrs.
Cell and Tissue Engineering Laboratory

Includes polymer scaffold fabrication, microstamping biomolecules, cellular adhesion and proliferation assays, and immo/fluorescent tagging. **Prerequisite(s):** Credit or concurrent registration in BIOE 455; or consent of the instructor.

BIOE 460 3 OR 4 hrs.
Materials in Bioengineering

Analysis and design considerations of problems associated with prostheses and other implanted biomedical devices. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 260; and BIOS 220 or BIOS 222 or BIOS 240 BIOS 286 or BIOS 352.

BIOE 465 3 OR 4 hrs.
Metabolic Engineering

Quantitative descriptions of biochemical networks; modeling, control, and design of metabolic pathways to achieve industrial and medical goals. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** BIOE 310 or ECE 310 or ME 312; or consent of the instructor.

BIOE 470 3 OR 4 hrs.
Bio-Optics

Physical principles and instrumentation relevant to the use of light in biomedical research. Several current and developing clinical applications are explored. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** PHYS 142.

BIOE 472 3 OR 4 hrs.
Models of the Nervous System

Mathematical models of neural excitation and nerve conduction, stochastic models and simulation of neuronal activity, models of neuron pools and information processing, models of specific neural networks. 3 undergraduate hrs. 4 graduate hrs.

Prerequisite(s): BIOE 310 or ECE 310 or ME 312; and credit or concurrent registration in BIOS 484 or BIOS 485.

BIOE 475 3 OR 4 hrs.
Neural Engineering I: Introduction to Hybrid Neural Systems

Modeling and design of functional neural interfaces for in vivo and in vitro applications, electrodes and molecular coatings, neural prostheses, and bio-potential control of robotics. **Same as** BIOS 475. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** BIOE 472; or consent of the instructor.

BIOE 476 2 hrs.
Neural Engineering I Laboratory

Hands-on experience with computational and experimental models of engineered neural systems, with emphasis on neuro-prostheses and biosensors. Animals used in instruction. **Prerequisite(s):** Credit or concurrent registration in BIOE 475.

BIOE 480 3 OR 4 hrs.
Introduction to Bioinformatics

Computational analysis of genomic sequences and other high throughput data. Sequence alignment, dynamic programming, database search, protein motifs, cDNA expression array, and structural bioinformatics. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** BIOS 100 and CS 201; or consent of the instructor.

BIOE 481 2 hrs.
Bioinformatics Laboratory

How to use bioinformatics tools, including sequence alignment methods such as Blast, FaSta, and Pfam, as well as structural bioinformatics tools, such as Rasmol and CastP. Extensive computer use required. **Prerequisite(s):** Credit or concurrent registration in BIOE 480; and senior standing or above; and consent of the instructor.

BIOE 482 3 OR 4 hrs.
Introduction to Optimization Methods in Bioinformatics

The objectives are to provide the students with a basis for understanding principles of the optimization methods and an insight on how these methods are used in bioinformatics. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** BIOS 100 and CS 201.

BIOE 483 3 OR 4 hrs.
Molecular Modeling in Bioinformatics

Basic structural and dynamics tools in protein structure prediction, structure comparison, function prediction, Monte Carlo and molecular dynamics simulations. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Grade of B or better in BIOE 480.

BIOE 494 1–4 hrs.
Special Topics in Bioengineering

Special topics to be arranged. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

Biological Sciences**BIOS 100** 5 hrs.
Biology of Cells and Organisms

Processes of cellular and organismic function: cell structure, respiration, photosynthesis, molecular genetics and development, structure and physiology of plants and animals. Lecture, laboratory, and discussion. Animals used in instruction. This course is intended for science majors. BIOS 100 and BIOS 101 may be taken in any order. Credit is not given for BIOS 104 if the student has credit in BIOS 100 or BIOS 101. **Recommended background:** CHEM 112. *Natural World—With Lab course.*

BIOS 101 5 hrs.
Biology of Populations and Communities

Species concepts, natural selection, phylogeny, models of population growth, transmission genetics, gene frequency, adaptation, interactions among species in a community, biomes and climate, ecosystem processes, and human impacts on the environment. Animals used in instruction. This course is intended for science majors. BIOS 100 and BIOS 101 may be taken in any order. Credit is not given for BIOS 104 if the student has credit in BIOS 100 or BIOS 101. *Natural World—With Lab course.*

BIOS 104 5 hrs.
Life Evolving

Origin and diversity of life; genetics, evolution, ecology, and ecosystems; energy flow; photosynthesis; human anatomy and physiology; development of biological ideas; and biology and human society. Credit is not given for BIOS 104 if the student has credit in BIOS 100 or BIOS 101. Animals may be used in instruction. Intended for non-science majors. *Natural World—With Lab course.*

BIOS 196 1 hour.
Biology Colloquium

A series of specially arranged seminars, small group activities, and field trips in different areas of interest in biological sciences. Satisfactory/Unsatisfactory grading only. May be repeated up to 1 time(s). **Prerequisite(s):** Major in Biological Sciences or Biochemistry.

BIOS 199 1 hour.
Introduction to Research

An introduction to research for students interested in becoming biology majors. Credit is contingent on approval by the research supervisor of a written report that is also submitted to the Biology colloquium faculty advisor. Satisfactory/Unsatisfactory grading only. May be repeated. **Prerequisite(s):** Concurrent registration in BIOS 196 or approval of the department.

BIOS 220 3 hrs.
Mendelian and Molecular Genetics

Principles of heredity and variation in phage, bacteria, fungi, plants, and animals. Basic molecular genetics, gene regulation, recombination, DNA replication, transcription, translation. Lecture and discussion. No credit may be applied toward the Biological Sciences major unless credit is also obtained for BIOS 221. **Prerequisite(s):** BIOS 100 and BIOS 101 and credit or concurrent registration in CHEM 232.

BIOS 221 3 hrs.
Genetics Laboratory

Experiments and demonstrations of classical and molecular genetics using material from *Drosophila*, corn, rodents, bacteria, fungi, and viruses. Animals used in instruction. **Prerequisite(s):** Credit or concurrent registration in BIOS 220.

BIOS 222 3 hrs.
Cell Biology

Rationale of experiments that led to the current understanding of organelle biogenesis, cell transport, cell signaling, and the relation of cell structure to cell function. Lecture. **Prerequisite(s):** BIOS 100 and CHEM 112 and CHEM 114.

BIOS 223 2 hrs.
Cell Biology Laboratory

Laboratory experience with modern methods in molecular biology and exploration of current research in cell biology. **Prerequisite(s):** Credit or concurrent registration in BIOS 222.

BIOS 230 3 hrs.
Ecology and Evolution

Concepts and models of population growth, species interactions, community ecology, and energy and nutrient flow in ecosystems. Genetic basis of evolutionary change through adaptation, natural selection, and other mechanisms. **Prerequisite(s):** BIOS 101 and CHEM 112 and CHEM 114.

BIOS 236 3 hrs.
Animal Behavior
 Examine the proximate and ultimate causes of animal behavior; neural and hormonal mechanisms; diversity of behavior and their relationship to an organism's ecology and evolution.
Prerequisite(s): BIOS 101.

BIOS 240 3 hrs.
Homeostasis: The Physiology of Plants and Animals
 Basic concepts of physiological mechanisms that contribute to survival of multicellular organisms. Comparison of a variety of organisms. **Prerequisite(s):** BIOS 100 and CHEM 112 and CHEM 114.

BIOS 270 4 hrs.
Animals Without Backbones: Invertebrate Zoology
 Classification and comparative structure, development, ecology and evolution of nonvertebrate animals. Lecture and demonstration. Animals used in instruction. **Prerequisite(s):** One year of biological sciences.

BIOS 272 5 hrs.
Comparative Vertebrate Anatomy and Physiology
 Morphology, function, and evolution of vertebrate organ systems. Lecture and laboratory. Animals used in instruction. **Prerequisite(s):** BIOS 100 and BIOS 101 or the equivalent.

BIOS 286 3 hrs.
The Biology of the Brain
 Survey of basic neurobiology. Brain structure, chemistry, development, and control of behavior (sensation, movement, emotions, memory, cognition, sex). **Prerequisite(s):** BIOS 100 and BIOS 101; or consent of the instructor.

BIOS 294 1–5 hrs.
Special Topics in Biological Sciences
 Selected topics in the Biological Sciences. May be repeated. Students may register for more than one section per term.

BIOS 296 2 hrs.
Directed Instruction
 Leadership opportunity for upper division students wishing to assist with the biology colloquium. Credit is contingent on approval of a written report describing leadership activities and experiences that is submitted to the department. Satisfactory/Unsatisfactory grading only. May be repeated. A maximum of 2 hours of credit may be applied toward the undergraduate major in Biological Sciences. **Prerequisite(s):** Approval of the department.

BIOS 299 1 hour.
Honors Biology
 An additional hour of related work for students registered in another course in Biological Sciences. May be repeated. **Prerequisite(s):** Membership in Honors College, or, for superior students, approval of the department; and registration in a Biological Sciences course (except BIOS 391 or BIOS 399) and consent of the instructor. Open only to freshmen, sophomores, and juniors. Restricted to Honors students.

BIOS 313 4 hrs.
Primate Evolution
 Paleontology and systematics of fossil primates, emphasizing the adaptive radiations of the major living groups. **Same as** ANTH 330.

BIOS 320 3 hrs.
Developmental Biology
 Principles governing growth and differentiation from the molecular to the organismic level. **Prerequisite(s):** BIOS 220.

BIOS 321 3 hrs.
Developmental Biology Laboratory
 Laboratory problems in developmental biology. Animals used in instruction. **Prerequisite(s):** Credit or concurrent registration in BIOS 320.

BIOS 322 3 hrs.
Advanced Cell Biology
 Advanced topics in eukaryotic cell biology, with special emphases on structure-function analyses of the nuclear pore, chromosomes, and transcriptional regulation. Extensive computer use required. May not be taken concurrently with BIOS 222. **Prerequisite(s):** BIOS 220 and BIOS 221 and BIOS 222; and CHEM 232 and CHEM 233.

BIOS 325 5 hrs.
Vertebrate Embryology
 Study of the anatomical changes occurring during vertebrate development and their underlying control mechanisms. A comparative approach is taken, examining the similarities and differences in embryonic development between amphibians, birds, and mammals. **Prerequisite(s):** BIOS 100 and BIOS 101.

BIOS 331 3 hrs.
General Ecology Laboratory
 Field and laboratory data collection for hypothesis testing; required field trips to representative plant communities. Animals used in instruction. Required field trips on Saturdays. **Prerequisite(s):** BIOS 101.

BIOS 335 3 hrs.
History of Life
 A macroevolutionary perspective on documenting patterns of evolutionary change and understanding interactions between speciation and extinction in creating patterns of morphologic and taxonomic diversity. **Prerequisite(s):** BIOS 100 and BIOS 101.

BIOS 350 3 hrs.
General Microbiology
 Ultrastructure, genetics, molecular biology, physiology and metabolism of microorganisms; role of microorganisms in food, water, agriculture, biotechnology, infectious diseases, and immunobiology. **Prerequisite(s):** BIOS 100; and credit or concurrent registration in CHEM 130 or CHEM 232. **Recommended background:** BIOS 101.

BIOS 351 2 hrs.
Microbiology Laboratory
 Laboratory experience with pure cultures and sterile techniques; methods of identification of unknown microorganisms; experiments demonstrating principles of microbial genetics, transformation, antibiotic sensitivity, and resistance. **Prerequisite(s):** Credit or concurrent registration in BIOS 350.

BIOS 352 3 hrs.
Introductory Biochemistry
 Structure and function of cellular constituents; enzymology; metabolism of carbohydrates, lipids, amino acids, nucleotides; molecular biology of biosynthesis of proteins and nucleic acids. **Same as** CHEM 352. No credit toward the Biological Sciences major for students completing BIOS 452 and/or BIOS 454. No credit toward the degree in Biochemistry. **Prerequisite(s):** BIOS 100 and CHEM 232.

BIOS 360 4 hrs.
Introduction to Paleontology
 The morphology, ecology, and relationships of fossil organisms. Basic principles of paleontology, including evolution, paleoecology and functional morphology. **Same as** EAES 360. **Prerequisite(s):** EAES 102 or one year of biological sciences.

BIOS 386 2 hrs.
Seminar on Neurobiology
 Reading and discussion of both classic and recent research papers that are important in neurobiology. **Prerequisite(s):** BIOS 286 or the equivalent.

BIOS 391 1 hour.
Independent Study
 Individual study not covered in standard courses under close supervision of a faculty member. Credit is contingent on approval by research supervisor of a written report that is submitted to the department. Satisfactory/Unsatisfactory grading only. May be repeated. Students may register in more than one section per term. A maximum of 5 hours of BIOS 391 and/or BIOS 399 may be credited toward the department undergraduate major requirements. **Prerequisite(s):** Minimum of 2.00 grade point average in biological sciences courses and consent of the instructor.

BIOS 399 2 hrs.
Independent Research
 Individual research. Credit is contingent on approval by the research supervisor of a written report that is submitted to the

department. Satisfactory/Unsatisfactory grading only. May be repeated. Students may register in more than one section per term. A maximum of 5 hours of BIOS 391 and/or BIOS 399 may be credited toward the department undergraduate major requirements. **Prerequisite(s):** Minimum of 2.00 grade point average in biological sciences courses, approval of the department, and consent of the instructor. **Recommended background:** Junior standing.

BIOS 416 3 OR 4 hrs.
Natural Products
 Biogenetic approach to secondary metabolites. General principles and selected studies of phenolic compounds, terpenes, alkaloids, and other interesting natural products. **Same as** CHEM 456. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One year of organic chemistry.

BIOS 424 4 hrs.
Mammalian Histology
 The microscopic anatomy of tissues and organs in relation to their function. **Prerequisite(s):** BIOS 272 or BIOS 325.

BIOS 429 3 hrs.
Laboratory in Electron Microscopy
 Laboratory instruction in cell preparation and instrument operation in transmission and scanning electron microscopy. Satisfactory/Unsatisfactory grading only. Animals used in instruction. **Prerequisite(s):** Consent of the instructor.

BIOS 430 4 hrs.
Evolution
 Mechanisms of genetic and phenotypic stability and change in populations and species; modes of speciation and macroevolution; trends in evolution. Lecture and discussion. **Prerequisite(s):** BIOS 220.

BIOS 431 3 hrs.
Plant and Animal Interactions
 Ecology of nonsymbiotic relationships of plants and animals, including protection mutualisms, pollination, seed dispersal, animal herbivory and plant defense. **Prerequisite(s):** BIOS 100 and BIOS 101 and any 200- or 300-level course in biological sciences.

BIOS 432 3 hrs.
Restoration Ecology
 Philosophical, historical, and ecological basis for ecological restoration, with emphasis on readings in the primary literature and writing. **Prerequisite(s):** BIOS 230 or the equivalent.

BIOS 433 4 hrs.
Plant Diversity and Conservation
 Focus on seed-plant diversity: morphological features and family identification; major evolutionary process; evolutionary relationships among plant groups; and goals, problems, and progress in the conservation of plant diversity. **Prerequisite(s):** BIOS 230.

BIOS 435 3 hrs.
Plant Evolution
Examines the history of plant life in a rigorous survey of plant genetics, factors that influence diversity of form and function, the astonishing diversity of plant sexual systems, and conservation. **Prerequisite(s):** BIOS 230; and junior standing or above.

BIOS 443 4 hrs.
Animal Physiological Systems
Basic function of renal, respiratory, and digestive systems. Integrative role of endocrine systems. Animals used in instruction. **Prerequisite(s):** Four courses in the Biological Sciences.

BIOS 450 3 hrs.
Advanced Microbiology
Comprehensive analysis of metabolic, ecological, phylogenetic, and cytological diversity among the major groups of eubacteria and archaeobacteria. **Prerequisite(s):** BIOS 350.

BIOS 452 4 hrs.
Biochemistry I
Chemistry of proteins, nucleic acids, carbohydrates, and lipids. **Same as** CHEM 452. **Prerequisite(s):** Credit or concurrent registration in CHEM 234.

BIOS 454 4 hrs.
Biochemistry II
Continues Biological Sciences 452. Carbohydrate and lipid metabolism, electron transport. Metabolism of amino acids, nucleic acids, proteins. Biosynthesis of macromolecules and regulation of macromolecular synthesis. **Same as** CHEM 454. **Prerequisite(s):** BIOS 452 or CHEM 452.

BIOS 457 4 hrs.
General Virology
Nature of viruses, their morphology, chemical composition, assay, host-parasite interactions, and life cycles. **Prerequisite(s):** BIOS 220; and either BIOS 222 or BIOS 350.

BIOS 466 4 hrs.
Principles of Paleontology
Theory and methods of evolutionary paleobiology; includes paleoecology, functional morphology, and major features of organic evolution. **Same as** EAES 466. **Prerequisite(s):** EAES 360 or BIOS 360 or consent of the instructor.

BIOS 475 3 OR 4 hrs.
Neural Engineering I: Introduction to Hybrid Neural Systems
Modeling and design of functional neural interfaces for in vivo and in vitro applications, electrodes and molecular coatings, neural prostheses, and bio-potential control of robotics. **Same as** BIOE 475. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** BIOE 472; or consent of the instructor.

BIOS 483 4 hrs.
Neuroanatomy
Organization of the nervous system, with an emphasis on mammals. **Same as** PSCH 483 and NEUS 483. Animals used in instruction. **Prerequisite(s):** BIOS 272 or BIOS 286 or BIOS 325 or PSCH 262; or consent of the instructor.

BIOS 484 3 hrs.
Neuroscience I
Neuroscience as an integrative discipline. Neuroanatomy of vertebrates, neural development, cellular neurobiology, action potential mechanisms, synaptic transmission, and neuropharmacology. **Same as** PHIL 484 and PSCH 484. **Prerequisite(s):** BIOS 286 or PSCH 262.

BIOS 485 3 hrs.
Neuroscience II
Intergrative neuroscience, continuation of BIOS/PSCH/PHIL 484. Sensory and motor systems; learning, memory, and language. Pathology of nervous systems. Philosophical perspectives, and modeling. **Same as** PHIL 485 and PSCH 485. **Prerequisite(s):** BIOS 484.

BIOS 486 4 hrs.
Animal Behavior and Neuroethology
Neural and behavioral mechanisms of environmental information processing and interaction throughout the animal kingdom; emphasis on invertebrate and lower vertebrates. Laboratory emphasizing individual research projects with a final report, and occasional field trips required. Animals used in instruction. **Prerequisite(s):** One advanced course in zoology and animal physiology.

BIOS 488 3 hrs.
Developmental Neurogenetics
Classical and molecular genetic approaches to the study of the development of the nervous system, concentrating on studies in fruit flies, nematodes, and vertebrates. **Prerequisite(s):** BIOS 220 and either BIOS 225 or BIOS 420.

BIOS 489 3 hrs.
Cellular Neurobiology Laboratory
Recording from and analyzing the activity of nerve cells, neuronal networks, and other electrically excitable tissues. **Prerequisite(s):** BIOS 286 or the equivalent.

BIOS 490 3-4 hrs.
Topics in Ecology and Evolution
In-depth analysis of advanced topics in ecology and evolution, involving reading primary literature, term paper, student presentations, and critical discussion. Credit varies according to topic offered. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Graduate standing or consent of the instructor.

Biomedical and Health Information Sciences

BHIS 405 0-4 hrs.
Medical Sciences and Human Pathophysiology
Introduction of fundamental concepts in pathophysiology. Specific disorders of major organ systems, including etiology, manifestations, diagnostic tests, treatment modalities, pharmacotherapy, and complications. Extensive computer use required. Meets eight weeks of the semester. Students who require a medical terminology component register for 4 hours and participate in both laboratory and lecture-discussion; all others register for 3 hours and attend lecture-discussion only. Taught fully or partially online. Students must have an active UIC netid with valid password, access to a computer, and the Internet.

BHIS 410 3 hrs.
Health Data Structures and Management
Data structures in clinical information systems, including database design and management, networking, and security. Emphasis on "intrapreneurial" skills required to solve organizational information management problems. **Prerequisite(s):** BHIS 460 and BHIS 461 and BHIS 480.

BHIS 460 1 hour.
Introduction to Health Informatics
Introduction to information technology and systems in a healthcare setting. Meets eight weeks of the semester. Taught online. Students must have an active UIC netid with valid password and access to a computer and the Internet. **Prerequisite(s):** Credit or concurrent registration in HIM 410 or equivalent experience. Students should demonstrate basic computing skills including knowledge of an office productivity suite (MS Office or other), electronic mail, and Internet browsers. **Recommended background:** IDS 200 or the equivalent; or consent of the instructor.

BHIS 461 2 hrs.
Information Systems for Health Information Management
Advanced topics in information technology and systems in a healthcare setting; collection, analysis, and management of healthcare data; special issues related to the role of health information administrators. Extensive computer use required. **Prerequisite(s):** IDS 200 and credit or concurrent registration in BHIS 460.

BHIS 480 3 hrs.
Management and Business Practices
Principles of management with emphasis on business functions, procedures, and organizational structure as applied to various healthcare settings, including pri-

vate and institutional practice. **Prerequisite(s):** Advanced undergraduate or graduate standing in the Department of Biomedical and Health Information Sciences or consent of the instructor.

BHIS 499 1 hour.
Information Sources in Biomedical and Health Information Sciences
Prepares students to locate, interpret and evaluate pertinent research information sources. Includes discussion on writing literature reviews. Assignments require the use of a computer with Internet access. **Prerequisite(s):** Junior standing or above required; or consent of the instructor.

Biopharmaceutical Sciences

BPS 325 2 hrs.
Drugs and Society
Presents factual basis of drug use and abuse. Provides physiological and sociopsychological underpinnings of drug abuse. Evaluates social policies and regulatory issues surrounding drug abuse. **Same as** PMPR 325. Extensive computer use required. **Prerequisite(s):** Open only to first-year students in the Doctor of Pharmacy program.

BPS 360 1 hour.
Survey of Basic and Clinical Pharmacology I
Designed to provide an introduction to the major classes of therapeutic agents. **Prerequisite(s):** Consent of the instructor. Open only to first-year students in the Doctor of Pharmacy program.

BPS 365 1 hour.
Survey of Receptors and Drug Action
The major classes of receptors and their ligands (agonists and antagonists) that result in pharmacological effects and drug action. **Prerequisite(s):** Open only to first-year students in the Doctor of Pharmacy program.

BPS 380 1-3 hrs.
Undergraduate Research in Biopharmaceutical Sciences
Investigation, under the direction of one or more faculty members, of a problem of limited scope. May be repeated. Students may register in more than one section per term. A maximum of 6 hours of credit is allowed per department. A total of not more than 8 hours of 380 and 390 numbered courses in the college may be applied toward the 12 hours of PharmD professional electives. **Prerequisite(s):** Minimum cumulative grade point average of 2.50 and consent of the instructor, department head, and Associate dean for student affairs.

BPS 381 1 hour.
Professional Development Seminar I
Weekly seminar series for second professional year pharmacy students. Discusses educational issues related to the second professional year. Students create/

update curriculum vitae; explore various pharmacy career opportunities. Credit is not given for BPS 381 if the student has credit for PMAD 381 or PMMP 381 or PMPR 371. **Prerequisite(s):** Student must be listed as an advisee of the instructor.

BPS 382 1 hour.
Professional Development Seminar II

Weekly seminar series for second professional year pharmacy students. Discusses educational issues related to the second professional year. Students create/update curriculum vitae; explore various pharmacy career opportunities. Credit is not given for BPS 382 if the student has credit for PMAD 382 or PMMP 382. **Prerequisite(s):** Student must be listed as an advisee of the instructor.

BPS 383 1 hour.
Professional Development Seminar III

Weekly seminar series for third professional year pharmacy students. Discusses relevant educational and professional issues. Update CV/resume and portfolio. Explore pharmacy career opportunities with invited guests. Credit is not given for BPS 383 if the student has credit for PMAD 383 or PMMP 383. **Prerequisite(s):** Student must be listed as an advisee of the instructor.

BPS 384 1 hour.
Professional Development Seminar IV

Weekly seminar series for third-year pharmacy students. Discusses with advisees relevant educational and professional issues. Update curriculum vitae or resume and portfolio. Explore pharmacy career opportunities with invited guests. Credit is not given for BPS 384 if the student has credit for PMAD 384 or PMMP 384. **Prerequisite(s):** Student must be listed as an advisee of the instructor.

BPS 385 1–3 hrs.
Special Topics of Current Interest in Biopharmaceutical Sciences

Course offered by faculty or a visiting lecturer on a selected topic of current interest. Available on an experimental basis for one offering only. **Prerequisite(s):** Consent of the instructor and good academic standing as defined by College of Pharmacy policies.

BPS 390 1–2 hrs.
Special Projects in Biopharmaceutical Sciences

Special projects within the departmental discipline are defined and terminal project goals are achieved through independent study. May be repeated. Students may register in more than one section per term. A maximum of 4 hours of 390 credit is allowed in all departments. A total of not more than 8 hours of 380 and 390 numbered courses in the college may be applied toward the 12 hours

of PharmD professional electives. **Prerequisite(s):** Consent of the instructor, department head, and associate dean for student affairs.

BPS 423 2 hrs.
Adverse Drug Reactions

Attention focused on the epidemiology and characterization of adverse reactions. Factors which interplay in adverse reactions to medications are discussed. Reactions characterized in relation to organ systems. **Prerequisite(s):** PHAR 403 and PHAR 404; or consent of the instructor.

BPS 430 2 hrs.
Principles of Toxicology

Examines the toxic effects of drugs and chemicals on organ systems. Lectures emphasize basic principles, effects on specific organ systems, major classes of toxic chemicals, and specialized topics, such as forensic and industrial toxicology. **Same as** PCOL 430. Credit is not given for BPS 430 if student has credit for EOHHS 457.

BPS 470 1 hour.
Clinical Pharmacology I

Basic principles of clinical pharmacology/toxicology, including clinical trial design, statistical interpretation, pharmacokinetics, drug interactions (side effects), as well as basic mechanisms involved in the above.

Prerequisite(s): Open only to students with Third-year professional standing in the Doctor of Pharmacy program or with graduate standing.

BPS 471 1 hour.
Clinical Pharmacology II

Basic principles of clinical pharmacology applied to critical analysis of patient case histories in major disease states and FDA requirements. **Prerequisite(s):** BPS 470.

BPS 480 4 hrs.
Application of Science to the Law

Issues affecting the development, accessibility and admissibility of forensic science services by the criminal justice system; problems which may compromise the quality, fairness, and effectiveness of scientific inquiries. **Same as** CLJ 480. **Prerequisite(s):** CLJ 210 and CLJ 260; or graduate standing.

BPS 494 1–3 hrs.
Special Topics of Current Interest in Biopharmaceutical Sciences

Courses offered by faculty or a visiting lecturer on a current topic of selected interest. Topics are available on an experimental basis for one offering only. May be repeated to a maximum of 6 hrs. **Prerequisite(s):** Consent of the instructor; good academic standing as defined by UIC policies.

Business Administration

BA 070 3 hrs.
Elementary Mathematics for Business

Rational operations and arithmetic, fundamental operations of algebra, linear equations and polynomials, and graphic with applications to business. Satisfactory/Unsatisfactory grading only. No graduation credit. **Prerequisite(s):** Eligibility determined by performance on the placement test.

BA 090 5 hrs.
Intermediate Algebra for Business

Linear equations, rational expressions, quadratic equations, graphing, exponentials and logarithms, systems of linear equations with applications to business. Satisfactory/Unsatisfactory grading only. No graduation credit. **Prerequisite(s):** Grade of C or better in BA 070 or grade of C or better in MATH 070; or appropriate score on the department placement test.

BA 100 1 hour.
Business Administration Orientation

Orientation to resources available at UIC. Introduction to study strategies and techniques. Orientation to majors and careers in business. Satisfactory/Unsatisfactory grading only. No graduation credit. Should be taken in the first semester after acceptance into the College of Business Administration. **Prerequisite(s):** Admission to the College of Business Administration.

BA 200 3 hrs.
Managerial Communication

Principles of effective business communication applied to practice in writing and speaking, individual and team work; emphasis on written communication. **Prerequisite(s):** ENGL 161 or the equivalent.

BA 289 1–3 hrs.
Business Internship Program

Cooperative education provides students an opportunity to gain practical work experience in their field of study and to test their career choice. Satisfactory/Unsatisfactory grading only. May be repeated. No graduation credit. **Prerequisite(s):** Full-time status, admission into the College of Business Administration, good academic standing, 12 semester hours at UIC, and consent of the director of the Business Career Center.

BA 299 0–18 hrs.
Business Administration Study Abroad

Provides credit for foreign study. Student's proposal for study abroad must have prior approval of CBA Undergraduate Student Services. Final determination of credit is made on the student's completion of the work. May be repeated for a maximum of 48 hours of credit. May be repeated for a maximum of 36 hours per

academic year or for a total of 48 hours, all of which must be earned within one calendar year. **Prerequisite(s):** Requires approval of the Study Abroad Office and College of Business Administration Undergraduate Student Services.

BA 300 3 hrs.
Advanced Managerial Communication

Advanced study of business communication, including practice in the writing of proposals and reports; emphasis on oral presentations and use of multimedia techniques. **Prerequisite(s):** BA 200.

BA 495 3 hrs.
Business Strategy

Strategic management and business policy formulation and implementation. Students will utilize knowledge from all functional areas of business to formulate business strategy and implementation plans through case analysis (may include simulation). Extensive computer use required. **Prerequisite(s):** ACTG 210 and ACTG 211 and BA 200 and ECON 218 and IDS 200 and IDS 270; and IDS 355 and FIN 300 and MGMT 340 and MGMT 350 and MKTG 360; and senior standing or above.

Catholic Studies

CST 120 3 hrs.
Catholic Thought: An Introduction

Introduction to the main topics, interests, and methods of Catholic thought. **Same as** RELS 120. *Past course.*

CST 150 3 hrs.
Catholicism in U.S. History

The Catholic experience in the United States from its colonial origins to the present. **Same as** HIST 150 and RELS 150. *U.S. Society course.*

CST 193 3 hrs.
The Divine Comedy

An in-depth study of the *Divine Comedy*, read in English, against the philosophical and theological background of the Middle Ages. **Same as** ITAL 193 and RELS 193. Taught in English. *Creative Arts course.*

CST 294 3 hrs.
Topics in Catholic History

An investigation of the impact of human migration and cultural pluralism on Catholicism and an analysis of the role of the Catholic Church in group relations. Topics will vary. **Same as** HIST 294 and RELS 294. May be repeated if topics vary.

CST 295 3 hrs.
Topics in Catholic Thought

Critical investigation of a topic or topics central to the development of Catholic thought, carried on by study of its proponents and opponents. Topics will vary. **Same as** RELS 295. May be repeated if topics vary.

CST 394 3 hrs.**Topics in Catholic History and Culture**

Exploration of various topics in Catholic history and culture. **Same as** HIST 394 and RELS 394. **Prerequisite(s):** One course in history or Catholic studies; or consent of the instructor.

CST 396 1–3 hrs. Independent Study

Selected topics for individual study. May be repeated to a maximum of 6 hour(s). Students may register for more than one section per term. **Prerequisite(s):** Sophomore standing or above and consent of the instructor. **Recommended background:** CST 120 or CST 150.

Central and Eastern European Studies**CEES 400 3 OR 4 hrs.****A Survey of Central and Eastern Europe**

An interdisciplinary historical and cultural overview of Central and Eastern Europe. 3 undergraduate hrs. 4 graduate hrs.

CEES 411 3 OR 4 hrs.**The City as Cultural Focus**

Interdisciplinary study of urban culture with focus on German-speaking countries. **Same as** GER 411. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 1 time(s). Taught in English. No knowledge of German required. Students who intend to use GER 411 toward a degree offered by the Department of Germanic Studies will do assignments in German. Area: literature/culture. **Prerequisite(s):** For majors and minors in the Department of Germanic Studies only: GER 212 or the equivalent or consent of the instructor.

CEES 418 3 OR 4 hrs.**Topics in German History**

Specific topics are announced each term. **Same as** HIST 418. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of European history, or consent of the instructor.

CEES 430 3 OR 4 hrs.**Classical German Philosophy**

Introduction to German philosophy and intellectual history through the critical analysis of major authors and texts. **Same as** GER 430. 3 undergraduate hrs. 4 graduate hrs. Taught in English. Area: literature/culture. **Prerequisite(s):** One 300-level course in Germanic Studies or consent of the instructor.

CEES 433 3 OR 4 hrs.**Topics in Eastern European History**

Specific topics are announced each term. **Same as** HIST 433. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of European history or consent of the instructor.

CEES 435 3 OR 4 hrs.**Topics in Russian History**

Specific topics are announced each term. **Same as** HIST 435. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of European history or consent of the instructor.

CEES 438 3 OR 4 hrs.**The Faust Legend**

Discusses Goethe's Faust within the context of European and non-European literatures. Traces the origins, significance, and interpretation of the Faust figure. **Same as** GER 438. 3 undergraduate hrs. 4 graduate hrs. Taught in English. Area: literature/culture.

CEES 439 3 OR 4 hrs.**Gender and Cultural Production**

Issues of gender representation and gender politics examined through the use of theoretical texts or through the study of women authors. **Same as** GER 439 and GWS 439. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 1 time(s) if topics vary. Taught in English. Students who intend to use GER 439 toward a degree offered by the Department of Germanic Studies will do assignments in German. Area: literature/culture. **Prerequisite(s):** GER 212 or consent of the instructor.

Chemical Engineering**CHE 101 3 hrs.****Introduction to Chemical Engineering Concepts**

Overview of engineering and chemical principles used in chemical engineering technology. Thermodynamics, transport phenomena, and reaction engineering applied to process and product design. **Prerequisite(s):** Credit or concurrent registration in CHEM 112 and credit or concurrent registration in MATH 180.

CHE 201 3 hrs.**Introduction to Thermodynamics**

Work and energy; conversion of energy; theory of gases and other states of matter; applications to energy conversion devices. Second law of thermodynamics, entropy, and equilibrium, with applications. **Prerequisite(s):** MATH 181 and PHYS 141.

CHE 210 4 hrs.**Material and Energy Balances**

Material and energy balances applied to chemical systems. Introduction to chemical and physical properties. Introduction to the use of computers for chemical process calculations. **Prerequisite(s):** CHE 201 and CS 108.

CHE 301 3 hrs.**Chemical Engineering Thermodynamics**

Review of classical engineering thermodynamics. Multicomponent systems and multicomponent phase equilibria. Equilibrium in chemically reacting systems, heterogeneous equilibrium, Gibbs phase rule, and electrochemical processes. **Prerequisite(s):** CHE 201 and credit or concurrent registration in CHEM 342.

CHE 311 3 hrs.**Transport Phenomena I**

Momentum transport phenomena in chemical engineering. Fluid statics. Fluid mechanics; laminar and turbulent flow; boundary layers; flow over immersed bodies. **Prerequisite(s):** Credit or concurrent registration in CHE 210.

CHE 312 3 hrs.**Transport Phenomena II**

Heat and mass transport phenomena. Heat conduction, convection and radiation. Heat exchanger design. Diffusion. Mass transfer coefficients. **Prerequisite(s):** CHE 311.

CHE 313 3 hrs.**Transport Phenomena III**

Mass transfer and phase equilibria. Multistage separations; applications in distillation; extraction; absorption and drying. **Prerequisite(s):** CHE 301.

CHE 321 3 hrs.**Chemical Reaction Engineering**

Kinetics of homogeneous single reactions. Ideal reactors: batch, stirred tank and plug flow systems. Conversion and yield in multiple reactions. Design and optimization of reactors. Non-isothermal reactors. **Prerequisite(s):** CHE 210 and CHE 301.

CHE 341 3 hrs.**Chemical Process Control**

Analysis and design of chemical processes and control systems. Feedback and feedforward controllers. Stability, tuning, and simulation of P-I-D controllers. Introduction to the control of chemical plants and digital process control. **Prerequisite(s):** MATH 220 and CHE 312 and CHE 313 and CHE 321.

CHE 381 2 hrs.**Chemical Engineering Laboratory I**

Heat and momentum transfer operations associated with chemical processes. These include heat exchangers, fluid properties, and fluid flow. Technical report writing, computer calculations. **Prerequisite(s):** CHE 312.

CHE 382 2 hrs.**Chemical Engineering Laboratory II**

Heat momentum and mass transfer operations associated with chemical processes; these include distillation columns, reactors, humidifiers, and evaporators. **Prerequisite(s):** CHE 381 and concurrent registration in CHE 313.

CHE 392 1–3 hrs.**Undergraduate Research**

Undergraduate research project in any area of Chemical Engineering. Projects may be theoretical, experimental, or literature surveys. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

CHE 396 4 hrs.**Senior Design I**

Introduction to modern process design and development, engineering economics, and report writing. Design and cost of equipment relating to materials handling to heat transfer, mass transfer, and reactors. **Prerequisite(s):** CHE 312 and CHE 313 and CHE 321.

CHE 397 3 hrs.**Senior Design II**

Application of principles and design methodology of chemical engineering to the design of large-scale chemical processes and plants. A major design project is assigned for solution and presentation by students working in small groups. **Prerequisite(s):** CHE 396.

CHE 410 3 OR 4 hrs.**Transport Phenomena**

Continuum theory of momentum, energy, and mass transfer. Viscous behavior of fluids. Laminar and turbulent flow. Thermal conduction and convection, diffusion and coupled operations. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHE 312 or consent of the instructor.

CHE 413 3 OR 4 hrs.**Introduction to Flow in Porous Media**

Theoretical modeling of single-phase and multiphase flow in porous media. Darcy's law and relative permeabilities. Oil production and hydrology. Capillary phenomena. Dispersion and miscible displacement. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHE 312 or consent of the instructor.

CHE 421 3 OR 4 hrs.**Combustion Engineering**

Combustion chemistry and thermochemistry. Kinetics and mechanism of combustion; ignition and pollutant formation. Detonation and deflagration; premixed and diffusion flames. Surface reaction and droplet combustion. Applications. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHE 301 and CHE 321.

CHE 422 3 OR 4 hrs.**Biochemical Engineering**

Enzyme-catalyzed and microbially-mediated processes. Free and immobilized enzymes. Batch and continuous cell cultures. Transport phenomena in microbial systems and fermentation processes. Design of biological reactors. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Consent of the instructor.

CHE 423 3 OR 4 hrs.
Catalytic Reaction Engineering

Catalytic reactions which occur under conditions for which heat and mass transfer cannot be neglected are considered. Includes porosimetry, surface area measurements and catalyst deactivation. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHE 321 or consent of the instructor.

CHE 431 3 OR 4 hrs.
Numerical Methods in Chemical Engineering

Introduction to the application of numerical methods to the solution of complex and often nonlinear mathematical problems in chemical engineering. Includes methods for the solution of problems arising in phase and chemical reaction equilibria, chemical kinetics, and transport. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Graduate or advanced undergraduate standing.

CHE 438 3 OR 4 hrs.
Computational Molecular Modeling

Provide students with a fundamental understanding of the methods, capabilities and limitations of molecular simulations. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** CHE 301. **Recommended background:** Engineering/Science.

CHE 440 3 OR 4 hrs.
Non-Newtonian Fluids

Fluid mechanics and transport processes involving non-Newtonian fluids. Purely viscous and viscoelastic behavior. Viscometric functions and rheometry. Heat and mass transfer in non-Newtonian fluids. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHE 410 or consent of the instructor.

CHE 441 3 OR 4 hrs.
Computer Applications in Chemical Engineering

Nonnumerical applications of computers: artificial intelligence and expert systems for chemical engineering design and online diagnosis; data acquisition and control for digital process control; process design calculations. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Senior standing in Chemical Engineering.

CHE 445 3 OR 4 hrs.
Mathematical Methods in Chemical Engineering

Advanced mathematical techniques in chemical engineering. Includes infinite series in thermodynamic perturbation theory; Laplace transforms in process control; chemical diffusion transport theories and differential equations. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** MATH 220 or the equivalent.

CHE 450 4 hrs.
Air Pollution Engineering

Environmental aspects of combustion processes, pollutant formation. Control of pollutants and particulates. Air quality con-

trol. Fundamentals of combustion. Same as ME 450. **Prerequisite(s):** ME 321 or consent of the instructor.

CHE 456 3 OR 4 hrs.
Fundamentals and Design of Microelectronics Processes

Design and practical aspects of the most advanced state of micro- and nanoelectronics processing with emphasis on thin film deposition, substrate passivation, lithography and etching with thermodynamics, kinetics, reactor design, and optimization. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** Graduate standing or consent of the instructor. **Recommended background:** Engineering/Science.

CHE 494 1-4 hrs.
Selected Topics in Chemical Engineering

Systematic study of selected topics in chemical engineering theory and practice. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

CHE 499 0 hrs.
Professional Development Seminar

Students are provided general information about their roles as UIC Chemical Engineering alumni in society and the role of the University in their future careers. Students provide evaluations of their educational experience in the Department of Chemical Engineering. Satisfactory/Unsatisfactory grading only. **Prerequisite(s):** Open only to seniors; and approval of the department. Must be taken in the student's last semester of study.

Chemistry**CHEM 100 5 hrs.**
Chemistry and Life

Principles of structural and environmental chemistry underlying the phenomenon of life on Earth, discussed in a historical, cultural, and philosophical framework. Includes weekly two-hour laboratory. *Natural World—With Lab course.*

CHEM 101 4 hrs.
Preparatory Chemistry

Emphasis on problem solving. Metric units, dimensional analysis, chemical nomenclature, the mole concept, chemical stoichiometry. For students without entrance credit in high school chemistry or inadequately prepared. **Prerequisite(s):** Adequate performance on the UIC chemistry placement examination.

CHEM 102 4 hrs.
Preparatory Chemistry with Cooperative Intermediate Algebra

Metric units, dimensional analysis, the mole concept, chemical stoichiometry and nomenclature, chemical equilibria. Equivalent to CHEM 101, but with particular

emphasis on the mathematics required for success in the study of chemistry. Not open to students with credit in CHEM 101 or MATH 090. For students without entrance credit in high school chemistry or inadequately prepared. Recommended in place of CHEM 101 for students concurrently taking intermediate algebra. **Prerequisite(s):** Adequate performance in the UIC chemistry placement examination. Must enroll concurrently in MATH 092.

CHEM 112 5 hrs.
General College Chemistry I

Topics in general chemistry, including stoichiometry, periodicity, reaction types, the gaseous state, solution stoichiometry, chemical equilibria, acid-base equilibria, dissolution-precipitation equilibria. Includes a weekly 3-hour laboratory. Credit is not given for CHEM 112 if the student has credit for CHEM 116.

Prerequisite(s): Grade of C or better in CHEM 101 or adequate performance on the UIC chemistry placement examination. Students with credit in a course equivalent to CHEM 101 from another institution must take the UIC chemistry placement examination. *Natural World—With Lab course.*

CHEM 114 5 hrs.
General College Chemistry II

Topics in general chemistry, including phase transitions, thermochemistry, spontaneity/equilibrium, electrochemistry, kinetics, bonding, order/symmetry in condensed phases, coordination compounds, descriptive chemistry. Includes a weekly 3-hour laboratory. Credit is not given for CHEM 114 if the student has credit for CHEM 118.

Prerequisite(s): Grade of C or better in CHEM 112 or the equivalent. Students with an equivalent course from another institution must take the chemistry placement examination. *Natural World—With Lab course.*

CHEM 116 5 hrs.
Honors General Chemistry I

Primarily for students in chemistry, chemical engineering, and physics curricula. First of a two-semester sequence covering the same topics as CHEM 112 in greater depth. Includes a weekly three-hour laboratory. Credit is not given for CHEM 116 if the student has credit for CHEM 112. **Prerequisite(s):** Superior performance on the UIC chemistry placement examination. *Natural World—With Lab course.*

CHEM 118 5 hrs.
Honors General Chemistry II

Primarily for students in chemistry, chemical engineering, and physics curricula. Second of a two-semester sequence covering the same topics as CHEM 114 in greater depth. Includes a weekly three-hour laboratory. Credit is not given for CHEM 118 if the student has credit for CHEM 114. **Prerequisite(s):** Grade of C or better in CHEM 116. *Natural World—With Lab course.*

CHEM 130 5 hrs.
Survey of Organic and Biochemistry

Chemistry of classes of carbon compounds relevant to life sciences, and an introduction to the structure and metabolism of proteins, nucleic acids, lipids, and carbohydrates. **Prerequisite(s):** Grade of C or better in CHEM 112 or the equivalent. *Natural World—With Lab course.*

CHEM 201 1 hour.
Elements of Glass Blowing

Demonstrations and practice in glass blowing and the construction of simple laboratory equipment. **Prerequisite(s):** Senior standing in chemistry and consent of the instructor.

CHEM 222 4 hrs.
Analytical Chemistry

Theory and application of chemical equilibria and instrumentation in quantitative analysis. Includes two weekly three-hour laboratories. **Prerequisite(s):** Grade of C or better in CHEM 114 or grade of C or better in CHEM 118 or the equivalent.

CHEM 232 4 hrs.
Organic Chemistry I

First semester of a one-year sequence. Structure, reactivity, and synthesis of organic molecules. **Prerequisite(s):** Grade of C or better in CHEM 114 or grade of C or better in CHEM 118. **Recommended background:** Concurrent registration in CHEM 233.

CHEM 233 1 hour.
Organic Chemistry Laboratory I

Introductory organic chemistry laboratory. Basic organic techniques (distillation, crystallization), reactions (esterification, oxidation, addition, substitution, elimination), instruments (gas and liquid chromatography). **Prerequisite(s):** Credit or concurrent registration in CHEM 232.

CHEM 234 4 hrs.
Organic Chemistry II

Continuation of CHEM 232. **Prerequisite(s):** Grade of C or better in CHEM 232.

CHEM 305 3 hrs.
Environmental Chemistry

The chemistry of the environment and the consequences of pollution brought about by natural and synthetic materials and modern energy usage. **Prerequisite(s):** CHEM 234.

CHEM 314 4 hrs.
Inorganic Chemistry

Chemistry of the main-group elements, coordination chemistry and the transition elements, bioinorganic chemistry. Includes a weekly laboratory. **Prerequisite(s):** Grade of C or better in CHEM 232 and grade of C or better in CHEM 233.

CHEM 333 3 hrs.**Advanced Synthetic Laboratory**

Advanced organic chemistry laboratory. Synthesis, stereochemistry, spectrometry (IR, NMR), organic analytical chemistry (TLC, HPLC), microscale techniques. Design of multistep synthesis and alchemistic studies. Previously listed as CHEM 235. **Prerequisite(s):** Grade of C or better in CHEM 233 and credit or concurrent registration in CHEM 234.

CHEM 340 3 hrs.
Physical Chemistry for Biochemists I

Thermodynamics of gases, solutions, reaction equilibria, and phase transitions. Credit is not given for CHEM 340 if the student has credit for CHEM 342. **Prerequisite(s):** Grade of C or better in MATH 181 and grade of C or better in CHEM 114; and grade of C or better in PHYS 107 or grade of C or better in PHYS 142.

CHEM 342 3 hrs.
Physical Chemistry I

Thermodynamics of gases, solutions, reaction equilibria, and phase transitions. Credit is not given for CHEM 342 if the student has credit for CHEM 340. **Prerequisite(s):** Grade of C or better in MATH 181; and grade of C or better in PHYS 142; C or better in or concurrent registration in MATH 210.

CHEM 343 3 hrs.
Physical Chemistry Laboratory

Experiments demonstrating principles of thermodynamics, reaction kinetics, spectroscopy, and quantum mechanics in chemical systems using modern instrumentation and methods of data analysis. **Prerequisite(s):** Grade of C or better in CHEM 340 or grade of C or better in CHEM 342.

CHEM 344 3 hrs.
Physical Chemistry for Biochemists II

Introduction to quantum mechanics and spectroscopy with applications of principles of physical chemistry to biochemical systems and macromolecules. Intended as a substitute for Chemistry 346. Credit is not given for CHEM 344 if the student has credit for CHEM 346. **Prerequisite(s):** Grade of C or better in CHEM 340 or grade of C or better in CHEM 342.

CHEM 346 3 hrs.
Physical Chemistry II

Kinetic and molecular theory of gases; introduction to the principles of quantum mechanics with application to model systems, multielectron atoms, diatomic molecules, and bonding. Credit is not given for CHEM 346 if the student has credit for CHEM 344. **Prerequisite(s):** Grade of C or better in CHEM 342 and grade of C or better in MATH 210.

CHEM 352 3 hrs.

Introductory Biochemistry Structure and function of cellular constituents; enzymology; metabolism of carbohydrates, lipids, amino acids, nucleotides; molecular biology of biosynthesis of proteins and nucleic acids. **Same as BIOS 352.** No credit toward the Biological Sciences major for students completing BIOS 452 and/or BIOS 454. No credit toward the degree in Biochemistry. **Prerequisite(s):** BIOS 100 and CHEM 232.

CHEM 402 2 hrs.
Chemical Information Systems

Introduction to chemical information, including the use of databases for searching chemical information and the use of molecular modeling and related computational systems to determine calculated properties of chemical substances. Previously listed as CHEM 302. **Prerequisite(s):** Grade of C or better in CHEM 234 or consent of the instructor.

CHEM 414 2 OR 3 hrs.
Advanced Inorganic Chemistry

Introduction to the principles of inorganic chemistry. Structural and descriptive chemistry of the main-group elements. 2 undergraduate hrs. 3 graduate hrs. **Prerequisite(s):** Grade of C or better in CHEM 314; and grade of C or better in CHEM 340 or grade of C or better in CHEM 342; or consent of the instructor.

CHEM 415 0–4 hrs.
Inorganic Chemistry Laboratory

Advanced inorganic chemistry laboratory. Preparative methods, Schlenk techniques, dry box, Fourier-transform infrared and UV-visible spectroscopy, crystal growth. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Grade of C or better in CHEM 314.

CHEM 416 3 OR 4 hrs.
Inorganic Chemistry II

Structural and descriptive chemistry of the transition elements. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHEM 414.

CHEM 421 4 hrs.
Instrumental Analysis

A survey of contemporary instrumentation for chemical analysis. Emphasis on fundamentals of instrumental methods with actual experience on typical equipment. Includes two weekly three-hour laboratories. **Prerequisite(s):** Grade of C or better in CHEM 222; and grade of C or better in CHEM 340 or grade of C or better in CHEM 342.

CHEM 432 2 OR 3 hrs.
Advanced Organic Chemistry

Rigorous treatment of the principles upon which modern organic chemistry is developed. 2 undergraduate hrs. 3 graduate hrs. **Prerequisite(s):** Grade of C or better in CHEM 333; and grade of C or better in CHEM 340 or grade of C or better in CHEM 342.

CHEM 444 2 OR 3 hrs.

Advanced Physical Chemistry Application of quantum mechanics to molecular spectroscopy, statistical mechanics, and activated complex theory. 2 undergraduate hrs. 3 graduate hrs. **Prerequisite(s):** Grade of C or better in CHEM 346.

CHEM 448 3 OR 4 hrs.
Statistical Thermodynamics

Introduction to statistical mechanics, partition functions, chemical equilibrium, ensembles, fluctuations, real gases, Einstein and Debye models of solids, magnetic materials, electrolytes, introduction to liquids. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CHEM 346.

CHEM 452 4 hrs.
Biochemistry I

Chemistry of proteins, nucleic acids, carbohydrates, and lipids. **Same as BIOS 452.** **Prerequisite(s):** Credit or concurrent registration in CHEM 234.

CHEM 454 4 hrs.
Biochemistry II

Continues Chemistry 452. Carbohydrate and lipid metabolism, electron transport. Metabolism of amino acids, nucleic acids, proteins. Biosynthesis of macromolecules and regulation of macromolecular synthesis. **Same as BIOS 454.** **Prerequisite(s):** BIOS 452 or CHEM 452.

CHEM 455 3 hrs.
Biochemistry Laboratory

Introduction to modern biochemistry and molecular biology research. Includes recombinant DNA techniques, protein purification, site-directed mutagenesis, polymerase chain reaction, enzyme kinetics, protein structure data analysis, and molecular graphics. **Prerequisite(s):** CHEM 222 and CHEM 452.

CHEM 456 3 OR 4 hrs.
Natural Products

Biogenetic approach to secondary metabolites. General principles and selected studies of phenolic compounds, terpenes, alkaloids, and other interesting natural products. **Same as BIOS 416.** 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** One year of organic chemistry.

CHEM 470 6 hrs.
Educational Practice with Seminar I

The first half of a two-segment sequence of practice teaching, including seminar, to meet certification requirements for teaching in grades six through twelve. Graduate credit only with approval of the department. **Prerequisite(s):** Good academic standing in a teacher education program, completion of 100 clock hours of pre-student-teaching field experiences, and approval of the department.

CHEM 471 6 hrs.**Educational Practice with Seminar II**

The second half of a two-segment sequence of practice teaching, including seminar, to meet certification requirements for teaching in grades six through twelve. Graduate credit only with approval of the department. **Prerequisite(s):** Good academic standing in a teacher education program, completion of 100 clock hours of pre-student-teaching field experiences, credit or concurrent registration in CHEM 470, and approval of the department.

CHEM 472 2 OR 3 hrs.
Teaching Methods in Chemistry

A course in the methods of teaching high school chemistry, including the integration of technology. 2 undergraduate hrs. 3 graduate hrs. Extensive computer use required. **Prerequisite(s):** 24 semester hours of undergraduate chemistry, including two semesters of laboratory chemistry. **Recommended background:** ED 210.

CHEM 474 1 hour.
Teaching Chemistry in High Schools

Modern ways to help beginning learners construct in their own minds an understanding of scientific concepts and scientific method. Emphasis on the concepts of chemistry. Satisfactory/Unsatisfactory grading only. May be repeated. **Prerequisite(s):** Approval of the department.

CHEM 488 1 hour.
Cooperative Chemistry Practice

Off-campus participation in a governmental or industrial training program. Credit is contingent on the submission of a final report. Satisfactory/Unsatisfactory grading only. May be repeated. A maximum of 6 hours of CHEM 488, CHEM 492, and CHEM 499 combined may be credited toward departmental undergraduate degree course requirements. **Prerequisite(s):** Concurrent registration in LAS 289 or consent of the instructor.

CHEM 492 1–2 hrs.
Independent Study

Individual study under supervision of a faculty member in areas not covered in standard courses. Credit is contingent on the submission of a final report. Satisfactory/Unsatisfactory grading only. May be repeated. A maximum of 6 hours of CHEM 488, CHEM 492 and CHEM 499 combined may be credited toward departmental undergraduate degree course requirements. **Prerequisite(s):** 2.50 grade point average in science courses and consent of the instructor.

CHEM 494 1–4 hrs.
Special Topics in Chemistry

Course content is announced prior to each term in which the course is given. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Approval of the department.

CHEM 499 3 hrs.

Supervised Research
Individual research performed under supervision of a faculty member. Credit is contingent on the submission of a final report. Research experience is strongly encouraged for career students. Satisfactory/Unsatisfactory grading only. May be repeated to a maximum of 6 hrs. A maximum of 6 hours of CHEM 488, CHEM 492, and CHEM 499 combined may be credited toward departmental undergraduate degree course requirements. **Prerequisite(s):** Junior standing or above, approval of the department, consent of the instructor, and a grade point average of 2.50 in science courses; or graduate standing. **Recommended background:** Credit in CHEM 333 or CHEM 314.

Chinese**CHIN 101 4 hrs.**
Elementary Chinese I

Basic grammar; sentence patterns; vocabulary study; reading and writing with Chinese characters; simple oral practice. Four additional half hours each week in the language laboratory.

CHIN 102 4 hrs.
Elementary Chinese II

Continuation of Chinese 101. Four additional half hours each week in the language laboratory. **Prerequisite(s):** CHIN 101 or the equivalent.

CHIN 103 4 hrs.
Intermediate Chinese I

Advanced grammar; sentence patterns; vocabulary study; reading and writing with Chinese characters; conversation and dialogues. Four additional half hours each week in the language laboratory. **Prerequisite(s):** CHIN 102 or the equivalent.

CHIN 104 4 hrs.
Intermediate Chinese II

Continuation of Chinese 103. Four additional half hours each week in the language laboratory. **Prerequisite(s):** CHIN 103 or the equivalent.

CHIN 111 4 hrs.
Chinese for Students from Chinese Background I

Principal emphasis is on writing and reading for students who have some knowledge of Mandarin or other Chinese dialect. Credit is not given for CHIN 111 if student has credit in CHIN 101 or CHIN 102. Requires two additional hours each week in the language laboratory. **Prerequisite(s):** Appropriate score on the department placement test. **Recommended background:** Familiarity with a Chinese dialect (speaking and listening).

CHIN 112 4 hrs.
Chinese for Students from Chinese Background II

Principal emphasis is on writing and reading. For students who have some knowledge of Mandarin or other Chinese dia-

lect. No credit given for CHIN 112 if the student has credit in CHIN 103 or CHIN 104. Requires two additional hours each week in the language laboratory. **Prerequisite(s):** Grade of C or better in CHIN 111; or appropriate score on the department placement test.

Recommended background: Familiarity with a Chinese dialect (speaking and listening).

CHIN 196 1-4 hrs.
Independent Study

Individual study under faculty direction for qualified students with special interests and needs. May be repeated to a maximum of 8 hrs. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

CHIN 296 1-4 hrs.
Independent Study

Individual study under faculty direction for qualified students at the intermediate level who have special interests and needs. May be repeated to a maximum of 8 hrs. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

Civil and Materials Engineering**CME 201 3 hrs.**
Statics

Analysis of forces, equilibrium of two- and three-dimensional structures, frames, and machines. Friction, centroids, virtual work, and energy. **Prerequisite(s):** MATH 181 and PHYS 141.

CME 203 3 hrs.
Strength of Materials

Relationships between the stresses and strains within a deformable body. Axially loaded members, torsion, and the bending of bars. Stress transformation equations. Column theory. **Prerequisite(s):** CME 201 and MATH 210.

CME 205 3 hrs.
Structural Analysis I

Analysis of trusses, beams, and frames. Classical methods and analysis with microcomputers. Displacements, shear and bending moments, influence lines. **Prerequisite(s):** CME 203.

CME 211 3 hrs.
Fluid Mechanics and Hydraulics

Covers the basic fluid mechanics topics of statics and kinematics, with emphasis on civil engineering aspects of open channel hydraulics and pipe flow. **Prerequisite(s):** CME 201.

CME 215 3 hrs.

Hydraulics and Hydrology
Hydraulics of pipe flow, open channel flow, and hydraulic machinery. Ground water and surface water hydrology. **Prerequisite(s):** ME 211.

CME 216 3 hrs.

Introduction to Environmental Engineering
Environmental engineering and design for water and waste prob-

lems. Interactive effects of man-made projects on resources and the environment. **Prerequisite(s):** CHEM 112; and credit or concurrent registration in CME 211.

CME 260 3 hrs.

Properties of Materials
Introduction to the relationships between composition and microstructure; correlation with physical and mechanical behavior of metals, ceramics, and polymers. Manufacturing methods. Service performance. Materials selection. Credit is not given for CME 260 if the student has credit for CME 261. **Prerequisite(s):** CHEM 112 and MATH 181 and PHYS 141.

CME 261 2 hrs.

Materials for Manufacturing
Introductory-level course in materials engineering to familiarize students with relationships between processing, structure, and properties of materials used to manufacture devices. **Same as** ME 261. Credit is not given for CME 261/ME 261 if the student has credit for CME 260. **Prerequisite(s):** CHEM 112, MATH 181, and PHYS 141.

CME 300 2 hrs.
Composition and Properties of Concrete

Properties and types of cements and aggregates, hydration, mix design, properties of fresh and hardened concrete. **Prerequisite(s):** Credit or concurrent registration in CME 203.

CME 301 3 hrs.
Behavior and Design of Metal Structures

Design of metal structures, behavior of members and their connections, theoretical, experimental, and practical basis for proportioning members. **Prerequisite(s):** CME 205.

CME 302 3 hrs.

Transportation Engineering
Fundamentals of transportation engineering. Design, operations and planning of transportation systems of various technologies, emphasizing road and public transit. Extensive computer use required. Field trips and computer laboratory required. **Prerequisite(s):** ME 210; and CS 107 or CS 108.

CME 310 3 hrs.

Design of Reinforced Concrete Structures
Analysis and design of reinforced concrete structural elements: beams, slabs, columns, and foundations. Use of current ACI 318 building code. **Prerequisite(s):** CME 205 and credit or concurrent registration in CME 300.

CME 311 3 hrs.

Water Resources Engineering
Groundwater hydrogeology and transport; surface water transport and modeling from an engineering perspective. Laboratory covers ground and surface water transport and pump hydraulics. Extensive computer use required. **Prerequisite(s):** CME 211.

CME 315 4 hrs.**Soil Mechanics and Laboratory**

Soil formation, phase relationships, index properties and soil classification, soil composition, soil compaction, water in soils, stresses in soils, consolidation, shear strength, soils laboratory. **Prerequisite(s):** CME 203 and CME 211.

CME 359 3 hrs.**Mechanical Vibrations**

Free and forced vibrations of damped linear single and multiple degree of freedom systems. Approximate methods, instrumentation, and applications. **Same as** ME 308. **Prerequisite(s):** ME 210 and MATH 220.

CME 392 1-3 hrs.**Undergraduate Research**

Research and in-depth study of a subject of interest under the close supervision of a faculty member. A report is required. **Prerequisite(s):** Senior standing.

CME 394 1-3 hrs.**Undergraduate Seminar**

Students conduct an in-depth study of areas of engineering of special interest to them which will be presented to the class in a seminar format. **Prerequisite(s):** Senior standing.

CME 396 3 hrs.**Senior Design I**

Introduction to design process and methodologies. Aspects of deterministic and probabilistic design. Optimization theory and methods in design. Preparation of senior design projects. Students are required to take Fundamentals of Engineering Examination (FE exam) before graduation. **Prerequisite(s):** Senior standing.

CME 397 3 hrs.**Senior Design II**

Application of principles of engineering and design methods to the solution of a large-scale design program. Communicating design solutions through verbal and written media. **Prerequisite(s):** CME 396.

CME 400 3 OR 4 hrs.**Advanced Design of Reinforced Concrete Structures**

Design of reinforced concrete building structures, including design for lateral loads due to wind, structural systems for reinforced concrete buildings, shear walls, and design for seismic forces. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 310 or the equivalent.

CME 401 3 OR 4 hrs.**Advanced Design of Metal Structures**

Plate girders; unsymmetrical bending; torsion of thin-walled structures; lateral-torsional instability; composite construction. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 301.

CME 402 3 OR 4 hrs.
Geometric Design of Highway Facilities
 Elements of geometric design. Driver, vehicle, and roadway system characteristics. Horizontal and vertical alignment design. Intersection design and operation. Capacity and level of service. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 302.

CME 403 3 OR 4 hrs.
Hydraulic Design
 Groundwater hydraulics, movement, recharge, and well design; migration and drainage; design of dams, spillways, and turbines; wave and coastal engineering design. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 311.

CME 405 3–4 hrs.
Foundation Analysis and Design
 Site characterization; analysis and design of shallow foundations, deep foundations, and earth retaining structures; foundations on difficult soils; effects of construction; instrumentation and monitoring. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 315.

CME 406 3 OR 4 hrs.
Bridge Design
 Theory and design procedures related to the analysis and design of modern bridges. Using the AASHTO Code, includes concrete and steel structures, construction practices, and procedures. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 301 and CME 310.

CME 407 3 OR 4 hrs.
Soil and Site Improvement Methods
 Compaction, preloading, vertical drains, grouting, admixture stabilization, thermal stabilization, soil reinforcement, geosynthetics; construction of embankments on soft clay, embankments on mechanically stabilized earth walls, hydraulic barriers; case studies. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 315.

CME 408 3 OR 4 hrs.
Traffic Engineering and Design
 Highway traffic control with an emphasis on highway capacity analysis and traffic signal design. Queuing theory, traffic flow theory, corridor management, and traffic safety. 3 Undergraduate hrs. 4 Graduate hrs. Extensive computer use required. Fieldwork required. **Prerequisite(s):** CME 302 or consent of the instructor.

CME 409 3 OR 4 hrs.
Structural Analysis II
 Approximate analysis of structures, including trusses and multistory frames. Influence lines, cables, and arches. Principles of limit analysis for structures and structural elements. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 205 or consent of the instructor.

CME 410 3 OR 4 hrs.
Design of Prestressed Concrete Structures
 Principles of prestressed concrete. Analysis and design of statically determinate prestressed concrete members. Introduction to design and detailing of connections. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 310.

CME 411 3 hrs.
Chemistry for Environmental Professionals
 Introductory atmospheric chemistry, aspects of air pollution, chemistry related to natural water and water treatment; priority organic pollutants and heavy metals. **Same as** EOHS 440. **Prerequisite(s):** One year of college chemistry.

CME 415 3 OR 4 hrs.
Environmental Geotechnology
 Environmental laws and regulations, sources and types of waste materials, waste materials in geotechnical engineering applications, geotechnical management of municipal, industrial, mine, and nuclear wastes. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 315.

CME 419 3 hrs.
Air Quality Management I
 Sources, control, dispersion, and effects upon receptors of air pollution; health and other adverse effects, meteorology and dispersion estimation, photochemistry, aerosol characterization. **Same as** EOHS 431. **Prerequisite(s):** EOHS 405 or CME 216 or consent of instructor.

CME 420 0–4 hrs.
Water and Wastewater Analysis Laboratory
 Laboratory class for environmental engineering. Analysis of water, wastewater and soil for nutrients, pollutants, physical parameters and biological parameters. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 216; or graduate standing.

CME 421 3 OR 4 hrs.
Water Treatment Design
 Water quality control systems. Physical-chemical unit processes applied to systems designed for treatment of municipal and industrial waters. 3 undergraduate hrs. 4 graduate hrs. Field trip required at nominal fee. **Prerequisite(s):** CME 216.

CME 422 3 OR 4 hrs.
Wastewater Treatment Design
 Processes involved in the biological treatment of wastewater. Aerobic and anaerobic treatment, sludge stabilization, and nutrient removal. 3 undergraduate hrs. 4 graduate hrs. Field trip required. **Prerequisite(s):** CME 216 or the equivalent.

CME 423 3 hrs.
Management of Solid and Hazardous Wastes
 Management of solid and hazardous waste, including radioactive waste: landfills, incineration, recycling, composting, source

reduction, groundwater and air pollution impacts, control, regulations, siting, health impacts. **Same as** EOHS 472 and GEOG 444.

CME 425 3 OR 4 hrs.
Environmental Remediation Engineering
 Sources of contamination, regulations, site characterization, impact assessment, waste disposal and containment options, waste treatment options, case studies. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 315.

CME 427 3 OR 4 hrs.
Engineering Hydrology
 Processes, techniques, and concepts in hydrology of interest to the engineer: precipitation, interception, evaporation, groundwater, unit hydrographs, flood routing, and statistics. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 215.

CME 430 3 OR 4 hrs.
Theory of Elasticity I
 The boundary value problems of linear elasticity. Uniqueness of solution. Reduction to two dimensions: the plane problems, torsion, bending. Polar coordinates, and general orthogonal coordinates. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 204 and MATH 481 or the equivalents.

CME 431 3 OR 4 hrs.
Introduction to Continuum Mechanics
 Vectors and tensors, stress, principal stresses and principal axes, deformation, compatibility conditions, constitutive equations, isotropy and mechanical properties of fluids and solids. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 203 and CME 211; or CME 203 and ME 211.

CME 432 3 OR 4 hrs.
Energy Methods in Mechanics
 Variational theorems of elasticity. Applications to establish approximate systems and their solution. Beams (including shear deformation). Introduction to instability theory. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 205.

CME 433 3 OR 4 hrs.
Fracture Mechanics and Failure Analysis I
 Classical theory of strength of materials. Fracture mechanisms maps. Continuum damage mechanics. Introduction to fracture mechanics. Singular problems of elasticity. Stress intensity. Energy release rates. Irwin-Orowan, Barenblatt-Dugdale theories. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 430.

CME 434 3 OR 4 hrs.
Finite Element Analysis I
 Establishment of basic finite element, matrix relations for one-dimensional heat conduction problems: Truss, beam, and frame structural systems. Solution methods of the resulting equa-

tions. Introduction to two-dimensional analysis. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 205 or ME 401 and CS 108.

CME 435 3 OR 4 hrs.
Theory of Vibrations I
 Analytical and numerical treatment of linear, discrete systems. Nonlinear discrete systems. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 200 or the equivalent and MATH 220.

CME 450 3 OR 4 hrs.
Probability and Reliability in Structural Design
 Maximum uncertainty principle and probability distributions of random variables. Distributions of extremes and their applications. Statistics of failure. The weakest link theory. Time to failure. Structural reliability. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Consent of the instructor.

CME 453 0–4 hrs.
Experimental Stress Analysis
 Structural similitude and dimensional analysis. Strain measurement techniques. Introduction to photoelasticity. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 430.

CME 454 3 OR 4 hrs.
Structural Analysis and Design of Tall Buildings
 State-of-the-art introduction to structural analysis and design of tall buildings. Load impact on different structural systems. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 401 or CME 409 or the equivalent, or consent of the instructor. **Recommended background:** Major structural analysis and design courses.

CME 460 4 hrs.
Crystallography and X-Ray Diffraction
 Fundamentals of crystallography. Theory of X-ray diffraction, experimental methods and applications. **Prerequisite(s):** CME 260.

CME 470 4 hrs.
Physical and Mechanical Properties of Materials
 Basic metallurgical phenomena; kinetics and phase stability; diffusion and transformation rates. Mechanical properties of materials; creep; fatigue and fracture. **Prerequisite(s):** CME 260.

CME 471 0–4 hrs.
Thermodynamics of Materials
 Application of chemical and thermodynamic principles to processing and characterization of materials. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CME 260.

CME 480 4 hrs.
Welding Metallurgy
 Metallurgy of metals joining processes. Selection of processes and design of products manufactured by joining processes. **Prerequisite(s):** CME 260.

CME 493 1–3 hrs.
Seminar
Topics of mutual interest to a faculty and a group of students. Offered as announced in the *Schedule of Classes*.

CME 494 1–4 hrs.
Special Topics in Civil Engineering, Mechanics, and Materials
Subject matter varies from section to section and from semester to semester, depending on the specialities of the instructor. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Consent of the instructor.

CME 496 1–4 hrs.
Special Problems
Special problems or reading by special arrangement with a faculty member. **Prerequisite(s):** Consent of the instructor.

Classics

CL 100 3 hrs.
Greek Civilization
An introduction to the life, society, and culture of the ancient Greeks. All readings are in English. *Creative Arts, and Past course.*

CL 101 3 hrs.
Roman Civilization
An introduction to the life, society, and culture of the ancient Romans. All readings are in English. *Past course.*

CL 102 3 hrs.
Introduction to Classical Literature
The main literary forms of Classical Antiquity: epic, tragedy, comedy, the philosophical dialogue, history. All readings are in English. *Creative Arts, and Past course.*

CL 103 3 hrs.
Introduction to Classical and Mediterranean Archaeology
Contributions of archaeological excavations to the study of ancient Greece, Rome, Egypt, and the Near East; architecture, painting, and sculpture in their social and historical contexts. All readings are in English. *Creative Arts, and Past course.*

CL 104 3 hrs.
Mediterranean Traditions: Family, Society, and the Divine
Designed as an introduction to the varieties of cultural, social, and religious traditions that collectively constitute Western civilization's foundations. *Past, and World Cultures course.*

CL 120 3 hrs.
Introduction to Ancient Philosophy
Introduction to issues and methods of philosophy through engagement with classic Greek and Roman texts (read in translation). **Same as** PHIL 120. *Individual and Society, and Past course.*

CL 124 3 hrs.
Hebrew Bible
A study of the Five Books of Moses (a.k.a. Torah or Pentateuch) within the contexts of the ancient Near East and biblical literature. **Same as** JST 124 and RELS 124. Taught in English. *Past course.*

CL 201 3 hrs.
Classical Etymology in the Life Sciences
The structure and formation of technical terms used in the health sciences, based on roots and elements from Greek and Latin. **Same as** LING 201. **Prerequisite(s):** Any 100-level biological sciences sequence.

CL 202 3 hrs.
The Ancient World: Greece
Greece from the Mycenaean through the Hellenistic periods; political, social, economic, and religious life of the Greek city-state and the Hellenistic kingdoms. **Same as** HIST 202. *Past course.*

CL 203 3 hrs.
The Ancient World: Rome
Rome from its origins to the end of the Roman Empire; emphasis on transformation of Rome from city-state to world empire, with attention to social, cultural, and economic background. **Same as** HIST 203. *Past course.*

CL 204 3 hrs.
Greek Art and Archaeology
Contributions of archaeological excavations to the study of ancient Greece, 600 BC to 31 BC. Architecture, sculpture, and painting in their social and historical contexts. **Same as** AH 204 and HIST 204. Credit is not given for CL 204 if the student has credit in CL 215. Taught in English. *Creative Arts, and Past course.*

CL 205 3 hrs.
Roman Art and Archaeology
Contributions of archaeological excavations to the study of ancient Rome and her empire 1000 BC–400 AD. Architecture, sculpture and painting in their social and historical contexts. **Same as** AH 205 and HIST 205. *Creative Arts, and Past course.*

CL 208 3 hrs.
Greek Mythology
Intensive study of the gods and heroic sagas of the Greeks through original sources in translation. All readings are in English. **Prerequisite(s):** CL 100 or CL 102 or CL 103 or the equivalent. *Individual and Society, and Past course.*

CL 211 3 hrs.
Gender and Sexual Orientation in Greek and Roman Literature
Ancient perceptions of gender roles and sexual orientation as they appear in the major authors of Greece and Rome. **Same as** GWS 211. **Prerequisite(s):** Sophomore standing or above. **Recommended background:** CL 102.

CL 215 3 hrs.
Greek Art in Greece
Historical, social, and religious background of Greek art. The course will be problem oriented. Questions will focus on the relationship between society, art, and religion. Taught in Greece, most museums in Athens area will be visited. Taught in English. Taught through Study Abroad. Credit is not given for CL 215 in the student has credit in CL 204. **Prerequisite(s):** Approval of the department.

CL 216 3 hrs.
Sacred Landscapes
Study of Greek religion with on-site visits to the major sanctuaries of Greece. Emphasis will be placed on the religious origins of drama and the establishment of Athenian cult. Taught in English. Taught through Study Abroad. **Prerequisite(s):** Approval of the department.

CL 220 3 hrs.
Ancient Philosophy I: Plato and His Predecessors
Introduction to Plato and his predecessors in the ancient period. **Same as** PHIL 220. It is recommended that PHIL 220/CL 220 and PHIL 221/CL 221 be taken as a sequence in successive terms. **Prerequisite(s):** One course in philosophy or consent of the instructor.

CL 221 3 hrs.
Ancient Philosophy II: Aristotle and His Successors
Introduction to Aristotle and his successors in the ancient period. **Same as** PHIL 221. It is recommended that PHIL 220/CL 220 and PHIL 221/CL 221 be taken as a sequence in successive terms. **Prerequisite(s):** One course in philosophy or consent of the instructor.

CL 225 3 hrs.
Topics in Muslim-Jewish Relations
Muslim-Jewish interactions from the rise of Islam until contemporary times, the relationship between Biblical and Quranic materials, the Jewish and Islamic interpretive tradition, and the legal systems of the two religious traditions. **Same as** JST 225 and RELS 225.

CL 235 3 hrs.
Introduction to Jewish Thought I
Introduces students to the fundamental Jewish texts, theology, and thought of the Rabbinic period (100 CE–900 CE). Topics include: ethics, authority, sexuality, exegesis, and law. **Same as** JST 235 and RELS 235. **Prerequisite(s):** Sophomore standing or above.

CL 242 3 hrs.
The History of Jewish Biblical Interpretation
Jewish interpretation of the Hebrew bible. A survey of the span of Jewish history and the wide range of cultural contexts that have impacted the understanding of the Torah. **Same as** JST 242 and RELS 242. *Past course.*

CL 250 3 hrs.
Greek and Roman Epic Poetry
The epic poems of Homer, Apollonius of Rhodes, Vergil, and others in the Greco-Roman tradition. All readings are in English. **Prerequisite(s):** CL 100 or CL 101 or CL 102 or CL 103 or the equivalent. *Creative Arts, and Past course.*

CL 251 3 hrs.
Greek Tragedy
The plays of Aeschylus, Sophocles, and Euripides. All readings are in English. **Prerequisite(s):** CL 100 or CL 102 or CL 103 or CL 106 or the equivalent. *Creative Arts, and Past course.*

CL 252 3 hrs.
Greek and Roman Comedy
The plays of Aristophanes, Menander, Plautus, and Terence. All readings are in English. **Prerequisite(s):** CL 100 or CL 101 or CL 102 or CL 103 or CL 106 or the equivalent. *Creative Arts, and Past course.*

CL 253 3 hrs.
Roman Satire and Rhetoric
A survey of Roman literature with special emphasis on satire and rhetoric. All readings are in English. **Prerequisite(s):** CL 100 or CL 101 or CL 102 or CL 103 or CL 106 or the equivalent. *Creative Arts, and Past course.*

CL 254 3 hrs.
Prophets in Judaism and Islam
A cross-cultural survey of prophets. Texts include the Hebrew Bible, the Qur'an, and Islamic and Jewish exegetical material. **Same as** JST 254 and RELS 254. *Past course.*

CL 255 3 hrs.
Greek Science, Islamic Culture
Traces the reception and development of the ancient sciences in medieval Islamic culture. **Same as** ARAB 255. Taught in English. *Past, and World Cultures course.*

CL 260 3 hrs.
Near Eastern Myths and Epic Literature
Literature from the ancient Near East with a particular focus on the Epic of Gilgamesh. All texts read in translation. **Prerequisite(s):** CL 102 or CL 104 or CL 208 or CL 250 or CL 251; or consent of the instructor. *Individual and Society, and Past course.*

CL 297 3 hrs.
Studies in the Classical Tradition
Examination of selected texts of ancient Greek and Roman literature, such as the novel, drama, and epic, and how they inform English and American literature and culture. **Same as** ENGL 297. **Prerequisite(s):** CL 102; or consent of the instructor. *Creative Arts, and Past course.*

CL 298 3 hrs.
Topics in Classical Civilization

Selected topics at an intermediate level in Greek and Roman civilization. Sample topic: daily life in ancient Rome. May be repeated. Students may register in more than one section per term. All readings are in English.
Prerequisite(s): Any 100-level classics course or the equivalent.

CL 299 3 hrs.
Independent Reading: Special Topics in Classics in Translation

Individual study under faculty direction. Reading and papers on chosen topics for qualified students based on preparation and interest; students must confer with faculty. May be repeated. Students may register in more than one section per term.
Prerequisite(s): Consent of the instructor and department.

CL 304 3 hrs.
Alexander the Great and the Hellenistic World

Examines the career of Alexander the Great of Macedon and his legacy in Greece, Egypt, and the Near East, up until the arrival of the Romans. **Same as** AH 304.
Prerequisite(s): Sophomore standing or above.

CL 310 3 hrs.
Aristotle and the Arabs

Traces the major topics of ancient Greek philosophy, especially those of Aristotle, and their transformation into the philosophy developed in the Arabic classical period. **Same as** ARAB 310 and PHIL 310. **Prerequisite(s):** CL 221 or PHIL 221 or RELS 230.

CL 340 3 hrs.

The Iliad of Homer
Examines the Iliad of Homer. It involves analysis of the structure of the narrative, close examination of characters, and a historical commentary of the Archaic period of Greece.

CL 390 3 hrs.
Seminar in Mediterranean Literature

Comparative readings in selected texts from the literatures of Ancient Greece, Judaism, Christianity, and Islam with an emphasis on writing and research skills. May be repeated to a maximum of 6 hrs. **Recommended background:** Grade of B or better in CL 104.

CL 398 3 hrs.
Advanced Topics in Classical Civilization

Advanced study of topics in Greek and Roman civilization. Emphasis on writing and research skills. Sample topic: Latin historiography. May be repeated. Students may register in more than one section per term.
Prerequisite(s): At least two classics courses at the 100- or 200-level.

CL 401 3 OR 4 hrs.
Topics in Greek History

Specific topics are announced each term. **Same as** HIST 401. 3 undergraduate hrs. 4 graduate hrs. May be repeated.
Prerequisite(s): 3 hours of history or classics.

CL 402 3 OR 4 hrs.
Topics in Roman History

Specific topics are announced each term. **Same as** HIST 402. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** 3 hours of history or classics.

CL 404 3 OR 4 hrs.
Roman Law and the Civil Law Tradition

Roman law and its relationship to values and social structure; social analysis through law; continental law tradition. **Same as** CLJ 404 and HIST 404. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CLJ 200 or CL 203 or HIST 203 or consent of the instructor.

CL 405 3 OR 4 hrs.
Herodotus and His World

Examines the Histories of Herodotus—both the text and the culture of Classical Greece compared to the Near East and Egypt. Course information: **Same as** HIST 405. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Sophomore standing or above.

CL 498 3 OR 4 hrs.
Special Topics in Classical Civilization

Advanced study of topics in classical civilization. Sample topic: Augustus and his image. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. All readings are in English.
Prerequisite(s): Two classics courses at the 200-level.

CL 499 3 OR 4 hrs.
Advanced Independent Study

Advanced independent study under faculty direction. Reading and papers on chosen topics for qualified students based on preparation and interest. Students must consult with faculty. 3 undergraduate hrs. 4 graduate hrs. May be repeated. Students may register in more than one section per term. **Prerequisite(s):** Consent of the faculty member and department.

Communication**COMM 100 3 hrs.**
Fundamentals of Human Communication

Emphasis on strategies for public speaking and conducting meetings. Effective approaches to audience analysis, speaker credibility, using evidence, argument development, speech delivery, and planning meetings. No credit given toward the Major in Communication. *Individual and Society course.*

COMM 101 3 hrs.
Introduction to Communication

Introduction to central concepts in communication, including key terms and theories, specific contexts and key debates. *Individual and Society course.*

COMM 102 3 hrs.
Introduction to Interpersonal Communication

Effective communication in human relationships; verbal and nonverbal messages; reflective listening, disclosure, showing affection, empathy, assertiveness; handling interpersonal conflict; cultural and gender differences. *Individual and Society course.*

COMM 103 3 hrs.
Introduction to Media

Conceptualizing mass communication. Internal and external controls. Media and minorities. Individual and societal functions of the media. Individual and societal effects of the media. *Individual and Society course.*

COMM 105 3 hrs.
African Americans in Film, 1900–Present: Images, Individuals, and Ideas on Screen

Examination of the history of African Americans in film from Oscar Micheaux to Spike Lee and Julie Dash; the careers of Black filmmakers, actors, images, themes and ideas in films by and about people of African descent in the 20th century. **Same as** AAST 105. *Creative Arts, and U.S. Society course.*

COMM 140 3 hrs.
Fundamentals of Media Communication

Instruction and practice in the composition, analysis, and dissemination of messages that employ media in professional contexts. *Individual and Society course.*

COMM 200 3 hrs.
Communication Technologies

History, development, and social impact of communication technology: print, broadcast, cable, satellite, computer, Internet. Issues related to infrastructure, regulation, access, globalization, conveyance, and change. **Same as** MOVI 200. **Prerequisite(s):** COMM 103 and sophomore standing or above and approval of the department. **Registration restrictions:** For Moving Image Arts minors must obtain approval of the Department of Communication.

COMM 201 3 hrs.
Statistics in Communication Research

Processes of communication research as a social science; variables, hypotheses, and theories; conceptual and operational definition; sampling; research design; statistics; use of computers for research. **Prerequisite(s):** MATH 090 or MATH 092 or MATH 118; and two from COMM 101, COMM 102, COMM 103; or approval of the department.

COMM 204 3 hrs.
Gender and Popular Culture

Analysis of representations of gender and sexuality in popular and material culture, using contemporary theories. Focus is on U.S. popular culture. **Same as** GWS 204. **Prerequisite(s):** Sophomore standing or above; or consent of the instructor. **Recommended background:** Credit or concurrent registration in GWS 101 or credit or concurrent registration in COMM 102 or credit or concurrent registration in GWS 102 or credit or concurrent registration in COMM 103. *Individual and Society, and U.S. Society course.*

COMM 207 3 hrs.
The Mass Media and Politics

Impact of mass media coverage on political attitudes and the conduct of American politics. Communication policies and media institutions in times of rapid technological change. **Same as** POLS 207. **Prerequisite(s):** One course in political science, sociology or contemporary history.

COMM 234 3 hrs.
History of Television

A critical history of television. **Same as** ENGL 234 and MOVI 234. One additional hour each week for required screenings.

COMM 301 3 hrs.
Communication Research

Designs and measurements for conducting empirical analyses of communication activities in both laboratory and business settings. **Prerequisite(s):** At least 18 hours of course work in communication, including COMM 201, and approval of the department.

COMM 303 3 hrs.
Communication and Culture

Examination of the relationship between communication and culture through an exploration of the general theoretical principles linking cultural influences and communicative acts. Credit is not given for COMM 303 if the student has credit in COMM 203. **Prerequisite(s):** COMM 101 and COMM 102 and COMM 201 and junior standing or above; or approval of the department.

COMM 304 3 hrs.
Male-Female Communication

Speech differences and universals across genders. Talk in male-female interaction. Communication in romantic relationships. Gender issues in work settings. **Same as** GWS 304. **Prerequisite(s):** COMM 101 and COMM 102 and COMM 201 and COMM 203; or approval of the department.

COMM 306 3 hrs.
Organizational Communication

Examination of communication issues in organizational settings. Exposure to topics such as rules, networks, leadership, and decision making as well as methods of analyzing communication problems. **Prerequisite(s):** Junior standing and COMM 201 and COMM 315; or consent of the instructor.

COMM 309 3 hrs.
Environmental Communication

Description and analysis of communication practices about environmental issues with attention to conflict resolution, media coverage, advocacy initiatives, and marketing campaigns. **Prerequisite(s):** COMM 101 and COMM 201; or approval of the department.

COMM 311 3 hrs.
Interviewing and Communication

Study of the forms and principles of information-seeking interviews, with special attention to fact finding and data gathering missions. **Prerequisite(s):** COMM 102 and any two 200-level communication courses or consent of the instructor.

COMM 315 3 hrs.
Group Communication

Study and practice in the theories and techniques of group communication; the nature of small group decision making; observation and analysis of established work groups. **Prerequisite(s):** COMM 101 and COMM 102 and COMM 201; or approval of the department.

COMM 316 3 hrs.
Writing for the Electronic Media

Principles of writing applied to the presentation of information in electronic media. Practical applications and analysis of relations between form and content. **Prerequisite(s):** COMM 200 and COMM 201; or approval of the department.

COMM 323 3 hrs.
Argument and Persuasion
Analysis and application of historical and contemporary theories of argument and persuasion as they function to form or change opinions and beliefs. **Prerequisite(s):** COMM 101 and COMM 102 and COMM 201; or approval of the department.

COMM 330 3 hrs.
Mass Media and Popular Culture

A theoretical and analytical examination of the media and popular arts as cultural artifacts. Focus on form, content, design, and effects of cultural commodities. **Prerequisite(s):** COMM 103 and COMM 201 and juniors standing; or approval of the department.

COMM 394 3 hrs.
Special Topics in Communication

Analysis of contemporary or historical issues in media and communication. May be repeated. **Prerequisite(s):** COMM 200 and COMM 201; or approval of the department.

COMM 404 3 OR 4 hrs.
Discourse Analysis

Nonverbal aspects of communication; rules of communication; speech acts; conversational coherences; acts and sequences in communication; marital communication patterns. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** COMM 304 or COMM 315 or COMM 416 or approval of the department.

COMM 416 3 OR 4 hrs.
Conflict and Communication

Students learn to manage and resolve conflict in business, governmental, and community settings. Practical analysis of interpersonal and group conflict cases. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** COMM 312 and COMM 313 and COMM 315; or approval of the department.

COMM 423 3 OR 4 hrs.
Discourse and Rhetoric

Exploration of interconnections between language and social practices with attention to multiple components of discursive situations: senders, receivers, context, code, media, and content. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** COMM 101 and COMM 102 and COMM 201; or approval of the department.

COMM 430 3 OR 4 hrs.
Media, Information, and Society

News as a distinct form of mass communication, involving social functions and significant questions about facts, truth, knowledge and values. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** COMM 103 and COMM 200; or COMM 300; or approval of the department.

COMM 434 3 OR 4 hrs.
Global Communication Systems

Structure and flow of international communication. Media organization systems. International impact of new media and information technology. Impact of U.S. media reporting on foreign affairs. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Approval of the department.

COMM 454 3 hrs.
Cognitive Psychology of Language

Provides students with a survey of methods, theory, and research in language and discourse processing. **Same as** LING 474 and PSCH 454. **Prerequisite(s):** Graduate standing or consent of the instructor.

COMM 456 3 OR 4 hrs.
Topics in the History of Communications

This course introduces students to major developments in the history of communications, with a focus on the political and cultural dimension of technologies. **Same as** HIST 456. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Consent of the instructor. **Recommended background:** At least one history course at the 100-level.

COMM 458 3 OR 4 hrs.
Minorities and Communication

Description and analysis of the processes through which ethnic and racial perceptions shape public discourse. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Two communication courses at the 300-level; or approval of the department.

COMM 460 3 OR 4 hrs.
Visual Communication

Exploration of processes through which meaning is derived from verbal and visual roles of media images in the cultural circuit. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Two communication courses at the 300-level; or approval of the department.

COMM 467 3 OR 4 hrs.
Public Opinion and Political Communication

Nature of public opinion and political communication systems. Patterns of opinion distribution and its measurement. Forces shaping public opinion and its impact on public policy. **Same as** POLS 467. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** POLS 200 or the equivalent or consent of the instructor.

COMM 473 3 OR 4 hrs.
Organizations and Their Publics

History of relevant theories and models; problem solving; analyzing goals, identifying publics, setting objectives, designing messages, choosing channels, planning implementation (budgeting, staffing, timetables), evaluating effects. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** COMM 201 and COMM 306; or approval of the department.

COMM 474 1–8 hrs.
Internship

Students work in an approved professional setting. Individual projects developed through conferences with a faculty member and a field supervisor. May be repeated. Students may register in more than one section per term. A maximum of three hours may be counted toward the undergraduate Communication major requirements. May not be counted toward the minimum Master of Arts degree requirements. **Prerequisite(s):** 12 hours of upper-division courses in communication, with a 3.00 grade point average in those courses; recommendation of two faculty members and approval of the department obtained in the semester prior to internship.

COMM 490 3 hrs.
Seminar in Culture and Communication

Analysis of contrastive cultural paradigms (interethnic, gender, class) to develop student's awareness of own socialization and cultural orientation. **Prerequisite(s):** COMM 301 plus any other 300-level Communication course, or approval of department.

COMM 491 3 hrs.
Seminar in Media and Communication

Analysis of contemporary or historical issues in mediated communication. **Prerequisite(s):** COMM 301 plus any other 300-level Communication course, or approval of department.

COMM 494 3 OR 4 hrs.
Special Topics in Communication

Contemporary trends in the field of communication. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 2 time(s). **Prerequisite(s):** COMM 200 and COMM 201 and consent of the instructor; or approval of the department.

COMM 498 1–4 hrs.
Independent Study

Individual investigation of special problems (student-initiated or related to faculty research). May be used for special projects, such as interdisciplinary seminars. May be repeated to a maximum of 8 hrs. Students may register in more than one section per term. A maximum of 3 hours of credit may be applied toward the Major in Communication. Credit earned may not be applied toward the minimum Master of Arts in Communication degree requirements. **Prerequisite(s):** Senior standing and approval of the department.

Computer Science**CS 100** 3 hrs.
Computer Literacy

Introduction to computing; the Internet; Web; file systems; electronic mail; basic tools (such as editors, databases); programming concepts; computer ethics; security and privacy. Computer lab. Previously listed as EECS 102. No graduation credit for students enrolled in a major offered by the Departments of Computer Science or Electrical and Computer Engineering.

CS 101 3 hrs.
Introduction to Computing

Introduction to computing resources and tools. Computer access, security, and responsibility. Navigation and communication. Networks; Internet resources. Applications. Programming languages, concepts, and practice. Programming exercises. Previously listed as EECS 101.

CS 102 3 hrs.
Introduction to Programming
 Programming languages and program design; data types and operators, expressions, control structures, procedures, and modularity. Language definition and programming laboratory. Previously listed as EECS 171. **Prerequisite(s):** CS 101 and credit or concurrent registration in MATH 180 or consent of the instructor.

CS 107 4 hrs.
Introduction to Computing and Programming
 Access and use of computing resources. Programming and program design. Problem solving. Data types, control structures, modularity, information hiding. Credit is not given for CS 107 if the student has credit for CS 102. Previously listed as EECS 171. **Prerequisite(s):** Credit or concurrent registration in MATH 180.

CS 108 3 hrs.
Fortran Programming for Engineers with MATLAB
 Program design using Fortran: data types and operators, control structures, subprograms, file I/O, common storage. Engineering applications: matrices, equation solutions, MATLAB environment. Programming assignments. Extensive computer use required. **Prerequisite(s):** Credit or concurrent registration in MATH 180.

CS 109 3 hrs.
C/C++ Programming for Engineers with MATLAB
 Program design using C/C++: data types and operators, control structures, functions, file I/O, arrays, and structures. Engineering applications: Matrices, equation solution, MATLAB. Programming assignments. Extensive computer use required. **Prerequisite(s):** Credit or concurrent registration in MATH 180.

CS 201 4 hrs.
Data Structures and Discrete Mathematics I
 Lists, stacks, queues, sets, hash tables, introduction to trees and graphs. Algorithm correctness and complexity, inductive proofs, logic. Programming projects. Previously listed as EECS 260. Credit is not given for CS 201 if the student has credit for MCS 261. **Prerequisite(s):** MATH 180; and grade of C or better in CS 102 or grade of C or better in CS 107.

CS 202 3 hrs.
Data Structures and Discrete Mathematics II
 Combinatorics; complex data structures: trees, heaps, and graphs. Sorting and searching algorithms. Programming projects. Previously listed as EECS 360. **Prerequisite(s):** Grade of C or better in CS 201.

CS 266 4 hrs.
Computer Architecture I: Logic and Computer Structures
 Architecture from gate level up. Combinational and sequential logic. Logical minimization. Integer number systems, arithmetic. Datapath design. Finite state machines. Register-based architecture. Memory technologies. Credit is not given for CS 266 if the student has credit in any of the following: EECS 265 or EECS 365 or EECS 366 or ECE 265 or ECE 267 or ECE 366. **Prerequisite(s):** CS 102.

CS 301 3 hrs.
Languages and Automata
 Regular sets and finite automata. Context-free languages and push-down automata. Parsing. Computability theory including Turing machines and decidability. Previously listed as EECS 361. **Prerequisite(s):** Grade of C or better in CS 201; and credit or concurrent registration in CS 202.

CS 335 2 hrs.
Computer Ethics
 Ethical, societal, and environmental issues for computer professionals. Professional ethics, software ownership, unreliability, responsibility, privacy, computer crime, veracity, expert systems, workplace and health issues. Previously listed as EECS 375. **Prerequisite(s):** CS 202.

CS 340 4 hrs.
Software Design
 Programming language semantics, scope, overloading, data abstraction, constructors. Procedural and object-oriented design, programming tools, and environments. Interactive application structure and interface, windows, events, widgets. Previously listed as EECS 370. **Prerequisite(s):** CS 202.

CS 366 4 hrs.
Computer Architecture II: Hardware-Software Interface
 A continuation of CS 266. Control-unit and I/O design; assembly language and machine programming; hardware control and I/O; memory hierarchy and caching. Credit is not given for CS 366 if the student has credit for any of the following: EECS 265 or EECS 365 or EECS 366 or ECE 265 or ECE 267 or ECE 366. **Prerequisite(s):** CS 266.

CS 376 1 hour.
Practicum in Computer Science Presentations
 Techniques for effective presentation of computer science topics: terminology, organization, visual aides, and delivery of technical talks; presentations and presentation evaluation required. **Prerequisite(s):** ENGL 161 and CS 102.

CS 385 4 hrs.
Operating Systems Concepts and Design
 Operating systems issues, operations. Process execution, scheduling; memory management, virtual memory design; concurrent process coordination, properties: deadlock, mutual exclusion synchronization primitives; distributed systems issues; network design. Previously listed as EECS 371. **Prerequisite(s):** CS 201; and CS 366 or ECE 267.

CS 398 3 hrs.
Undergraduate Design/Research
 Design and/or research experience for undergraduate Computer Science majors under close supervision of a CS faculty member. Previously listed as EECS 398. **Prerequisite(s):** Consent of the instructor.

CS 401 3 OR 4 hrs.
Computer Algorithms I
 Design and analysis of computer algorithms. Divide-and-conquer, dynamic programming, greedy method, backtracking. Algorithms for sorting, searching, graph computations, pattern matching, NP-complete problems. **Same as** MCS 401. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** Grade of C or better in MCS 360; or grade of C or better in CS 202.

CS 411 3 OR 4 hrs.
Artificial Intelligence I
 Problem representation; rule-based problem solving methods; heuristic search techniques. Application to expert systems, theorem proving, language understanding. Individual projects. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 484. **Prerequisite(s):** CS 202.

CS 415 3 OR 4 hrs.
Computer Vision I
 Computer vision system design. Segmentation and representation of regions and boundaries; image filtering; object recognition; advanced topics (examples: texture, stereo, color); applications. Programming assignments. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 487. **Prerequisite(s):** CS 202 or MCS 360; or consent of the instructor.

CS 421 3 OR 4 hrs.
Natural Language Processing
 Design of natural language processing systems; part-of-speech tagging, statistical and symbolic parsers; semantic interpretation; discourse and dialogue processing; natural language generation; applications. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CS 301 or MCS 441.

CS 422 3 OR 4 hrs.
User Interface Design and Programming
 User interface design, implementation, and evaluation: user-centered design methodologies, windowing systems, I/O devices and techniques, event-loop programming, user studies. Programming projects. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 478. **Prerequisite(s):** CS 340.

CS 426 3 OR 4 hrs.
Video Game Design and Development
 Theory and practice of video game design and programming. Students will form interdisciplinary teams, to design, build, and demonstrate video games or related interactive simulation environments. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** CS 107 and CS 201 and CS 488; or consent of the instructor.

CS 440 3 OR 4 hrs.
Software Engineering I
 Software life-cycle model, requirement specification techniques, large-scale software design techniques and tools, implementation issues, testing and debugging techniques, software maintenance. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 470. **Prerequisite(s):** CS 340.

CS 441 3 OR 4 hrs.
Distributed Object Programming Using Middleware
 Design and implementation of distributed object programs using middleware software standards; interface definition languages and programming language mappings; static and dynamic object communication mechanisms. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** CS 340 and CS 385.

CS 442 3 OR 4 hrs.
Software Engineering II
 Advanced concepts in software development: requirements engineering, cost estimation, risk analysis, extreme programming, regression test case selection, and design patterns. Software lab assignments required. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** CS 440.

CS 450 3 OR 4 hrs.
Introduction to Networking
 Network protocols, algorithms, and software issues. Topics include the Open Systems Interconnect model, data link, network and transport layers, TCP/IP, ATM, mobile networks. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 433. Credit is not given for CS 450 if the student has credit for ECE 433. **Prerequisite(s):** CS 202 and CS 385; and STAT 381 or STAT 401 or IE 342.

CS 455 3 OR 4 hrs.
Design and Implementation of Network Protocols

Network protocols and their software, examines OS network interface through network layers. Topics include routing, congestion control, fault tolerance, security, name servers, multicast, and performance. 3 undergraduate hrs. 4 graduate hrs.

Prerequisite(s): CS 340 and CS 450.

CS 466 3 OR 4 hrs.
Advanced Computer Architecture

Design and analysis of high performance uniprocessors. Topics include arithmetic: multiplication, division, shifting; processor: pipelining, multiple function units, instruction sets; memory: caches, modules; virtual machines. **Same as** ECE 466. 3 undergraduate hrs. 4 graduate hrs. **Prerequisite(s):** ECE 366 or CS 366.

CS 469 3 OR 4 hrs.
Computer Systems Design

Analysis and modeling of digital systems; hardware description languages; CAD tools for simulation, synthesis, and verification of computer systems. Project: a simple processor design. 3 undergraduate hrs. 4 graduate hrs. **Same as** ECE 469.

Prerequisite(s): CS 366; or ECE 366 and ECE 368.

CS 473 3 OR 4 hrs.
Compiler Design

Language translation: lexical analysis, parsing schemes, symbol table management, syntax and semantic error detection, and code generation. Development of fully functional compiler. **Same as** MCS 411. 3 undergraduate hrs. 4 graduate hrs.

Prerequisite(s): Grade of C or better in CS 301 or grade of C or better in MCS 441; and grade of C or better in CS 202 or grade of C or better in MCS 360; and grade of C or better in CS 266.

CS 474 3 OR 4 hrs.
Object-Oriented Languages and Environments

Data abstraction, classes and objects, messages and methods, polymorphism and dynamic binding, inheritance. Object-oriented design. Pure and hybrid object-oriented languages. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 474. **Prerequisite(s):** CS 340.

CS 475 3 OR 4 hrs.
Object-Oriented Programming

OO Paradigm: classes, messages, methods, variables, inheritance, polymorphism; the C++ and Java languages; programming labs required. 3 undergraduate hrs. 4 graduate hrs. Credit is not given for CS 475 if the student has credit for CS 340 or CS 474. Extensive computer use required. **Prerequisite(s):** CS 202; and consent of the instructor.

CS 476 3 OR 4 hrs.
Programming Language Design

Definition, design, and implementation of programming languages. Syntactic and semantic description; variable bindings, control and data structures, parsing, code generation, optimization; exception handling; data abstraction. **Same as** MCS 415. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 476. **Prerequisite(s):** MCS 360 or CS 340.

CS 480 3 OR 4 hrs.
Database Systems

Database design, logical design, physical design. Relational databases. Recovery, concurrency control. Normalization. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 480. **Prerequisite(s):** CS 202.

CS 485 4 OR 5 hrs.
Networked Operating Systems Programming

Concepts, design, and programming of multiprocess and distributed systems; interprocess communications; fault tolerance; distributed programming semantics. Programming assignments and project required. 4 undergraduate hrs. 5 graduate hrs. Previously listed as EECS 471. **Prerequisite(s):** CS 385.

CS 487 3 OR 4 hrs.
Building Secure Computer Systems

Building and programming secure systems; protecting systems from threats and reduction of vulnerabilities; includes application, host and network security. 3 undergraduate hrs. 4 graduate hrs. Extensive computer use required. **Prerequisite(s):** Grade of C or better in CS 385; and senior standing or above; or consent of the instructor.

CS 488 0-4 hrs.
Computer Graphics I

Principles of interactive computer graphics. Raster and vector display, techniques, and hardware considerations. Introduction to two-dimensional and three-dimensional rendering. Laboratory. **Same as** AD 488. 3 undergraduate hrs. 4 graduate hrs. Previously listed as EECS 488. **Prerequisite(s):** Credit or concurrent registration in CS 340.

CS 491 1-4 hrs.
Seminar

Topics of mutual interest to a faculty member and a group of students. Offered as announced by department bulletin or the *Schedule of Classes*. May be repeated. Previously listed as EECS 491. **Prerequisite(s):** Consent of the instructor.

CS 493 2-4 hrs.
Special Problems

Special problems or reading by special arrangement with the faculty. Previously listed as EECS 493. No graduate credit for Computer Science majors. **Prerequisite(s):** Consent of the instructor.

Criminology, Law, and Justice

CLJ 101 3 hrs.
Introduction to Criminology, Law, and Justice

The study of the development and contemporary operations of criminal justice agencies, from police through probation and parole, focusing upon "power elites" and the use of discretion. *U.S. Society course.*

CLJ 102 3 hrs.
Foundations of Law and Justice

The philosophical and historical foundations of American and non-American criminology, law, and justice. Focus on diversity, due process, equality, liberty, punishment, social control, and legal institutions and procedures. *U.S. Society course.*

CLJ 110 3 hrs.
Rights, Justice, and the Law

The historical evolution, philosophical justification, and political context of human rights are examined. The balance between individual rights and social responsibility is analyzed. *U.S. Society course.*

CLJ 114 3 hrs.
Race, Class, Gender, and the Law

A review of criminological theories, organizational decision making, and a consideration of contemporary criminology, law, and justice policies with specific attention to race, class, and gender. *U.S. Society course.*

CLJ 120 3 hrs.
Crime and Society

Provides an introduction to theories of social deviance and control. The historical development, empirical basis, strengths, and limitations of various theories are analyzed. This course may be taught in a blended-online and classroom format. When that is the case, use of a computer and Internet access will be required. A high-speed connection is strongly recommended. Please check the online class schedule for blended-online sections. *U.S. Society course.*

CLJ 121 3 hrs.
Violence in Society

Causes and consequences of violence in the United States and in other societies. Various theories of violence are discussed and used to analyze individual, group, and governmental violence. This is a blended-online and classroom course. Use of a computer and Internet access is required. A high-speed connection, while not required, is strongly suggested. *U.S. Society course.*

CLJ 200 3 hrs.
Law in Society

Development of law and legal institutions from historical, comparative, and contemporary perspectives; interrelationships of law, custom, morality, and social change; the legal profession. **Prerequisite(s):** CLJ 101. *U.S. Society course.*

CLJ 210 3 hrs.
Principles of Criminal Law

A survey of the basic principles of criminal law and procedure: proof of fact, act and intent, responsibility. **Prerequisite(s):** CLJ 101.

CLJ 220 3 hrs.
Criminology

Introductory survey of the literature developed by criminologists in their study of crime in American society. **Same as** SOC 231. **Prerequisite(s):** CLJ 101.

CLJ 240 3 hrs.
Criminal Justice Organizations

Theories of complex organizations, organization behavior, and administration relating to criminal justice and other rule-applying agencies. **Prerequisite(s):** CLJ 101.

CLJ 261 3 hrs.
Research Methods I

Introduction to research in criminology, law, and justice. From conceptualization to description of results. Research design, observation, archival, survey, and experimental methodologies in criminal justice related settings. **Prerequisite(s):** CLJ 101.

CLJ 262 3 hrs.
Research Methods II

Statistical data analysis in the criminology, law, and justice context. Probability, t-tests, correlation, regression, sampling theory, tests of significance. Problems with police and crime survey data. **Prerequisite(s):** CLJ 261; and one of the following: MATH 090 or MATH 092 or MATH 118.

CLJ 271 3 hrs.
African Americans and the Politics of Incarceration

Examination of the status of African Americans as offenders, victims, and personnel within the criminal justice system. **Same as** AAST 271 and SOC 271. **Prerequisite(s):** AAST 100 or CLJ 101 or SOC 100; or consent of the instructor. *Individual and Society, and U.S. Society course.*

CLJ 301 0 hrs.
Writing in the Discipline

This course will be used to satisfy the Writing-in-the-Discipline requirement. Satisfactory/Unsatisfactory grading only. **Prerequisite(s):** Junior or senior standing; and approval of the department.

CLJ 303 3 hrs.
Introduction to Forensic Science

Examines the basic principles and judicial uses of forensic science. Reviews the applications of the biological, physical, and behavioral sciences to questions of evidence and the law. **Prerequisite(s):** Junior standing and major in either criminology, law and justice, or a natural sciences discipline; or consent of the instructor.

CLJ 310 3 hrs.
Substantive Criminal Law
 General doctrines of criminal liability in the U.S.; classification of crimes against persons, property, and the public welfare; the concept of governmental sanctions of an individual's conduct.
Prerequisite(s): CLJ 210 and one other 200-level criminology, law, and justice course.

CLJ 311 3 hrs.
Criminal Procedure
 Legal problems associated with the investigation of crime, acquisition of evidence, commencement of adjudication, sentencing, and appellate rights.
Prerequisite(s): One 200-level criminology, law, and justice course.

CLJ 345 3 hrs.
Police in Society
 The functions and organization of police/investigative agencies, especially those on the local level, the nature of the experience of being a police officer.
Prerequisite(s): CLJ 101 and CLJ 240 and one other 200-level criminology, law, and justice course; or consent of the instructor.

CLJ 350 3 hrs.
Courts in Society
 Behavior and structure of state and federal criminal courts, including preadjudication processing, prosecutorial and defense decisions, guilty-plea processes, bench and jury trials, sentencing, judicial selection, court administration.
Prerequisite(s): CLJ 101 and two 200-level criminology, law, and justice courses; or consent of the instructor.

CLJ 355 3 hrs.
Punishment, Prisons, and Corrections
 A survey of American corrections from local jails to mega prisons; correctional field services; probation and parole and recent developments in alternatives to incarceration.
Prerequisite(s): CLJ 101 and two 200-level criminology, law, and justice courses; or consent of the instructor.

CLJ 361 3 hrs.
Criminal Investigation
 Methods for reconstructing criminal acts using information derived from people, physical evidence, and records; scientific, organizational, and legal considerations in conducting such inquiries.
Prerequisite(s): CLJ 101 and two 200-level criminology, law, and justice courses; or consent of the instructor.

CLJ 394 3 hrs.
Senior Studies in Criminology, Law, and Justice
 The analysis and exposition of historical or contemporary issues in the criminology field. Topics may vary from semester to semester.
Prerequisite(s): Senior standing.

CLJ 395 3 hrs.
Internship
 Observation of and participation in the daily work of a criminal justice agency, private or public. Work is supervised by a faculty member and the management of personnel of the agency. May be repeated to a maximum of 6 hrs. A maximum of three hours may be counted toward the undergraduate major in criminology, law, and justice.
Prerequisite(s): CLJ 200 and CLJ 210 and CLJ 220 and CLJ 240 and CLJ 261 and CLJ 262; and one from among CLJ 345 or CLJ 350 or CLJ 355 and junior standing; and consent of the instructor; and preregistration in the department.

CLJ 399 2-8 hrs.
Independent Study
 Independent study and research under the supervision of a faculty member, on a subject not covered in the regular curriculum. May be repeated. Repeating course for more than 6 hours must be approved by the head of the department.
Prerequisite(s): CLJ 200 and CLJ 210 and CLJ 220 and CLJ 240 and CLJ 261 and CLJ 262; and one course from among CLJ 345 or CLJ 350 or CLJ 355; and a 3.50 overall grade point average, and a 3.00 grade point average in criminology, law, and justice course work. For criminology, law, and justice majors only.

CLJ 402 3 OR 4 hrs.
Trial Interaction
 Language use, culture, and law in the trial process. Analysis of qualitative methods applied to legal processes and change.
Same as LING 402. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 261 and CLJ 350; or consent of the instructor.

CLJ 404 3 OR 4 hrs.
Roman Law and the Civil Tradition
 Roman law and its relationship to values and social structure; social analysis through law; continental law tradition.
Same as CL 404 and HIST 404. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 200 or CL 203 or HIST 203 or consent of the instructor.

CLJ 405 3 OR 4 hrs.
The Problem of Justice
 Premodern and modern views of justice and their practical utility in analyzing legislative, executive, and judicial programs for enhancing or restricting justice.
Same as POLS 405. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 101, plus two 200-level courses in criminology, law, and justice or two 200-level courses in political science.

CLJ 421 3 OR 4 hrs.
Youth, Crime, Law, and Justice in Society
 Theories of juvenile delinquency and rule breaking; juvenile rights; organization and administration of the juvenile justice system in the U.S. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 210 and CLJ 220.

CLJ 422 3 OR 4 hrs.
Victimization
 Survey of criminal victimization theory and research. Examination of causes, consequences, and prevention of violent crime and of victims' experiences in the criminal justice system. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 101 and two 200-level criminology, law, and justice courses.

CLJ 423 3 OR 4 hrs.
Violence
 Explores how men and women have experienced violence historically and in modern times. Students examine how violence is perpetrated through words, pictures, physical harm, and silences.
Same as ANTH 424. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 101 and CLJ 200.

CLJ 424 3 OR 4 hrs.
Gender, Crime, and Justice
 An in-depth examination of the etiology of female crime and the involvement of females in the criminal justice system as offenders, victims, and workers/professionals.
Same as GWS 424. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 101 and CLJ 220; or consent of the instructor.

CLJ 435 3 OR 4 hrs.
Organized and White Collar Crime in the United States
 Analysis and evaluation of organized crime, including its public perception; sociological, political, and economic impacts as well as past and present enforcement strategies. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): Two 200-level criminology, law, and justice courses.

CLJ 442 3 OR 4 hrs.
Comparative Criminal Justice Institutions
 Comparative study of law, jurisprudence, enforcement, and punishment in Western and non-Western societies, including civil law, common law, and Islamic systems. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): Two 200-level criminology, law, and justice courses.

CLJ 456 3 OR 4 hrs.
Community Corrections
 History, processes, and functions of programs organized for sanctioning offenders in community settings, such as probation, parole, halfway houses, restitution, community service, home confinement. 3 undergraduate hrs. 4 graduate hrs.
Prerequisite(s): CLJ 350 or CLJ 355; plus one 200-level criminology, law, and justice course.

CLJ 480 4 hrs.
Application of Science to the Law
 Issues affecting the development, accessibility and admissibility of forensic science services by the criminal justice system; problems which may compromise the quality, fairness, and effectiveness of scientific inquiries.
Same as BPS 480.
Prerequisite(s): CLJ 210 and CLJ 260; or graduate standing.

CLJ 491 3 OR 4 hrs.
Topics in Rule Breaking
 Content of course varies, addressing major issues. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 1 time(s). Students may register in more than one section per term.
Prerequisite(s): Six 200- or 300-level criminology, law, and justice courses.

CLJ 492 3 OR 4 hrs.
Topics in Rule Application
 Content of course varies, addressing major issues. 3 undergraduate hrs. 4 graduate hrs. May be repeated up to 1 time(s). Students may register in more than one section per term.
Prerequisite(s): Six 200- or 300-level criminology, law, and justice courses.