Asian Studies Emphasis. Students majoring in Religious Studies may elect to pursue an Asian Studies emphasis or East Asian Studies emphasis combining courses from the major with selected outside courses of wholly Asian content. For more information, see “Asian Studies,” pages 110–111.

Jewish Studies Emphasis. Students majoring in Religious Studies may elect to pursue a Jewish Studies emphasis combining courses from the major with selected outside courses in the area of Jewish Studies. See “Jewish Studies,” page 111.

Latin American Studies Emphasis. Students majoring in Religious Studies may elect to pursue a Latin American Studies emphasis combining courses from the major with selected outside courses of wholly Latin American content. See “Latin American Studies,” page 111.

Russian and East European Studies. Students majoring in Religious Studies may elect to earn a certificate in Russian and East European Studies by successfully completing one of the options mentioned in the section on “Russian and East European Studies,” pages 111–112.

Southeast Asian Studies Emphasis. Students majoring in Religious Studies may elect to earn a certificate in Southeast Asian Studies by successfully completing the requirements described in the section on “Southeast Asian Studies,” page 112.

Women’s Studies. Students majoring in Religious Studies may elect to earn a certificate in Women’s Studies by successfully completing the requirements described in the section on “Women’s Studies,” page 112.

MINOR IN RELIGIOUS STUDIES

The minor in Religious Studies consists of 18 semester hours, at least 12 of which must be in the upper division. Both REL 305 and 405 are required. For minor verification, students must consult a department advisor.

GRADUATE PROGRAM

The Department of Religious Studies offers a graduate program leading to the degree of Master of Arts for those who wish to seek the Ph.D. in the study of religions, for those who wish to teach at the community college level, and for those in nonacademic careers who desire general competence in the academic study of religions. Consult the Graduate Catalog for requirements.

321 Religion in America. (3) F, S The history of religion in America with attention to issues of historiography, pluralism, gender, race, ethnicity, politics, and social reform. General Studies: HU, C/H.

322 Malcolm and Martin. (3) F, S This course examines and contrasts the lives, ministries, contributions and legacies of Malcolm X and Martin Luther King, Jr. General Studies: HU, C.


330 Native American Religious Traditions. (3) A World views and religious thought presented through the art, architecture, literature, music, mythology, ritual, and folklore of representative tribes in North America. General Studies: HU, C.

331 History of Native American Religious Traditions. (3) N The role of religion in Native American history, including missionization, and religious adaptation: prophetic, messianic, and religious revitalization movements. General Studies: L2/ HU, C/H.

332 South American Indian Religions. (3) F, S An introduction to the sacred stories, ceremonies, and beliefs of Native South American peoples in their historical contexts. General Studies: HU, G.

344 Religion and Values in Japanese Life. (3) S Japanese values expressed in the life and ancient cycles of the family, local and national identities, and popular culture. Lecture, discussion. General Studies: HU, G.

345 Asian Religious Traditions. (3) F Introduction to the major concepts of religious beliefs, rituals, and practices in Hinduism and Buddhism. Lecture, discussion. General Studies: HU, G.

350 Hinduism. (3) A The study of diverse forms of Hinduism through its institutions, literature, folklore, art, and architecture. General Studies: L2/HU, G/ H.

351 Buddhism. (3) A Doctrines, practices, and institutions of the Buddhist religion, emphasizing its role in the history and culture of Asian societies. General Studies: L2/HU, G.

355 Japanese Cities and Cultures to 1800. (3) S Relations among ideas and literary, visual, and performing arts of the ancient aristocracy, medieval samurai, and early modern town-people. Cross-listed as HUM 310.

365 Islamic Civilization, 700–1300. (3) F An introduction to Islamic religion, culture, and societies from 700 to 1300. General Studies: HU, H.

366 Islamic Civilization, 1300 to Present. (3) F Introduction to Islamic religion, culture, and societies from 1300 to present. Lecture, discussion.


372 Formation of the Christian Tradition. (3) A Origins, development, and expansion of Christianity; major themes and tensions from the New Testament world to the beginning of the Middle Ages. General Studies: HU, H.

373 Women in Judaism. (3) S A study of the legal, social, and cultural status of Jewish women in various historical and contemporary societies. Cross-listed as WST 372.

377 Religion in Russia. (3) F, S Examines the history of the various religious traditions of Russia and the former USSR from an interdisciplinary perspective. General Studies: HU, H.

379 Religion, Nationalism, and Ethnic Conflict. (3) F, S Examines the role of religion in national and ethnic conflict in the contemporary world. General Studies: HU, G.

381 Religion and Moral Issues. (3) A The manner in which human religiousness relates to social concerns, e.g., sexuality, the environment, bioethical issues, and violence. General Studies: L2/HU.

385 Contemporary Western Religious Thought. (3) A Introduction to contemporary Jewish and Christian thought. Topics include religion and politics, problem of evil, interpretations of God, and feminist theology. General Studies: L2/ HU.

390 Women and Religion. (3) A The role of women in several organized religions and/or religious sects, including a study of myth and symbols as they are used to establish, maintain, and enforce sex-roles within specific religions. General Studies: HU, G.

405 Problems in Religious Studies. (3) F, S Selected topics in religious studies, involving students in research interests of instructor. May be repeated for credit when topics vary. Seminar. Prerequisite: at least 9 semester hours of REL courses or instructor approval.  

410 Judaism in Modern Times. (3) N Variety of expressions of Judaism and Jewishness in the modern period. Topics may include American Judaism or religious responses to the Holocaust. General Studies: HU, H.

415 The Jewish Mystical Traditions. (3) A Examination of some of the esoteric lore of Judaism. Movements and literature such as Hasidism and Kabalah are studied. General Studies: HU.

420 Religion in American Life and Thought. (3) A The influence of religion on American society, culture, and ideas; the distinctive character of religion in America. Prerequisite: REL 320 or 321 or equivalent. General Studies: L2/HU.

426 American Preachers and Preaching: The Sermon in America. (3) N The life and work of notable American preachers. The emergence of the preacher as representative of American religion. Prerequisite: REL 320 or 321 or equivalent. General Studies: L2/HU.

427 American Religious Thought. (3) N The thought of representative American religious thinkers, i.e., Jonathan Edwards, William Ellery Channing, Horace Bushnell, and Reinhold Niebuhr. Prerequisite: REL 320 or 321 or equivalent. General Studies: HU, H.

444 Religion in Japan. (3) F Religion in Japanese history, especially the development of Japanese Buddhism, and religion in the modern transformation of Japan. Prerequisite: instructor approval. General studies: HU, G/H.

454 Hindu Religious Thought. (3) A Readings in classical systems, such as Samkhya and Vedanta, and in the works of modern Hindus, such as Aurobindo and Gandhi. REL 345 or 350 recommended.

460 Studies in Islamic Religion. (3) A Issues in the interpretation and understanding of Islamic texts, history, society, culture, and rituals. Prerequisites: REL 365 and Religious Studies major or instructor approval. General Studies: HU, G.

470 Religion in the Middle Ages. (3) A Religious aspects of medieval life and thought; variety of forms of dissent, heresy, and reform movements from the 4th to 13th centuries. General Studies: HU, H.

471 Reformation and Modern Christianity. (3) A Protestant Reformation to contemporary Christian movements; includes factors in the dissolution of the Medieval Christian synthesis, variety of reform movements and reform patterns, Catholic counter-reform measures, formation of liberal theology, ecumenical movement, and the World Council of Churches. General Studies: HU, H.

485 Modern Critics of Religion. (3) A Major theories and critiques of religion among modern social, philosophical, and religious thinkers. General Studies: HU.

494 Special Topics in Religious Studies. (3) N Open to all students, freshmen by instructor approval only. Topics may be selected from various areas.

498 Pro-Seminar in Religious Studies. (3) A For students with a major or minor emphasis in Religious Studies.

The Department of Sociology offers programs leading to the M.A. and Ph.D. degrees. Consult the Graduate Catalog for requirements.

**SOCIOLGY—B.A.**

The B.A. in Sociology requires 45 semester hours, of which 30 must be in sociology and 15 in closely related fields approved by the student’s advisor. The 30 hours must include the following:

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<thead>
<tr>
<th>Course</th>
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<th>Units</th>
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<tbody>
<tr>
<td>SOC 101</td>
<td>Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 301</td>
<td>Sociology 1</td>
<td>3</td>
</tr>
<tr>
<td>SOC 391</td>
<td>Social Research</td>
<td>3</td>
</tr>
<tr>
<td>SOC 395</td>
<td>Social Statistics I</td>
<td>3</td>
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</tbody>
</table>

SOC 470 Racial and Ethnic Minorities SB............... 3
or SOC 474 Afro-American in Modern Society L2/SB, C (3)

SOC 483 History of Social Thought L2/SR................. 3
or SOC 485 Sociology of Knowledge L2/SB (3)
or SOC 486 Contemporary Theory SB (3)

Also required is one course from at least three of the following six areas:
1. family;
2. intergroup relations and social psychology;
3. political/comparative-historical;
4. social problems and processes;
5. stratification/occupations/organizations;
6. urban sociology/demography

At least 18 semester hours must be in upper-division courses, and at least 12 upper-division semester hour in the major must be taken in residence. A grade of “C” or higher is required in all upper-division courses in the major. A flyer detailing the courses in each of the six areas is readily available in the department office or from a sociology advisor. See “Degree Requirements” on page 107.

A more narrowly focused set of courses may be chosen for the fifteen non-core hours, in any of several areas (family, work and occupations, urban studies, and other sets as are available). A flyer is available in the Department of Sociology office describing the currently available focus.

**MINOR IN SOCIOLOGY**

The minor in Sociology consists of 18 hours in sociology, including the following:

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<tr>
<th>Course</th>
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<th>Units</th>
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<tbody>
<tr>
<td>SOC 101</td>
<td>Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 301 Principles of Sociology SB (3)</td>
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</tr>
<tr>
<td>SOC 391</td>
<td>Sociological Research</td>
<td>3</td>
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<tr>
<td>or SOC 301 Principles of Sociology SB (3)</td>
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<td></td>
</tr>
<tr>
<td>SOC 395</td>
<td>Social Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 301 Principles of Sociology SB (3)</td>
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</table>

Four remaining courses must be chosen by the student in consultation with a sociology advisor. Twelve hours must be in upper-division courses, and at least six semester hours in upper-division courses in the minor are required for residency.

**SECONDARY EDUCATION—B.A.E.**

**Social Studies.** The major teaching field of social studies education consists of 63 semester hours, of which 30 hours may be in criminal justice, economics, geography, history, political science, psychology, and sociology and are exactly those courses required for the B.A. or B.S. degree in Sociology. Of the remaining hours, two groups of 12 hours each and one of six hours are generally taken in related social sciences plus SED 480 Special Methods of Teaching Social Studies.

The minor teaching field consists of 24 semester hours, at least six of which are in the upper division. SOC 101 or 301 is required. The remaining 21 hours must be approved by the sociology advisor in consultation with the student and must include at least one course from at least four of the following seven areas:
1. family;
2. intergroup relations and social psychology;
3. political/comparative-historical;
4. racial/ethnic relations;
5. social problems and processes;
6. stratification/occupations/organizations; and
7. urban sociology/demography.

Details are available in the department office. One sociology course in racial/ethnic relations is required.

**GRADUATE PROGRAMS**

The Department of Sociology offers programs leading to the M.A. and Ph.D. degrees. Consult the Graduate Catalog for requirements.
315 Courtship and Marriage. (3) F, S, SS
An overview of courtship, marriage, and related processes, focusing on problematic aspects of these institutions from the sociological perspective. General Studies: SB.

318 Overview of Aging. (3) F
Multidisciplinary introduction to gerontology. Explores the characteristics, experiences, problems, and needs of older persons. General Studies: SB.

321 Sociology of Work. (3) S
Social and cultural analysis of industry. Occupational roles, status, and social participation of workers. General Studies: SB.

331 Environmental Sociology. (3) F
Analysis of human organizational responses to population growth, technological change, and environmental stresses on both a national and global scale. Prerequisites: SOC 101 (or 301) or instructor approval. General Studies: SB.

332 Urban Sociology. (3) F, S
Growth, characteristics, and problems of the modern city. Prerequisite: SOC 101 or 301. General Studies: SB.

333 Population. (3) F, S, SS
Theories of population change; births, deaths, and migration; population policies. Prerequisites: SOC 101 or 301. General Studies: SB, G.

340 Sociology of Deviant Behavior. (3) F, S, SS
A sociological analysis of stigmatized behaviors and conditions, including the causes, effects, and management of stigma. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: SB.

341 Modern Social Problems. (3) F, S, SS
Race relations, poverty, unemployment, and other current issues. General Studies: SB.

352 Social Change. (3) F, S
Patterns of social change, resistance to change, and change-producing agencies and processes. Prerequisite: SOC 101 or 301. General Studies: SB, G/H.

360 Sociological Psychology. (3) F, S
Interaction patterns between the sociocultural order and individuals; socialization process; norms, roles, and statuses; collective behavior. Prerequisite: SOC 101 or 301. General Studies: SB.

361 Variant Sexuality. (3) F
Sociological research and theories dealing with homosexuality, transvestism, transsexualism, and other variations in sexual orientation and gender identity. Prerequisite: SOC 101 or 301. General Studies: SB.

365 The Sociology of Mass Communication. (3) F, S
A sociological exploration of the major mass media as a communicative process in American society. General Studies: SB.

368 Sociology of Everyday Life. (3) F, S
Examination of routine everyday behavior as it relates to problems of social order, control, change, identity, and relationships.

391 Sociological Research. (3) F, S, SS
Methods of sociological research, including the fundamental assumptions underlying research and some practical experience in research design, data collection techniques, and data analysis. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: SB.

395 Social Statistics I. (3) F, S, SS
Application of descriptive and inferential statistical methods to research problems in sociology. Prerequisites: SOC 101 (or 301), 391; N1 course. General Studies: N2.

415 The Family. (3) F, S, SS
The family considered from the institutional viewpoint; its historical development and its adaptation to a changing culture; the family system in many cultures. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: SB.

416 Marriage Problems in Contemporary Society. (3) S
Marital and family problems in today’s society from the viewpoint of personal and cultural adjustment. Prerequisites: SOC 101 (or 301) and an additional 3 hours in sociology or instructor approval. General Studies: L2/SS.

417 Family Violence. (3) F, S
Study of current research and theory on several aspects of domestic violence, including child maltreatment, spousal aggression, and courtship violence. Prerequisite: instructor approval. General Studies: SB.

418 Aging and the Life Course. (3) F, S
Social aspects of aging. Theoretical and methodological perspectives and problems of aging such as life satisfaction, retirement, and adjustment to role loss. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: SB.

420 Sociology of Religion. (3) S
Interrelationship of culture, society, and religion; religion and social stratification; religious, economic, and political institutions; social change and religion. Emphasis on American society and institutions. Prerequisites: ASB 102 or SOC 101 or 301 and an additional 3 hours in sociology or instructor approval. General Studies: L2/SS.

421 Sociology of Education. (3) S
Contemporary sociological perspectives are used to examine effects of schools and schooling on individuals and society. Prerequisite: SOC 101 or 301 or instructor approval.

422 Sociology of Complex Organizations. (3) F
Sociological studies of government agencies, industrial firms, labor unions, military establishments, and other large-scale organizations. Prerequisite: 6 hours in sociology, including SOC 101 or 301 or instructor approval. General Studies: L2/SS.

423 Social Class and Stratification. (3) S
Social classes and the function of these groupings in society. Prerequisite: SOC 101 (or 301) and an additional 3 hours in sociology or instructor approval. General Studies: L2/SS.

424 Politics of Women’s Health. (3) S ‘97
Women as health care workers and issues of health, illness, and health care for women. Prerequisite: SOC 101 or 301 or instructor approval.

427 Sociology of Health and Illness. (3) F
Social aspects of physical and mental illness and sociological analysis of the health care system and its practitioners. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: L2/SS.

428 AIDS and Society. (3) F
This course provides a sociohistorical perspective on stigma and illness in general and on AIDS in specific. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: L2.

429 Sociology of Law. (3) S
Examination of law as an institution: its origins, operations, and consequences. Emphasis on contemporary legal issues and problems. Prerequisite: SOC 101 or 301. General Studies: SB.

433 Demographic Methods. (3) S
Science of population analysis; problems in measurements of size, composition, and changes in population. Prerequisite: SOC 101 or 301. General Studies: SB.

446 Sociology of Crime. (3) F
The process of criminalization, exploring the behavior of the definers of crime, and the behavior of those defined as criminals. Prerequisites: SOC 101 (or 301) and 340 or instructor approval. General Studies: SB.

451 Comparative Sociology. (3) F
Cross-cultural study of basic social institutions; the methodology of cross-cultural research. Prerequisite: ASB 102 or SOC 101 or 301 or instructor approval. General Studies: SB, G.

455 Collective Behavior. (3) S
Social causes and consequences of such noninstitutionalized forms of behavior as crowds, cults, publics, social movements, and revolutions. Prerequisite: SOC 101 (or 301) and an additional 3 hours in sociology or instructor approval. General Studies: SB.

456 Political Sociology. (3) S
Social factors associated with voting; nature and structure of the electorate and political parties; and the nature of national and international power structure. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: SB, G.

462 Social Control. (3) F
Significance of social control in society and the various methods used by individuals and groups to control others. Prerequisite: SOC 360 or instructor approval. General Studies: SB.

464 Women’s Roles. (3) S
Sociological analysis of the development, nature, and consequences of traditional and alternative roles of women in contemporary society. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: L2/SS, C.

470 Racial and Ethnic Minorities. (3) F, S, SS
Problems of minorities in the United States and in other racially and ethnically heterogeneous societies. Evaluation of theories of prejudice and of research dealing with discrimination, desegregation, and assimilation. Prerequisite: SOC 101 or 301. General Studies: SB.
547 Afro-American in Modern Society. (3) F, S, SS
Social and cultural heritage of black American and Canadian Negroes; achievements and current trends. Lecture, discussion. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: L2/SB, C.

548 History of Social Thought. (3) S, SS
Social thought in human culture. Background of modern sociological thought. Prerequisite: SOC 101 or 301. General Studies: L2/SB.

485 Sociology of Knowledge. (3) F
Relationship between social conditions and the development of knowledge in modern society. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: L2/SB.

486 Contemporary Theory. (3) S
Contemporary issues and crises in social theory with major focus on particular theorists. Ideological factors in theory, philosophical issues, the nature of theory and its relationship with practice. Prerequisite: SOC 101 or 301 or instructor approval. General Studies: L2/SB.

501 Practicum in Survey Research. (3) F, S
A research practicum in survey field work, analysis, and reporting in the Phoenix Area Study. Prerequisite: SOC 395 or equivalent.

502 Practicum in Survey Research. (3) F, S
Continuation of SOC 501. Prerequisite: SOC 501.

503 Sociology as a Profession I. (1) F
Becoming and working as a sociologist, including how to write a vita, choose a thesis topic, and find dissertation data. Prerequisite: graduate Sociology major.

504 Sociology as a Profession II. (1) S
Becoming and working as a sociologist, including how to write a vita, choose a thesis topic, and find dissertation data. Prerequisite: graduate Sociology major.

505 Social Statistics II: Multivariate Analysis. (3) F, SS
Analysis of variance, multiple regression, dummy variable regression, path analysis, and related topics. Computer application to problem solving. Prerequisite: SOC 395 or equivalent; a proficiency examination.

506 Contemporary Sociological Theory. (3) S
Analysis of major theories, including structural-functional, conflict, social exchange, symbolic interaction, and role theory. Prerequisite: instructor approval.

585 Development of Sociology. (3) F
Major sociological theorists, including Durkheim, Weber, Marx, Parsons, Merton, Dahrendorf, Homans, and Mead. Prerequisite: instructor approval.

586 Methodological Issues in Sociology. (3) S
Basic methodological issues in the application of scientific methods to the study of human social life. Emphasis on limited number of major works, with contrasting approaches to issues. Prerequisite: SOC 391 or instructor approval.

Department of Speech and Hearing Science

M. Jeanne Wilcox
Chair
(LL A145) 402/596/2374

PROFESSORS
BACON, CASE, DORMAN, LaPOINTE, MOWRER, WILCOX

ASSOCIATE PROFESSOR
SINEX

ASSISTANT PROFESSORS
HADLEY, LISS, SHARMA

FACULTY ASSOCIATES
BROWN, BUDRZYSKY, HUEFFNER, MINTZ, WEXLER, WILSON

CLINIC DIRECTOR
CASE

CLINICAL ASSISTANT PROFESSOR
COOK

PROFESSORS EMERITI
CHUBRICH, CLUFF, PRATHER

SPEECH AND HEARING SCIENCE—B.S.

The B.S. in Speech and Hearing Science consists of 45 semester hours of speech and hearing science courses emphasizing the developmental and scientific aspects of language, speech, and hearing. The following courses, or their approved equivalents, are required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SHS 250 Introduction to Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>SHS 310 Anatomical and Physiological Bases of Speech</td>
<td>3</td>
</tr>
</tbody>
</table>

Also required are one three-hour course in disorders of speech and one three-hour course in disorders of language. The remaining speech and hearing science courses to complete the major are determined by the students in consultation with an advisor. A list of approved electives is available through the department. Supporting courses from related fields must include the following or their equivalents:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MAT 170 Precalculus</td>
<td>3</td>
</tr>
<tr>
<td>PGS 101 Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PHY 111 General Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHY 112 General Physics</td>
<td>3</td>
</tr>
<tr>
<td>PSY 230 Introduction to Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ZOL 201 Human Anatomy and Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

*Both PHY 111 and 112 must be taken to secure S1 or S2 credit.

GRADUATE PROGRAMS

The Department of Speech and Hearing Science offers programs leading to the Master of Science degree in Communication Disorders and Doctor of Philosophy degree in Speech and Hearing Science. Consult the Graduate Catalog for requirements.

SPEECH AND HEARING SCIENCE

SHS 174 American Sign Language I. (4) F, S
Basic receptive/expressive conversational skills; basic grammar and syntax rules. Orientation to deafness and deaf culture. Lecture, drill, practice, dialogue, and discussion.

175 American Sign Language II. (4) F, S

250 Introduction to Phonetics. (3) F
An introduction to English phonetics with emphasis on phonetic transcription, articulation, phonology, and disorders of speech.
274 American Sign Language III. (4) F, S
Develop greater fluency and speed. Emphasis on deaf culture and folklore including storytelling and idioms. Beginning technical and interpreting signs. Lecture, discussion, drill, practice. Prerequisite: SHS 175.

275 American Sign Language IV. (4) F, S
ASL grammar and syntax, conceptually accurate use of vocabulary, deaf culture, text analysis, and translation. Presentations, finger spelling, drills, and stories. Prerequisite: SHS 274.

305 Survey of Communication Disorders. (3) F, S
An overview of normative and disordered processes of human communication. Designed for majors as well as nonmajors.

310 Anatomical and Physiological Bases of Speech. (3) F
A noncadaveric study of anatomical systems that underlie human speech and language, including respiration, phonation, articulation, and related nervous system processes.

311 Physical and Physiological Bases of Hearing. (3) F
Study of the physical characteristics of sound and of the structure and function of the human auditory system. Prerequisites: MAT 117; PHY 111, 113.

367 Language Science. (3) F
Normative aspects and integration of language structure, comprehension, and production in children and adults.

375 Speech Science. (3) F
Normative aspects of speech, hearing, and language. Prerequisites: SHS 310, 311.

376 Psychoacoustics. (3) S
Introduction to acoustics, cochlear anatomy and physiology, and the perception of sound. Prerequisite: SHS 311 or instructor approval.

384 Hearing Disorders. (3) S
Pathologies of the ear and associated peripheral and central hearing disorders: characteristics, management, and effects on communication. Prerequisites: SHS 311, 376.

401 Introduction to Audiologic Evaluation. (4) F
Measurement of the basic audiologic test battery, including audiograms, masking, speech recognition, and immittance. 3 hours lecture, 3 hours lab. Prerequisites: SHS 311, 376, 384 or equivalents.

402 Modifying Communicative Behavior. (3) S
Principles and techniques of modifying speech and language behavior. Prerequisite: SHS 250 or equivalent.

431 Developmental Speech Disorders. (3) S
Introduction to the nature of articulation, fluency, resonance, and voice disorders in childhood. Prerequisites: SHS 250 and 310 or equivalents.

435 Hearing Conservation. (3) S
The causes and prevention of noise-induced hearing loss, and approaches to industrial audiologic programs. Prerequisite: SHS 401.

450 Observation. (1) F, S
Opportunity to obtain observation experience at the ASU Speech and Hearing Center or at external sites. Prerequisite: instructor approval.

465 Speech and Language Acquisition. (3) S, SS
Speech and language development in the normal child. Cross-listed as SHS 565. Prerequisite: SHS 367 or instructor approval.

470 Developmental Language Disorders. (3) F
Introduction to the nature and treatment of language disorders in children. Prerequisite: SHS 465 or instructor approval.

485 Acquired Speech and Language Disorders. (3) S
Introduction to acquired speech and language disorders across the lifespan. Prerequisites: SHS 250, 310.

494 Special Topics. (3) F, S
Topics may be selected from the following:
(a) Hearing Disorders
(b) Research
(c) Speech and Language Disorders
May be repeated for credit. Prerequisite: instructor approval.

496 Aural Rehabilitation. (3) S
Approaches to aural rehabilitation of children and adults. Introduction to educational audiology and assistive listening devices. Prerequisites: SHS 375, 401.

501 Introduction to Audiologic Evaluation. (4) F
Measurement of the basic audiologic test battery, including audiograms, masking, speech recognition, and immittance. 3 hours lecture, 3 hours lab. Prerequisite: SHS 311 and 376 and 384 or equivalents.

502 Advanced Audiologic Evaluation I. (4) F
Differential diagnosis of cochlear and retrocochlear disorders, including measurement of auditory evoked responses. 3 hours lecture, 2 hours lab. Prerequisite: SHS 401 or 501 or equivalent.

504 Hearing Aids. (4) S
Operation, application and fitting of amplification devices for the hearing impaired. 3 hours lecture, 2 hours lab. Prerequisite: SHS 401 or 501 or equivalent.

505 Computers and Current Technology in Audiology and Speech-Language Pathology. (3) F
Computer applications and current technology as applied to service administration and delivery in the fields of audiology and speech-language pathology. Lecture, lab.

508 Pediatric Audiology. (3) F
Audiologic assessment, screening, and development considerations for infants and young children. Prerequisite: SHS 401 or 501 or equivalent.

510 Advanced Hearing Science. (3) N
Anatomical, physiological, and psychophysical aspects of audition. Prerequisite: SHS 376 or instructor approval.

511 Auditory Perception by the Hearing Impaired. (3) F ’96
A study of how and why sensorineural hearing loss alters the perception of sound. Prerequisite: SHS 376 or instructor approval.

512 Medical Aspects of Speech and Hearing. (3) F
Correlation of history and physical findings with pathologic physiology and test results in speech and hearing abnormalities.

515 Audiologic Instrumentation and Calibration. (3) S
Electronic instruments used to produce, modify, and measure characteristics of sound. Measurement standards and methods for calibration of audiologic equipment. Lecture, lab. Prerequisite: SHS 401 or 501 or equivalent.

516 Advanced Audiologic Evaluation II. (3) S
Continuation of SHS 502, including behavioral and physiological measures of the central auditory nervous system, andvestibular assessment. Lecture, lab. Prerequisite: SHS 502.

535 Hearing Conservation. (3) S
The causes and prevention of noise-induced hearing loss and approaches to industrial audiologic programs. Prerequisite: SHS 401 or 501 or equivalent.

545 Speech Perception and Production. (3) F
Current knowledge regarding the production and perception of speech. Introduces speech perceptual problems of the hearing impaired, and cochlear implants. Prerequisite: SHS 375 or instructor approval.

552 Otoacoustic Emissions as a Diagnostic Tool. (3) F ’96
Study of the types of otoacoustic emissions, their theoretical implications and application to clinical diagnostics. Lecture, discussion, lab. Prerequisite: SHS 376 or instructor approval.

555 Cochlear Implants. (3) S
Current status of cochlear implant research and development. Prerequisites: SHS 504 and 545 or instructor approval.

565 Speech and Language Acquisition. (3) S
Speech and language development in the normal child. Cross-listed as SHS 465. Prerequisite: SHS 367 or equivalent.

566 Psychology of Language. (3) S
The psycholinguistic study of the production and comprehension of language across the lifespan.

567 Neural Bases of Communication Disorders. (3) F
Neuroscience and its application to matters of normal and disordered communication. Prerequisite: SHS 310 or equivalent.

571 Augmentative Communication and Language Programming. (3) S
Focus on individuals across the age span who are or who are at risk for being unable to communicate with spoken language. Lecture, lab.
### Women’s Studies Program

**Director**  
Mary Logan Rothschild  
(SS 103) 602/965–2358

#### ANTHROPOLOGY
Professor: Koss-Chioino;  
Associate Professor: Brandt

**ART**
Professors: Codelli, Magenta;  
Associate Professors: Fahlman, Schleif

**ART HISTORY**
Assistant Professor: Woltthal

**COMMUNICATION**
Professor: K. Valentine;  
Associate Professors: Carlson, C. Valentine;  
Assistant Professor: Nakayama

**CURRICULUM AND INSTRUCTION**
Professor: Edelsky;  
Associate Professor: Wilson

**EDUCATION**
Associate Professor: Guzzeti

**EDUCATIONAL MEDIA AND COMPUTERS**
Associate Professor: McIsaac

**ENGLISH**
Professors: Lightfoot, Nilsen, Shinn;  
Associate Professors: Adams, Gutierrez, Miner, Morgan, Sensibar;  
Assistant Professors: Horan, McCabe, Morgan, Pritchard, Tohe

**EXERCISE SCIENCE AND PHYSICAL EDUCATION**
Professor: Wells;  
Assistant Professor: Swan

**FAMILY RESOURCES AND HUMAN DEVELOPMENT**
Associate Professor: Martin

**GEOGRAPHY**
Professor: Burns

**HEALTH ADMINISTRATION AND POLICY**
Professor: Kronenfeld

**HISTORY**
Professors: Fuchs, Giffin, Lavrin, Rothschild, Warnicke;  
Associate Professor: Stoner;  
Assistant Professors: Gray, Gullet, Hendricks

**JUSTICE STUDIES**
Professors: Johnson, Kelly;  
Associate Professors: Jurik, Zatz

**LANGUAGES AND LITERATURES**
Professors: Ahern, Foster, Losse;  
Assistant Professors: Galindo, Gruziniska

**MANAGEMENT**
Associate Professor: Cook

**MUSIC**
Associate Professor: Williamson

**NURSING**
Associate Professor: Kenney

**PHILOSOPHY**
Associate Professor: McGregor

**PLANNING**
Assistant Professor: Wasserman

**POLITICAL SCIENCE**
Associate Professor: Daneri;  
Assistant Professor: Bower

**PSYCHOLOGY**
Professors: Berstein, Chassin, Eisenburg, Russo;  
Assistant Professor: Saenz

**PSYCHOLOGY IN EDUCATION**
Professors: Hackett, Kerr;  
Associate Professors: Metha, Moore

**RECREATION MANAGEMENT AND TOURISM**
Professor: Allison

**RELIGIOUS STUDIES**
Assistant Professor: Fessenden

**SOCIAL WORK**
Professor: Coudrogiou

**SOCIOLGY**
Professors: Gordon, Laner, Miller-Loessi, Weitz;  
Associate Professor: Benin

**WOMEN’S STUDIES**
Professors: Rothschild, Ruiz;  
Associate Professor: Ferraro;  
Assistant Professors: Gutierrez de Soldatenko, Hopkins, Scheiner

The Women’s Studies Program is an interdisciplinary university program housed in the College of Liberal Arts and Sciences. Information on faculty affiliation is provided for reference.

### WOMEN’S STUDIES—B.A. OR B.S.

The B.A. or B.S. in Women’s Studies consists of 45 semester hours, of which 36 must be in Women’s Studies and nine must be in a closely related field. At least 36 of the 45 semester hours required for the major must be completed in upper-division courses. In addition, for the B.S. degree, students must complete six hours in statistics, computer science, or quantitative research methods. This sequence must be approved by a women’s studies advisor.

#### Required Courses
Five courses are required. Students must complete the following courses:

- WST 100 Women and Society  
  SB, C, SS 3
- or WST 300 Women in Contemporary Society  
  SB, C (3)
MINOR IN WOMEN’S STUDIES

The Women’s Studies minor consists of 18 semester hours. The following courses are required:

WST 100 Women and Society SB, C ... 3
or WST 300 Women in Contemporary Society SB, C (3)
WST 376 Introduction to Feminist Theory L1, C ................... 3
WST 498 PS: Theoretical Issues in Women’s Studies L2 ............ 3

Nine additional hours of approved women’s studies courses must be taken after consultation with a women’s studies advisor.

Students pursuing a minor must register at least one semester before graduation.

CERTIFICATE PROGRAM IN WOMEN’S STUDIES

The certificate program is equivalent to an interdisciplinary minor, consisting of 21 semester hours. Students pursuing a certificate must consult with a women’s studies advisor. See page 112 for a description of the certificate program.

GRADUATE STUDIES

Although the Women’s Studies Program does not offer a graduate degree, it is possible to pursue a graduate degree in some existing programs with a thesis or dissertation related to women’s studies. Information on such programs can be obtained from the Women’s Studies Program office.

COURSES IN WOMEN’S STUDIES

Additional courses appear as Special Topics and vary semester to semester. A list of approved interdisciplinary courses that count toward the 36 hours of requirements for Women’s Studies is available each term in the program office.

WOMEN’S STUDIES

WST 100 Women and Society. (3) F, S
Interdisciplinary introduction examining critical issues in women’s studies. Not open to students who have credit for WST 300. General Studies: SB, C.

300 Women in Contemporary Society. (3) F, S, SS
Intensive interdisciplinary examination of such topics as gender roles, work, education, sexuality, politics, health, and law. Not open to students who have credit for WST 100. General Studies: SB, C.

372 Women in Judaism. (3) S
The impact of feminism on the legal, social, and cultural status of Jewish women in various historical and contemporary societies. Cross-listed as REL 373.

373 Latina/Chicana Issues. (3) F, S
Course examines the roles Mexican-American, Chicana, and/or Latina immigrant women play historically, socially, and politically in the United States. Prerequisite: WST 100 or 300 or instructor approval. General Studies: SB, C.

375 Women and Social Change. (3) S
Combines research and theory on a contemporary social problem with a community action experience focusing on women’s social change initiatives. Lecture, field placement. General Studies: C.

376 Introduction to Feminist Theory. (3) F, S
Introduction to feminist theories and exploration of the intersection of gender, race, ethnicity, and class through critical analyses. Prerequisite: WST 100 or 300. General Studies: L1, C.

380 Gender, Race, and Class. (3) SS
Cultural diversity, class, and gender issues in American social life are explored. Lecture, seminar, analysis papers, and writing. General Studies: SB, C.

413 Lesbian Culture: Images and Realities. (3) S
Explores aspects of lesbian experience from sociological, psychological, historical, political, and literary critical perspectives. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.

457 Women in Developing Countries. (3) F
Economic, sociopolitical, and demographic contexts for understanding women’s roles related to health, family, work, education, and community in developing countries. Cross-listed as NUR 457/SPF 457. Prerequisite: 6 hours of social science credit or instructor approval. General Studies: SB, G.

460 Women and the Body. (3) F
An interdisciplinary look at how representations of women as body permeate culture and affect a woman’s sense of self. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval. General Studies: SB, G.

464 Voices and Visions. (3) F, S
Explores the contributions of visionary women in the humanities, varying from semester to semester. Repeat credit for different topics. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval. General Studies: HU, C.

470 Women and Popular Culture. (3) S
An interdisciplinary examination of how gender is constructed in popular cultural forms. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval. General Studies: HU, C.

NOTE: For the General Studies requirement, codes (such as L1, N3, C, and H), and courses, see pages 71–94. For graduation requirements, see pages 66–70. Omnibus courses are offered that are not listed in the catalog; see pages 44–45.
Women and Violence. (3) F
Global examination of forms of violence
against women at the individual, institutional,
and cultural levels and efforts to control it.
Prerequisite: WST 100 or 300 or instructor ap-
proval. General Studies: C.

Internship. (1–3) A
Practical experience to enhance the academic
perspectives that emerge from women’s stud-
ies instruction. Prerequisite: preapproval by in-
ternship coordinator required.

Pro-Seminar: Theoretical Issues in
Women’s Studies. (3) A
Reading and research on important theoretical
issues in women’s studies. General Studies: L2.

Department of Zoology
James Collins
Chair
(LS C226) 602/965–3571

REGENTS’ PROFESSOR
ALCOCK, MARKOW

PROFESSORS
ALVARADO, CAPCO, CHANDLER,
CHURCH, COLLINS, DOANE, FAETH,
FISHER, HAZEL, HEDRICK, LAWSON,
MAIENSCHEN, MCGAUGHEY,
MINCKLEY, MOORE, OHMART,
RISSING, RUTOWSKI, SATTERLIE,
A. SMITH, WALSBERG

ASSOCIATE PROFESSORS
DOWLING, FOUQUETTE,
GOLDSTEIN, G. SMITH

ASSISTANT PROFESSORS
COOPER, ELSER, FEWELL,
HARRISON, ORCHINIK

ACADEMIC PROFESSIONALS
DOUGLAS, GRIMM, KAZILEK

RESEARCH PROFESSOR
PEARSON

ASSOCIATE RESEARCH
PROFESSOR
DAVIDSON

PROFESSORS EMERITI
BENDER, CLOTHIER, COLE,
GERKING, HADLEY, HANSON,
JUSTUS, PATTERTON, RASMUSSEN, WOOLF

BIOLOGY—B.S.

The B.S. in Biology is offered jointly by the Department of Zoology and the
Department of Botany. See pages 117–
118 for a description.

WILDLIFE CONSERVATION
BIOLOGY—B.S.

Under the B.S. in Wildlfe Conserva-
tion Biology, the terrestrial and the
aquatic options are available. Both op-
tions consist of 62 hours in the major
and supplementary courses, plus math-
ematics proficiency. Courses required for
both options are as follows:

BIO 181 General Biology S1/S2 ............4
BIO 182 General Biology S2 .............4
BIO 217 Conservation Biology ..........3
BIO 320 Fundamentals of Ecology .....3
BIO 340 General Genetics .............4
BIO 415 Biometry N2 ....................4
CHM 113 General Chemistry S1/S2 .......4
CHM 115 General Chemistry with
Qualitative Analysis S1/S2 .... 5

Choose between the two combinations
of organic chemistry
courses below ..............4 or 8

CHM 231 Elementary Organic
Chemistry S1/S2* (3)
CHM 235 Elementary Organic
Chemistry Laboratory
S1/S2* (1)

CHM 331, 332 General Organic
Chemistry (6)
CHM 335, 336 General Organic
Chemistry Laboratory (2)

ENG 301 Writing for the
Professions L1 ..............3
MAT 210 Brief Calculus N1 ............3
or any calculus
ZOL 360 Basic Physiology ..........4
ZOL 410 Techniques in Wildlife
Conservation Biology L2 .... 3
ZOL 411 Biology and Management
of Terrestrial Wildlife........... 3
ZOL 413 Biology and Management
of Aquatic Resources.......... 3

*Both CHM 231 and 235 must be taken to
secure S1 or S2 credit.

Terrestrial Option. Additional required
courses for the terrestrial option are as fol-
lows:

BOT 370 The Flora of Arizona ..........4
ERA 370 Forest Ecosystem
Management .......................3
or ERS 360 Range Eco-
system Management (4)
ZOL 471 Ornithology ...................3
or ZOL 472 Mammalogy (4)

Aquatic Option. Additional required
courses for the aquatic option are as fol-
lows:

BIO 426 Limnology L2 ..................4
ZOL 350 Comparative Invertebrate
Zoology .........................4 or
ZOL 370 Vertebrate
Zoology (4)
ZOL 473 Ichthyology L2 .................3

These requirements meet the mini-
um for eligibility for the Federal Reg-
ister. Students planning to enter gradu-
ate school from either option should
take CHM 331, 332, 335, and 336 in-
stead of CHM 231 and 235 and should
take PHY 111, 112, 113, and 114.

ZOOLOGY—B.S.

The B.S. in Zoology consists of 40
hours in major courses and 17 hours in
required supplementary courses, plus math
proficiency. Required courses are as fol-
lows:

BIO 181 General Biology S1/S2 ........4
BIO 182 General Biology S2 ............4
BIO 320 Fundamentals of Ecology ....3
BIO 340 General Genetics ............4
BIO 445 Organic Evolution ............3
CHM 113 General Chemistry S1/S2 ......4
CHM 115 General Chemistry with
Qualitative Analysis S1/S2 .... 5

Choose between the two combinations
of organic chemistry
courses below .............4 or 8

CHM 231 Elementary Organic
Chemistry S1/S2* (3)
CHM 235 Elementary Organic
Chemistry Laboratory
S1/S2* (1)

CHM 331, 332 General Organic
Chemistry (6)
CHM 335, 336 General Organic
Chemistry Laboratory (2)

ENG 301 Writing for the
Professions L1 ..............3
MAT 210 Brief Calculus N1 ............3
or any calculus
PHY 101 Introduction to
Physics S1/S2 ..............4
or PHY 111, 112 General
Physics S1/S2* (6)
and PHY 113, 114
General Physics
Laboratory S1/S2* (2)
ZOL 280 Animal Behavior ............3
ZOL 330 Developmental Anatomy ....3
ZOL 331 Laboratory in Vertebrate
Developmental Anatomy .... 2
ZOL 350 Comparative Invertebrate
Zoology .......................4 or
ZOL 354 General
Entomology (4)
or ZOL 370 Vertebrate
Zoology (4)
ZOL 360 Basic Physiology ..........4

1 Both CHM 231 and 235 must be taken to
secure S1 or S2 credit.
2 Both PHY 111 and 113 or PHY 112 and
114 must be taken to secure S1 or S2 credit.
The remaining six hours may be selected from upper-division BIO or ZOL courses.

Undergraduate Thesis Option. To fulfill the six semester hours of zoology electives, a student may arrange to conduct a laboratory or field research project under the supervision of a member of the Zoology faculty. At least three semester hours are taken as BIO 310 Special Problems and Techniques or ZOL 499 and three semester hours as ZOL 495 Undergraduate Thesis. This option culminates in the production of a thesis by the student that describes the research project and a thesis defense. See the Department of Zoology office for a complete description of this option.

MINOR IN ZOOLOGY

The Zoology minor consists of 24 semester hours in BIO and ZOL courses, including BIO 181 General Biology and BIO 182 General Biology, and 16 hours selected with approval of an advisor in the Department of Zoology; at least 12 hours must be in the upper division. Courses not available for credit in the Zoology major cannot be used for the minor (e.g., BIO 100 The Living World and ZOL 201 Human Anatomy and Physiology I). This minor is not available to students majoring in the life sciences.

SECONDARY EDUCATION—B.A.E.

See page 118 for information on the academic specialization in biological sciences.

GRADUATE PROGRAM

The Department of Zoology offers programs leading to the degrees of Master of Natural Science, Master of Science, and Doctor of Philosophy (with a concentration in zoology as the Master of Science and the Doctor of Philosophy). Consult the Graduate Catalog for requirements.

The department participates in the interdisciplinary program for the Master of Science and Doctor of Philosophy degrees in Molecular and Cellular Biology. See page 172 for more information.

BIOLGY

For courses in biology, see "Biological Sciences," pages 117–119.

ZOOLOGY

ZOL 113 Contemporary Zoology. (4) F, S Topics emphasizing socially relevant problems. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab.

120 Human Physiology. (4) F, S Basic concepts of general science are discussed using current issues and basic concepts of human physiology as a focus. Cannot be used for major credit in biological sciences. 3 hours lecture, 3 hours lab. General Studies: S2

201 Human Anatomy and Physiology I. (4) F, S, SS Structure and dynamics of the human mechanism. Cannot be used for major credit in the Department of Zoology. 3 hours lecture, 3 hours lab. General Studies: S2

202 Human Anatomy and Physiology II. (4) F, S, SS Continuation of ZOL 201. Cannot be used for major credit in the Department of Zoology. 3 hours lecture, 3 hours lab. Prerequisite: ZOL 201 or instructor approval.

241 Human Genetics. (3) F Introduction to human heredity and variation. Cannot be used for major credit in the Department of Zoology. Prerequisite: a course in the life sciences.

280 Animal Behavior. (3) F Evolutionary, genetic, physiological, and ecological bases of animal behavior. Prerequisite: 4 hours of BIO or ZOL or instructor approval.

316 History of Biology: Conflicts and Controversies. (3) N Focuses on 19th and 20th centuries, considering biology as a discipline, evolution, and problems of heredity, development, and cell theory. Cross-listed as HPS 330. General Studies: H


330 Developmental Anatomy. (3) F General developmental biology (embryology) and comparative structure of organ systems, illustrated mainly by vertebrate examples. Prerequisite: BIO 182.

331 Laboratory in Vertebrate Developmental Anatomy. (2) F, S Morphology of representative embryonic and adult vertebrates. 2 3-hour labs. ZOL 330 recommended. Prerequisite: BIO 182.

350 Comparative Invertebrate Zoology. (4) F Characteristics, life cycles, adaptations, and evolution of invertebrate animals. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or instructor approval.

354 General Entomology. (4) S '98 Form, activities, and classification of insects. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182.

360 Basic Physiology. (4) F, S Physiological mechanisms of the higher vertebrates. 3 hours lecture, 3 hours lab. Prerequisites: BIO 182; CHM 115; MAT 117.

370 Vertebrate Zoology. (4) S Characteristics, classification, evolution, and natural history of the major groups of vertebrate animals. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182.

380 Sociobiology. (3) S Survey of animal and human social behavior examined from an evolutionary perspective. Suitable for nonmajors. ZOL 290 is recommended.

394 Special Topics (Nonmajors). (2–3) N Topics of current or special interest in one or more aspects of animal biology. Topics vary. Cannot be used for major credit in life sciences. Prerequisite: junior standing.

410 Techniques in Wildlife Conservation Biology. (3) F Field and analytical techniques used in evaluating population structure, viability and environmental impacts. Lecture, lab. Prerequisites: BIO 217 and 320 or instructor approval. General Studies: L2.

411 Biology and Management of Terrestrial Wildlife. (3) S Principles, theories, and practices of managing terrestrial wildlife from habitat and population perspectives. Prerequisites: BIO 217 and 320 and ZOL 471 and 472 or instructor approval.

413 Biology and Management of Aquatic Resources. (3) F Principles, theories, and practices of managing aquatic resources. Prerequisites: BIO 217 and 320 and ZOL 473 or instructor approval.

420 Field Zoology. (3) N Experience in zoological field techniques. Requires weekend or longer field trips. Prerequisite: instructor approval.

423 Population and Community Ecology. (3) N Organization and dynamics of population and communities, emphasizing animals. Theoretical and empirical approaches. Prerequisite: BIO 320 or instructor approval.

425 Animal Ecology. (3) N Physiological and behavioral adaptations of individual animals to both abiotic and biotic environments. Prerequisite: BIO 320.

433 Animal Histology. (4) S Microscopic study of animal tissues. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or instructor approval.


454 Aquatic Insects. (3) N Systematics and ecology of aquatic insects. Prerequisite: ZOL 354.

NOTE: For the General Studies requirement, codes (such as L, N, C, and H), and courses, see pages 71–94. For graduation requirements, see pages 66–70. Omnibus courses are offered that are not listed in the catalog; see pages 44–45.
465 Neurophysiology. (3) S ’98
Detailed treatment of cellular and organismal neurophysiology and nervous system function. Prerequisite: ZOL 360.

466 Neurophysiology Laboratory. (2) S ’98
Intracellular and extracellular electrophysiological recording techniques, histological preparations, and dye-filling techniques. 6 hours lab. Pre- or corequisite: ZOL 465.

470 Systematic Zoology. (3) S ’97
Philosophy, theory, and practice in interpreting patterns of animal diversity, including species concepts and speciation, nomenclature and taxonomy, and evolutionary and phylogenetic classification. Prerequisites: junior standing, 18 hours in life science. General Studies: L2.

471 Ornithology. (3) S
The biology of birds. 2 hours lecture, 3 hours lab, weekend field trips. Prerequisite: ZOL 370 or instructor approval.

472 Mammalogy. (4) F ’96
Classification, structure, habits, ecology, and distribution of mammals, emphasizing North American forms. 3 hours lecture, 3 hours lab or field trip, weekend field trips. Prerequisite: ZOL 370 or instructor approval.

473 Ichthyology. (3) S ’97
Systematics and biology of recent and extinct fishes. 2 hours lecture, 3 hours lab or field trip, weekend field trips required. Prerequisites: ZOL 370 and 425 or instructor approval. General Studies: L2.

474 Herpetology. (3) S ’98
Systematics and biology of recent and extinct reptiles and amphibians. 2 hours lecture, 3 hours lab or field trip. Prerequisite: ZOL 370.

481 Research Techniques in Animal Behavior. (3) S ’98
Experimental and field studies of animal behavior; description and quantification of animal behavior and interpretation of behavior within an evolutionary framework. 1 hour lecture, 6 hours lab. Prerequisite: ZOL 280. General Studies: L2.

495 Undergraduate Thesis. (3) F, S, SS
Guided research culminating in the preparation of an undergraduate thesis based on supervised research done in this and previous semesters. Prerequisites: At least 3 hours of BIO 310 or 499 or ZOL 499; formal conference with instructor; instructor and department chair approval.

508 Scientific Data Presentation. (2) F
Techniques necessary for presentation of scientific data used in journal publications, grant proposals, and visual presentations. Lecture, lab. Prerequisite: instructor approval.

515 Populations: Evolutionary Genetics. (3) F
Mathematical models in the description and analysis of the genetics of populations. Prerequisites: BIO 320 and 415 and 445 or instructor approval.

516 Populations: Evolutionary Ecology. (3) S
Principles of population biology and community ecology within an evolutionary framework. 2 hours lecture, 2 hours recitation. Prerequisites: BIO 320, 415 (or MAT 210); ZOL 515, 517 Techniques in Evolutionary Genetics. (4) S
Practical experience in modern techniques for the study of evolution. Lecture, lab. Prerequisites: BIO 340, 445; instructor approval.

532 Developmental Genetics. (3) S ’98
Genetic approaches to the analysis of development during the life cycle of eukaryotic organisms, and the role of genes in the unfolding of the differentiated phenotype. Prerequisite: BIO 543.

560 Comparative Physiology. (3) S ’97
The analysis of function in invertebrates and vertebrates, emphasizing evolutionary trends in physiological systems. Prerequisite: ZOL 360 or equivalent.

566 Environmental Physiology. (3) S ’98
Physiological responses and adaptations of animals to various aspects of the physical environment. Prerequisites: BIO 320; ZOL 360.

568 Mammalian Physiology. (3) F ’97
Detailed treatment of mammalian organ system functions emphasizing integrative mechanisms. Prerequisite: ZOL 360 or equivalent.

569 Cellular Physiology. (3) F ’96
Emphasizing the molecular basis for cell structure and function. Prerequisites: ZOL 360; organic chemistry.

591 Seminar. (1–3) F, S
Topics such as the following are offered:
(a) Adaptations
(b) Behavior
(c) Cell Biology
(d) Ecology
(e) Evolution
(f) Genetic Engineering
(g) Genetics
(h) Physiology
May be repeated for credit.