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# Bulletin

University  
of Missouri  
St. Louis

*1992-93*



**Description  
of Courses**



## **Description of Courses**

## **Bulletin 1992-93**

**University  
of Missouri  
St. Louis**

**University of Missouri-St. Louis**

**Volume 20 Number 3 October 1992**

**Published by the University of Missouri-St. Louis Publications Office  
8001 Natural Bridge Road, St. Louis, Missouri 63121-4999.**

**POSTMASTER: Send address changes to the University of Missouri-St. Louis,  
8001 Natural Bridge Road, St. Louis, Missouri 63121-4999.**

## Preface

This publication includes all courses and their descriptions as listed by the University in May, 1992. All statements are subject to change at any time without prior notice. They are not to be regarded as offers to contract.

### **University Policy on Equal Opportunity**

The Curators of the University of Missouri do hereby reaffirm and state the policy of the University of Missouri on Equal Employment/Educational Opportunity. Equal Opportunity is and shall be provided for all employees and applicants for employment on the basis of their demonstrated ability and competence without discrimination on the basis of their race, color, religion, sex, national origin, age or disability. Equal opportunity is and shall be also provided for all students and applicants for Admission in compliance with existing legislation. The President of the University shall establish affirmative action procedures to implement this policy.

Inquiries regarding compliance with these regulations may be directed to the Office of Equal Opportunity/Affirmative Action, the University of Missouri-St. Louis, St. Louis, Missouri 63121-4499, (314) 553-5689.

Information regarding the provision of auxiliary aids and services to qualified students with disabilities can be found in Admissions and Academic Policies of the University of Missouri-St. Louis *Bulletin*. Students considering such assistance should contact the Administrator for Special Student Programs at 553-5211 voice or 553-5212 TT for further details.

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## Guide to Course Lists

Courses offered and a general outline of course content are included in each departmental section of this booklet. The course descriptions are meant to provide students with pertinent information and in no way should be considered as offers to contract. The University reserves the right to cancel without notice any course listed in this *University of Missouri-St. Louis Bulletin: Description of Courses* or in the *Schedule of Courses* for any semester or to withdraw any courses which do not have adequate enrollment at the close of registration.

### Course Numbering

Each course bears a distinguishing number which identifies it within the department or academic unit and indicates, broadly, its rank. The numbering system is as follows:

**0 to 099**, nondegree credit.

**1 to 99**, primarily for freshmen and sophomores.

**100 to 199**, primarily for upperclassmen, no graduate credit.

**200 to 299**, for undergraduates and appropriate professional and graduate students, except those whose graduate majors are in the department in which the course is given.

**300 to 399**, for undergraduate, appropriate professional, and graduate students without restriction as to students' graduate majors.

**400 to 499**, primarily for graduate and appropriate professional students in special programs; upperclass students are admitted to courses in this series only with the approval of the graduate dean.

**500 to 599**, for professional optometry students. Other students are admitted to courses in this series only with the approval of the Optometry Dean. In addition, these numbers are used for courses offered in the cooperative MSN program between UM-St. Louis and UM-Kansas City.

## Breadth of Study Requirement

Courses which fulfill the University's Breadth of Study requirements, as outlined in the Academic Policy section of the *University of Missouri-St. Louis Bulletin: Undergraduate/Graduate/Professional Catalogue*, are listed at the beginning of each departmental course section in this booklet.

Each list of course numbers is identified by one of the following breadth of study areas:

**[H]** Humanities requirement

**[SM]** Natural sciences and mathematics requirement

**[SS]** Social sciences requirement

### Eye Protection Law

It is now a law in the state of Missouri that every student, teacher, and visitor must wear approved eye protection devices when participating in or observing certain university courses. Definitely included in this act, which is posted along with University policy in selected buildings on this campus, are courses requiring chemical, physical, combined chemical-physical laboratories and shops, as well as certain vocational, technical, and industrial arts courses. Consult your instructors for exact requirements. Approved safety glasses and goggles must meet ANSI Standard Z87.1-1968 and are available from the UM-St. Louis Bookstore.

# Anthropology

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 5, 6, 11, 19, 25, 33, 71, 109, 111, 112, 113, 114, 120, 121, 122, 124, 131, 132, 134, 140, 145, 201, 202, 203, 204, 205, 207, 208, 210, 212, 215, 220, 241, 242, 244, 286, 291, 301, 308, 309, 310, 315, 350, 391.

## 5 Human Origins (3)

Surveys the evidence and interpretations from paleoanthropology, geology, and biology of the origin, evolution, and diversification of the human lineage. Examines evidence of fossil humans, the evolution of gender roles and relationships, the origin of racial, ethnic, and cultural differences, basic facts about race and the concepts of race that are in use today, the roles of genes, technology, and thought in the evolution of humans, and the origin of technology, culture, language, religion, etc. Anthropology 6 may be required in the same semester as this course.

## 6 Human Origins Lab (1)

Prerequisite: Anthropology 5 must be taken concurrently. Laboratory course to accompany Anthropology 5.

## 11 Cultural Diversity (3)

Cultural anthropology is the study of human beings as creatures and creators of society. This course is an introduction to that study which aims to demonstrate how the basic concepts and techniques developed by cultural anthropologists help us to understand societies of various degrees of complexity, including our own. We will consider topics such as language, kinship, gender, ethnicity, economics, politics, religion, and social change in a broad comparative framework. Major goals are an increased awareness of the social and cultural dimensions of human experience; the diversity and flexibility of human cultures; and processes of intercultural communication and conflict.

## 19 Archaeology (3)

How do archaeologists determine how old things are and which ancient culture they belong to? How do they reconstruct the religious meanings, economies, and politics of ancient civilizations and cultures? What can the study of the past teach us about life today, how our own culture changes, and how cultures diversify to form new cultures and consolidate to form nations? Using

cases from ancient cultures around the world, this course will answer these and many other questions about the study of archaeology. This course is a basic introduction to archaeology as an interpretive discipline.

## 25 World Cultures (3)

An ethnographic survey of the major culture areas of the world (Africa, Asia, North and South America, Europe, and Oceania). This course satisfies the non-Euro-American requirement.

## 33 World Prehistory (3)

An introduction to the prehistoric cultures of Asia, Africa, Europe, and the Americas from the Paleolithic Age to the establishment of civilization. Examines the rise of complex societies leading to civilization in the different areas of the world, concentrating on social and ecological conditions contributing to their development and on comparisons between civilizations. This course satisfies the non-Euro-American requirement.

## 71 Native American Literature (3)

(Same as English 71.) The course surveys the literature of American Indians from its oral tradition of myth, legend, song, and oratory through its modern forms. The course satisfies the ethnic literature requirement for Missouri state certification in Secondary Education and the College of Arts and Sciences non-Euro-American study requirement.

## 109 Field Study in Archaeology (3-6)

Prerequisite: Consent of instructor. This course is designed to introduce students to field methods in archaeology and to the methods of recording, storing, analyzing, and reporting archaeological findings. Experience is gained through participation in a field research project including excavation and survey projects. Emphasis is placed upon research design and implementation and upon the use of archaeological data in describing and explaining human behavior.

## 110 Cultures of Asia (3)

A survey of the cultures of Asia including the prehistory of the area, the ethnographic and linguistic groupings, and the social organization and cultural systems of these groups. This course satisfies the non-Euro-American requirement.

## 111 Cultures of East Asia (3)

An ethnographic and historical survey of the various people of East Asia including Japan, China, North and South Korea, Hong Kong, and Macau. Includes an examination of the varying cultural and social developments within and through the historical, geographical, and cultural environments. This course satisfies the non-Euro-American requirement.

## 112 Cultures of Southeast Asia (3)

An ethnographic and historical survey of the various people of Southeast Asia including Laos, Cambodia, Singapore, Indonesia, Myanmar, Malaysia, Brunei, Thailand, Vietnam, and the Philippines. Includes an examination of the varying cultural and social developments within and through the historical geographical, and cultural environments. This course satisfies the non-Euro-American requirement.

## 113 Cultures of South Asia (3)

An ethnographic and historical survey of the various people of South Asia including India, Pakistan, Afghanistan, Bangladesh, Sri Lanka, Tibet, and Nepal. Includes an examination of the varying cultural and social developments within and through the historical, geographical, and cultural environments. This course satisfies the non-Euro-American requirement.

## 114 Cultures of the Near and Middle East (3)

A study of the cultural diversity and unity of the peoples of the Near and Middle East. Emphasis on historical and ethnological relationships, social and political structure, religious beliefs, and contemporary problems. This course satisfies the non-Euro-American requirement.



# Anthropology

## **120 Indians of North America (3)**

A survey of the aboriginal cultures of North American Indians, including prehistory of the area, the ethnographic and linguistic groupings, and the social organization and cultural systems of North American groups. This course satisfies the non-Euro-American requirement.

## **121 Native Peoples of Eastern North America (3)**

An introduction to the native peoples of Eastern North America, including the Midwest, Great Lakes, Southeast, northeast, and Subarctic. The diversity and complexity of cultures in these regions will be demonstrated. Prehistory, history, ethnography, linguistics, art, and literature will be among the topics discussed. This course satisfies the non-Euro-American requirement.

## **122 Native Peoples of Western North America (3)**

An introduction to the native peoples of Western North America, including those of the Arctic, Subarctic, Pacific Coast, Southwest, and Plains. The diversity and complexity of cultures in these regions will be demonstrated. Prehistory, history, ethnography, linguistics, art, and literature will be among the topics discussed. This course satisfies the non-Euro-American requirement.

## **124 Cultures of Africa (3)**

A basic ethnographic survey of African cultures, with attention to social groupings, tribalism, religion, language and social change, and the ecological relationship between humans and nature. This course satisfies the non-Euro-American requirement.

## **131 Archaeology of Missouri (3)**

An introduction to the prehistoric Indian cultures of Missouri and adjacent areas from 20,000 B.C. to the coming of Europeans. Examines the development of prehistoric cultures in Missouri from small bands of hunters to agricultural city builders. Discusses the decline of indigenous cultures as they came into contact with European civilization. This course satisfies the non-Euro-American requirement.

## **132 Archaeology of North America (3)**

In this course, the archaeological record of cultural development throughout prehistoric North America is examined. Topics of discussion include the origins of human culture in North America, the process of prehistoric cultural development in the different regions of the continent, and archaeological approaches to explaining the behavior of North America's prehistoric inhabitants. This course satisfies the non-Euro-American requirement.

## **134 The Inca, Aztec, and Maya (3)**

A survey of the cultural evolution of Meso-America and Andean South America, from the early hunters to the high civilizations. The course will conclude with the sixteenth-century Spanish conquest of these civilizations. Satisfies the non-Euro-American requirement.

## **140 Cultures of Mexico and Central America (3)**

A survey of Indian cultures in Mexico and Central America. The course focuses on modern communities after a brief introduction to the European conquest and colonialism as they affected the Indian communities. Topics include preservation of Indian culture in Hispanic world, impact of modernization and tropical deforestation, Indians as an oppressed minority, Indian ethnic identity, "liberation theology". This course satisfies the non-Euro-American requirement.

## **145 Indians of South America (3)**

Explores the cultures and environmental adaptations of South American Indians from European contact to the present. Focus is on culture change and diversity, and on the consequences for tribal peoples and their environments of conflict between their world views, political motivations, and economic policies and those of multinational corporations and of nation states like Brazil, Peru, and the United States. This course satisfies the non-Euro-American requirement.

## **201 Comparative Economic Behavior (3)**

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. An introduction to the range of economic organizations found in the world. Anthropological models of production and exchange. The notion of "rationality" as applied to non-Western economic systems. The contribution of anthropology to the understanding of economic development. Satisfies the non-Euro-American requirement.

## **202 Culture, Politics, and Social Organization (3)**

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. A survey of political organizations and processes with emphasis on native and non-Western cultures. Included are topics such as strategies for obtaining and maintaining power, ethnicity, tribalism, and the relationship of ideology to politics. This course satisfies the non-Euro-American requirement.

## **203 Culture and Cognition (3)**

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. An introduction to psychological anthropology focusing on cultural influences on cognition and perception. Theories of "primitive mind" will be reviewed in historical perspective, and cross-cultural research in perception, learning, and cognition considered. Recent studies of sociocultural systems and cognitive styles will be examined and their implications for education explored.

## **204 Culture and Personality (3)**

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. Analysis of behavior from the standpoint of interaction between psychological, sociological, and cultural systems.

# Anthropology

## 205 Introduction to Models in the Social Sciences (3)

(Same as Sociology 205, Political Science 205, and Interdisciplinary 205.) Prerequisite: Anthropology 11, or Sociology 10, or Political Science 11, or consent of instructor. The course will focus on explaining social and cultural behavior. Elementary models of decision making, exchange, and adaptation will be covered. Computer processing of data to test empirical hypotheses will be introduced.

## 207 Culture Change (3)

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. An intensive investigation into the elements and processes of culture change with regard to specific theories of culture change. The course examines the relationship between microchange in primitive and modern complex societies.

## 208 Language and Culture (3)

Prerequisite: Anthropology 11, or introductory course in the social sciences, or consent of instructor. This course examines the place of language in culture. It will consider the relationships between language, gender, class, ethnicity, and other social categories. It will also utilize the approaches of anthropological linguistics, sociolinguistics, and semiotics for an understanding of the encoding and communication of meaning.

## 210 Applied Anthropology (3)

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. A description and analysis of the methods, principles, and use of anthropology in solution of problems associated with the changing conditions of our times. The course will examine a wide variety of cross-cultural case studies.

## 212 Medical Anthropology (3)

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. An examination of the growing interaction between anthropology and medicine, and the increasing use of anthropologists in medical and health-care settings. In addition to teaching current theory in medical anthropology, the course focuses on anthropologically-based skills essential to those working in health-related fields.

## 215 Growing Old in Other Cultures (3)

(Same as Gerontology 215.) This course examines the wide-ranging variability in the roles of older people across different cultures and the effects these have on older people, their families, and their societies.

## 220 Evolution of Culture and Communication (3)

Prerequisite: Anthropology 5 or 11, or introductory course in another social science, or consent of instructor. Examines the uniformity of communication processes in the evolution of culture from prehuman primates through human prehistory to the present. A theoretical course rooted in cases from specific primate groups and human cultures.

## 240 Play: Psychological and Anthropological Perspectives (3)

(Same as Psychology 240.) Prerequisite: Psychology 3, or Anthropology 11, or consent of instructor. This course will examine play from psychological and anthropological perspectives in an effort to provide an understanding of the importance of play for humans. The questions which will be the focus of the course include: why people play, the adaptive benefits derived from play, the cultural functions of play, and how play is expressed in different cultures.

## 241 Sex and Gender in Comparative Perspective (3)

Prerequisite: Anthropology 5 or Anthropology 11. This course considers womanhood, manhood, androgyny, and sexuality in a broad cross-cultural framework. Among topics considered are the relationship between culture and biology; the cultural construction of gender; socialization and gender roles; gender and work; gender and inequality; gender and ethnicity; variations in sexual practices.

## 242 The Culture of Cities (3)

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. A comparative analysis of the cultural roles of urban centers and the processes of urbanization in non-Western and Western societies, past and present. A consideration of urban influences on rural America and the traditional peasant and primitive peoples of Africa, Asia, and Latin America.

## 244 Religion, Magic, and Science (3)

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of the instructor. A consideration of the roles of religion, magic, and science in culture and social organization.

## 286 Society, Arts, and Popular Culture (3)

(Same as Sociology 286.) Prerequisite: Sociology 10 or Anthropology 11. The relationship of artists, writers, and musicians; their traditions and modes of artistic expression to variant social structures and institutions; and social pressures and rewards.

## 291 Current Issues in Anthropology (3)

Prerequisite: Anthropology 11, or introductory course in another social science, or consent of instructor. Selected topics in social, cultural, and physical anthropology, with emphasis on current issues and trends in the field of anthropology. May be repeated provided topic is different.

## 301 Ideas and Explanations in Anthropology (3)

Prerequisite: Anthropology 11 or consent of instructor. Major developments in anthropological explanations of social and cultural behavior through intensive reading and discussion of source materials.

## 308 Practicum in Cultural Research Methods (4)

Prerequisites: One course in statistics; Anthropology 11 or consent of instructor. (With computer laboratory.) Emphasizes hands-on training in techniques for both the collection and analysis of ethnographic data, including participant observation, selection of ethnographic informants, key informant interviewing, and more systematic methods such as survey research. The use of computer programs for the development of protocols to collect, analyze, and display data will be covered in lab.

# Anthropology

## **309 Field Study in Archaeology (3-6)**

Prerequisite: Consent of instructor. This course is for advanced students. It is designed to introduce students to advanced methods in field archaeology and laboratory analysis. Emphasis is placed on sampling, the use of theory in guiding field and laboratory work, advanced field techniques, and specialty analysis. Opportunities are provided for the development of field and laboratory leadership skills. Independent research is encouraged.

## **310 Laboratory Methods in Archaeology (3)**

Prerequisite: Anthropology 109, or Anthropology 309, or consent of instructor. This is a course in basic laboratory analysis and curation methods. The emphases are (1) mastery of general lab methods and procedures, and (2) development of independent analysis skills in one or more specialty areas such as lithics, ceramics, graphics, paleobotany, experimental analysis, and soils. Purchase of individual supplies not to exceed \$10.

## **315 Senior Seminar in Anthropology (3)**

Prerequisite: Senior standing or the consent of the instructor. Required of anthropology majors. Discussion of critical issues; preparation of senior paper; presentation of selected papers by students.

## **350 Special Study (1-3)**

Prerequisite: Consent of instructor. Independent study through readings, reports, or field research. No student may take more than a cumulative total of 6 hours of Special Study.

## **391 Current Issues in Anthropology (1-4)**

Prerequisite: Anthropology 11 or consent of instructor. Selected topics in social, cultural, and physical anthropology, with emphasis on current issues and trends in the field of anthropology. May be repeated. (Non-majors may register in Anthropology 191.)

## **425 Peoples and Cultures of Southeast Asia (3)**

Prerequisite: Graduate standing or consent of instructor. An analysis of the cultures of peninsular and insular Southeast Asia. Topics include, but are not limited to, prehistory, tribal groups, cultural systems, political organizations, religious traditions, refugee movements, the culture of conflict, and modernization.

## **430 Global Refugee Crisis (3)**

Prerequisite: Graduate standing or consent of instructor. A study of both the theory and methods in attempts to understand the issues confronting displaced peoples, their hosts, and the international community. Includes an analysis of the problems and reasons for refugee situations around the world in such regions as Southeast Asia, Africa, the Middle East, Europe, and Central America. Varying perspectives including those of academics, refugees, agency personnel, and government representatives are surveyed.

## **440 Cultural Aspects of Aging (3)**

(Same as Gerontology 440.) Prerequisite: Graduate standing or consent of instructor. Focuses on the variety of solutions encountered in different sociocultural contexts for dealing with the problems, challenges and opportunities of growing old. It is organized around topics that are of concern to both anthropology and social gerontology: The status of the aged, intergenerational relations, aging in modernizing societies, ethnic dimensions of aging in complex societies, health in later life, death and dying. Both in-depth case studies and cross-cultural comparisons are examined in an effort to arrive at a culturally informed assessment of factors affecting aging and the aged in the United States.

## **480 Culture, Crime, and Criminal Justice (3)**

Prerequisite: Graduate standing or consent of instructor. This seminar will examine: (1) the nature and conduct of ethnographic research; and (2) how ethnographic approaches have been and can be used to understand the criminal justice system and its institutions. Readings will be drawn from anthropological and other social science materials on ethnographic methods as well as selected (post-1960s) monographs and articles illustrating the use of such approaches in criminal justice settings.



## Art

Courses in this section are grouped as follows: Art History and Art Studio.

Prerequisites may be waived by consent of instructor. For the nonmajor, any number of studio courses will be accepted as electives.

The following courses fulfill the Humanities [H] breadth of study requirements: ART HISTORY: 5, 8, 15, 65, 90, 105, 107, 108, 111, 112, 113, 114, 116, 117, 119, 125, 135, 145, 155, 158, 159, 165, 179, 191, 195, 205, 208, 212, 215, 225, 235, 245, 255, 258, 263, 265, 274, 275, 276, 290, 291, 293, 294, 295, 296, 297, 390, 395.

### Art History

#### 5 Introduction to Art (3)

An introduction to major historical movements in Western art.

#### 8 Introduction to Asian Art (3)

A survey of the major achievements in architecture, sculpture, and painting of India, China, Japan and Southeast Asia. Emphasis on religious, historical, and social context of the arts. This course fulfills the non-Euro-American study requirement.

#### 15 Art of Africa, Oceania, and the Americas (3)

A survey of the art of tribal people of Africa, Oceania, and the Americas from prehistoric times through the present. The relationship of art to religion, myth, festival, and social life will be considered, as well as the effects of acculturation on the arts. This course fulfills the non-Euro-American study requirement.

#### 65 Photography and Society (3)

(Same as Interdisciplinary 65.) A study of photography as a means of information and expression, as an influence on culture, and as a reflection of concepts in politics, science, morality, and art. This course counts toward the major.

#### 90 Freshman Seminar (3)

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences.

#### 105 Issues and Ideas in Art History (3)

Intensive studies of a few selected works from various eras and cultures, with special attention to the particular social and cultural factors surrounding their creation.

#### 107 The Arts of China (3)

A survey of the major achievements in the history of Chinese art. Bronzes, sculpture, painting, calligraphy, ceramics, and jades will be considered within their historical, philosophical, and social context. This course fulfills the non-Euro-American study requirement.

#### 108 The Arts of Japan (3)

A survey of the art and architecture of Japan from prehistory to the present. Topics will include sculpture, architecture, pottery, gardens, Japanese prints and paintings in their various forms, i.e. Chinese style, purely Japanese style, narrative scrolls, Zen, and Rimpa. This course fulfills the non-Euro-American study requirement.

#### 111 Art and Archaeology of the Ancient World (3)

A survey of art in Egypt, the Ancient Near East, Greece, and Rome, beginning in the Neolithic era (8000-4000 B.C.) and ending with the Barbarian invasions of Italy in the fifth century A.D. The major highlights of architecture and city planning, sculpture, painting, pottery, and the minor arts will be covered.

#### 112 Greek Art and Archaeology (3)

Prerequisite: Art 5. General survey of material culture in the Aegean basin, beginning with the Bronze Age (third millennium B.C.) and terminating in the late Hellenistic period (second century B.C.). For the Hellenistic period the course will trace Greek developments and influences outside of the Aegean, for example, in Italy and in Egypt.

#### 113 Roman Art and Archaeology (3)

Prerequisite: Art 5. General survey of material culture in Italy and its dependencies beginning with prehistoric Italy (ninth and eighth centuries B.C.) and terminating in late antiquity (the fifth century A.D.). The course will focus on the regional variants of Roman art in such places as Gaul, Spain, Great Britain, North Africa, and the Greco-Roman East.

#### 114 Early Christian Art and Archaeology (3)

Prerequisite: Art 5. The origins and development of Christian imagery prior to the fourth century, the Constantinian epoch and Late Antique developments to the death of Justinian. Attention will be paid to works of art and to the entire material culture of early Christianity.

#### 116 North American Indian Art (3)

A detailed survey of the arts of North America from prehistoric times to the present. Cultures to be covered include: Moundbuilders, Northeast, Navajo, Pueblo peoples, Northwest Coast, and Eskimo. The relationship of art to religion, dance, philosophy, and social life will be explored. This course fulfills the non-Euro-American study requirement.

#### 117 African Art (3)

A survey of the tribal and traditional arts of Black Africa. The function and context of art among specific peoples such as the Yoruba, Dan, Dogon, Kuba, and Kongo will be discussed. Emphasis will be placed on dance, festival, and religion as the primary contexts of African art. Fulfills the non-Euro-American study requirement.

#### 119 Pre-Columbian Art of Mexico and Central America (3)

A survey of the arts of native peoples of Middle America before the coming of the Spaniards in 1519. The cultural context and meaning of sculpture, painting, architecture, and ritual among the Olmec, Maya, Aztec, and other tribes. This course fulfills the non-Euro-American study requirement.

#### 125 Medieval Art (3)

Prerequisite: Art 5. A survey of the art and architecture of the Mediterranean World and northern Europe from late antiquity to the Late Gothic period (300-1300 A.D.). Focus on new styles and subject matter in painting, sculpture, and architecture.

#### 135 Renaissance Art (3)

Prerequisite: Art 5. A survey of artists and architects from 1300 to 1600 in Europe. Special attention given to the emergence of individualism, the impact of the Reformation and Counter-Reformation, and the new scientific discoveries which informed the art of the period.

# Art

## 145 Baroque Art (3)

Prerequisite: Art 5. A survey of art and architecture in both northern and southern Europe from 1600 to 1750. Emphasis on the contributions of individual artists as well as the political, social, and philosophical background of the visual arts.

## 155 Modern Art (3)

Prerequisite: Art 5. A survey of European art of the nineteenth and twentieth centuries.

## 158 American Art (3)

Prerequisite: Art 5. A survey of the art of the United States since 1600, both as an extension of the European tradition and for its original contributions.

## 159 American Architecture (3)

Prerequisite: Art 5. A brief history and analysis of American architecture, investigations of technological process, urban planning, and the dominating social attitudes which govern architectural development.

## 165 History of Photography (3)

Prerequisite: Art 5 or consent of instructor. A study of photography: its historical development, an examination of it as an art medium, and its influence on the development of modern art.

## 179 Special Topics in Art History (1-3)

Selected topics in art history. This course may be repeated for credit.

## 191 Art Since 1945 (3)

Prerequisite: Art 5. An overview of the major developments in European and American art since World War II. Topics include abstract expressionism, pop art, conceptual and minimal art, performance and video.

## 195 Sophomore/Junior Seminar: The Methods of Art History (3)

Prerequisites: Art 5 and at least one additional course in Art History. An introduction to the methods of art historical analysis. Emphasis on research techniques and writing. This course must be taken before a student's senior year.

## 203 Media and Technique in Art History (3)

Prerequisites: Art 5 and two other courses in art history. Technical demonstration of and research into various materials and media used by artists. In addition to ancient media such as egg tempera and fresco, it will include modern media such as photography and video.

## 205 Advanced Issues and Ideas in Art History (3)

Prerequisites: Art 5 and three additional courses in art, or permission of the instructor. Seminar format. Intensive study of a few objects or issues in the history of art, focusing on issues which crosscut periods or geographic regions.

## 208 Topics in Asian Art (3)

Prerequisite: Art 8 or permission of instructor. A study of selected topics in Asian art. The content will vary, focusing on topics such as Chinese and Japanese landscape in paintings and in gardens, images of women in Asian art, or the Spirit of the Brush in Chinese and Japanese painting. May be repeated for credit with permission of instructor and adviser. This course fulfills the non-Euro-American study requirement.

## 212 Topics in Ancient Art and Archaeology (3)

Prerequisites: Art 5 or Interdisciplinary 10 and one of the following: Art 111, 112, 113, 114, or permission of instructor. Intensive study of some aspect of Classical or Early Christian art. Content will vary. May be repeated for credit with permission of adviser.

## 215 Topics in Tribal Arts (3)

Prerequisite: One of the following: Art 15, 116, 117, 119, or consent of instructor. Intensive study of the arts of several tribal groups. Inquiry into relationships between art and culture by means of an examination of myth, literature, festival, and social life. Seminar format. May be repeated for credit with permission of adviser. This course fulfills the non-Euro-American study requirement.

## 225 Topics in Medieval Art (3)

Prerequisite: Art 125 or consent of instructor. A study of selected topics in Medieval art. The content of the course will vary, focusing on single topics such as manuscript painting, the Gothic cathedral and its sculptural decoration, or the art of pilgrimage churches. May be repeated for credit with permission of instructor.

## 235 Topics in Renaissance Art (3)

Prerequisite: Art 135 or consent of instructor. Studies of selected topics, which will vary. Subjects to be considered may include the art of Florence, the role of patronage in Renaissance Italy, and Papal art. May be repeated for credit.

## 245 Topics in Seventeenth- and Eighteenth-Century European Art (3)

Prerequisite: Art 145 or consent of instructor. A study of selected topics in Baroque and Rococo art. The content of the course will vary, focusing on single areas, such as the Baroque in Rome; or on major artists, such as Bernini, Rubens, and Rembrandt. May be repeated for credit with permission of instructor and adviser.

## 255 Topics in Nineteenth- and Twentieth-Century European Art (3)

Prerequisite: Art 155 or consent of instructor. Intensive study of selected topics in European art. May be repeated for credit with permission of instructor and adviser.

## 258 Topics in American Art (3)

Prerequisite: Art 158 or Art 159 or consent of instructor. Intensive study of selected topics in American art from colonial beginnings to the present. Topics may include the image of the family in art, patronage, the relationship between art and literature, and the role of the artist in modern society. May be repeated for credit with permission of instructor and adviser.

## Art

### 263 Photography Since 1945 (3)

Prerequisites: Art 5 and either Art 65 or Art 165 or permission of the instructor. Seminar on creative photography from the postwar period to the present. Topics will include the relation of this medium to other arts, including sculptural and performance art, as well as current modes of photographic depiction in landscape and studio work.

### 265 Topics in Photographic Studies (3)

(Same as Interdisciplinary 265.)

Prerequisite: Permission of instructor. Advanced study of specific styles, periods, or issues within photographic history.

### 274 Philosophy of Art (3)

(Same as Philosophy 274.) A study of issues concerning the definition of art, meaning and truth in the arts, aesthetic experience, and criticism.

### 275 The Art of Print (3)

Prerequisite: Art 5. Dealing with the history of print forms: woodcuts, etchings, engravings, lithographs, silkscreens, monotypes, and mixed media. Special emphasis will be given to the importance of prints to the art and artists of our time.

### 276 Women and the Visual Arts (3)

No prerequisite. Art 5 or enrollment in the Women's Studies Certificate Program recommended. Selected topics concerning women as creators, users, and subject matter of art. Great women artists in the Western world will be studied, as well as women weavers, potters, and sculptors in tribal society.

### 290 Special Study (1-10)

Prerequisites: Junior or senior standing and consent of department and instructor. Independent study through readings, reports, or field research.

### 291 Topics in Contemporary Art (3)

Prerequisites: Art 5 and Art 191 or permission of instructor. Seminar on particular topics in European or American art since 1945. Topics may include contemporary feminist art, postmodernism, or abstract expressionism. May be repeated for credit with permission of instructor and adviser.

### 292 Museum Studies (3)

Prerequisites: Art 5 and six credit hours in other art history courses. This course is intended as an introduction to the function and operation of the art museum. Sessions will include the history of art museums and collecting policies; organization of art museums; the tasks of the curator; the registrarial practice; art conservation; the museum as an educational institution; the organization and planning of permanent galleries; and the planning and installation of temporary exhibitions.

### 293 Art Gallery Management (3)

Prerequisites: Art 5 and six credit hours in other art history courses. This course will consider the practical application of professional training in art history as it applies to gallery management. Topics covered will include: grant writing in the arts, the development of art exhibits, the role of the art curator, and the operation of a gallery. All students will get hands-on experience in Gallery 210.

### 294 Art Criticism (3)

Prerequisite: Art 155 or Art 191 or permission of instructor. An overview of the history and function of art criticism, focusing principally on the theory and criticism of twentieth-century art. Students will attempt their own critical writings on contemporary art.

### 295 The Artist and the City (3)

Prerequisite: Art 5. Examines the role of urban centers as a focus for significant artistic activity, as a recurring theme in art, and as a spatial and physical architectural reality. Aspects of urban planning, urban imagery in art, and the social, political, and personal networks artists develop as a result of living in particular urban centers at particular moments in history will be among the topics discussed.

### 296 The Nude in Art (3)

Prerequisites: Art 5 and one other course in art history. An exploration of the various meanings of nudity in art. The cultural, social, and psychological contexts of nudity in art will be examined in different historical periods and geographic regions, both Western and non-Western. Representations of both males and females will be analyzed in terms of gender construction, political authority, and personal identity.

### 297 Landscape Perspectives in Art (3)

Prerequisite: Art 5. This seminar considers the various conventions for representing landscape and nature, and human relationships to landscape, throughout history and across cultures. Issues to be considered may include landscape as metaphor in European painting, contemporary earthworks, landscape photography, and the relationship of artist to landscape in the non-Western world.

### 390 Special Study (1-10)

Prerequisites: Junior/senior standing and consent of department chairperson and instructor. Independent study through readings, reports, or field research.

### 395 Senior Art History Seminar (3)

Prerequisite: Senior standing in art history or consent of instructor. Intensive reading, discussion, and writing on topics to be announced.

## Art Studio

### 2 Introduction to Studio Art (3)

An introduction to drawing, painting, and design in a beginning studio environment. This course is designed to provide basic skills and understanding of studio experience for the non-art major.

### 30 Ceramics I (3)

An introduction to basic methods and theory of ceramics including work with hand-built construction, wheel techniques, and glazing. Lab fee required.

### 40 Basic Drawing I (3)

An introduction to drawing through the study of figure, object, and environment.

### 42 Figure Drawing I (3)

Basic studies of the human form and anatomy from the model in a variety of drawing media. Lab fee required.

### 50 Basic Design I (3)

Studio problems in the creative use and integration of the elements of two-dimensional design: line, form, space, texture, and color.



# Art

## 60 Photography I (3)

An introduction to the techniques and aesthetics of black and white photography: the camera and the darkroom. One hour lecture and two and one-half hours laboratory meetings weekly. Students must provide a camera with adjustable speeds and aperture and pay for their darkroom materials.

## 74 Special Topics in Studio (1-3)

Selected topics in studio studies. This course may be repeated for credit.

## 134 Art Activities for Elementary Schools (3)

(Same as ELE ED 179.) A study of art principles and laboratory experiences with various media and materials. Stresses curriculum planning and development of the elementary school program in art.

## 140 Basic Drawing II (3)

Prerequisite: Art 40. The development of drawing skills through continued observation and problems of invention. A further exploration of varied drawing materials and techniques including graphite, charcoal, conte crayon, and inks.

## 142 Figure Drawing II (3)

Prerequisite: Art 42. Continuation of Figure Drawing I. Lab fee required.

## 150 Basic Design II (3)

An introduction to three-dimensional design. The study of structure-space relationships through basic composition problems. Studio experiments with paper, plexiglas, lightweight wood, metal, linear media, and other materials.

## 160 Photography II (3)

Prerequisite: Art 60. Continuation of Photography I at the intermediate level.

## 210 Graphic Design I (3)

Prerequisite: Art 50, Art 140 or consent of instructor. Introductory studio problems in layout, lettering, and design with typographic elements.

## 211 Graphic Design II (3)

Prerequisite: Art 210 or consent of instructor. Continuation of Graphic Design I.

## 250 Composition (3)

Prerequisites: Art 50 and Art 150. An investigation of the use of formal design elements as used in historic and contemporary art. Weekly studio problems and discussions will concentrate on skills, application, and unifying effects of compositional elements on a variety of visual art forms.

## 260 Photo: Color Printing (3)

Prerequisite: Art 60 or equivalent. An introduction to the techniques and aesthetics of color photography. Mastering the printing and finishing processes and producing a color print portfolio will be the requirements of this class. Students can expect the cost of photographic materials to be comparable to that of black and white photography.

## 270 Printmaking: Relief I (3)

Prerequisite: Art 50, Art 140 or consent of instructor. An introduction to relief printmaking technique, materials, and theory. The course will include work in linoleum, wood, and other relief materials. Lab fee required.

## 271 Printmaking: Relief II (3)

Prerequisite: Art 270 or consent of instructor. A continuation of Art 270. Lab fee required.

## 272 Printmaking: Lithography I (3)

Prerequisite: Art 50, Art 140 or consent of instructor. An introduction to printmaking skills and theory in stone and plate lithography. Studio problems in the use of materials and equipment. Attention will be given to individual development. Lab fee required.

## 273 Printmaking: Lithography II (3)

Prerequisite: Art 272. Continuation of Art 272. Lab fee required.

## 277 Printmaking: Photo Lithography I (3)

Prerequisite: Art 60 or departmental consent. An introduction to printmaking skills and theory in stone and plate lithography with particular emphasis on the photographic applications of the process. Some attention will also be given to commercial application of the medium. Studio problems in the use of materials and equipment. Lab fee required.

## 280 Painting I (3)

Prerequisite: Art 50, Art 140 or consent of instructor. An introduction to the use of oil and/or acrylic painting media. Studio problems to develop technical and expressive skills on various surfaces.

## 281 Painting II (3)

Prerequisite: Art 280 or consent of instructor. Continuation of basic studio problems in painting media.

## 283 Watercolor Painting (3)

Prerequisites: Art 50 and Art 140. Beginning problems in watercolor painting. Includes the study of traditional and contemporary approaches to color, color techniques, and treatment of papers.

## 310 Advanced Graphic Design (3)

Prerequisites: Art 210 and Art 211. Advanced studio problems to further the understanding of design and its relationship to typographic elements, illustration, and communication. The course will encourage both conceptual and technical development of the designer. May be repeated for credit.

## 334 Contemporary Art Education: Craft and Theory (1-2)

Prerequisite: Upper-division standing or consent of instructor. Intensive study for advanced students and art teachers, emphasizing specialized techniques and innovative concepts. Topics to be announced. May be repeated for credit.

## 340 Advanced Drawing (3)

Prerequisites: Art 40 and Art 140. This course offers studio problems designed to further the development of drawing skills in various media. Emphasis will be given to the study of drawing as an independent art form. Limited color will also be introduced. May be repeated for credit.

## 342 Advanced Figure Drawing (3)

Prerequisites: Art 42 and Art 142. Advanced study of the human form and anatomy from the model in a variety of drawing media. May be repeated for credit. Lab fee required.

## Art

### **350 Advanced Design (3)**

Prerequisites: Art 50 and Art 150.

Advanced studio problems in design materials. Use of two-dimensional and three-dimensional mixed media.

Experimental use of materials and media will be introduced. May be repeated for credit. Lab fee required.

### **360 Advanced Photography (3)**

Prerequisite: Art 160. Advanced studio problems in photography. Concentration on techniques and esthetics. May be repeated for credit.

### **370 Advanced Relief Printmaking (3)**

Prerequisites: Art 270 and Art 271.

Advanced problems in relief printmaking. Work in wood and mixed materials. Development of skills and esthetic judgments in the media. May be repeated for credit with consent of instructor.

### **372 Advanced Lithography (3)**

Prerequisites: Art 272 and Art 273.

Continuing problems in lithography with problems in black and white, photolithography, and/or color. May be repeated for credit. Lab fee required.

### **380 Advanced Painting (3)**

Prerequisite: Art 281 or consent of instructor. Advanced studio problems in painting media. Attention paid to individual development of theory, expression, and technique. May be repeated for credit.

### **390 Special Study (1-10)**

Prerequisites: Junior/senior standing and consent of department chairperson and instructor. Independent study through readings, reports, or field research.

### **393 Senior Studio Seminar (1)**

Prerequisite: Senior standing. Weekly critiques and discussions of technical and professional issues. Includes preparation for senior exhibition.

# Biology

Prerequisites may be waived by consent of the department or instructor. Some courses as indicated in the course description may be taken concurrently with the listed offering. Consult your adviser for further information.

The following courses fulfill the Natural Sciences and Mathematics [SM] breadth of study requirements: 1, 3, 10, 90, 110, 113, 114, 115, 116, 118, 120, 140, 150, 210, 212, 213, 215, 216, 218, 220, 222, 224, 226, 235, 237, 246, 250, 252, 254, 256, 260, 262, 264, 266, 276, 278, 280, 282, 306, 308, 310, 311, 313, 314, 315, 316, 317, 319, 320, 322, 326, 328, 330, 332, 334, 336, 338, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 368, 370, 372, 376, 378, 380, 381, 382, 387, 389, 390, 392, 395, 396, 398, 399.

## 1 General Biology (3)

Emphasis on fundamental principles of biology. Biology 1 can be applied toward fulfillment of the general education requirement in science. Biology 1 does not satisfy the prerequisite requirements of other courses in biology at the 200 level or above. Students who plan to pursue a career in medicine or one of the medical-oriented professions should enroll in Biology 10 rather than Biology 1. Three hours of lecture per week.

## 3 General Biology Laboratory (2)

Prerequisite: Biology 1 (may be taken concurrently). Laboratory course to accompany Biology 1. Biology 3 can be used to fulfill the general education requirements in a laboratory science. Biology 3 does not meet the prerequisite requirements for other courses in biology. Three and one-half hours of laboratory per week.

## 10 Introductory Biology (5)

Prerequisites: Mathematics 02 and English 09 or equivalent. A one-semester prerequisite for students intending to major in biology or take biology courses at the 200 level or above. This course offers an introduction to some of the biological properties and relationships of organisms, both plant and animal. The laboratory work emphasizes an experimental approach to biological processes. Three hours of lecture, three and one-half hours of laboratory, and one hour of discussion per week.

## 90 Freshman Seminar (3)

Prerequisites: Freshman standing and high school biology. Topic to be announced for each session. Weekly seminars and individual conferences. Section limited to twelve to fifteen students.

## 110 Human Biology (3)

Prerequisite: Biology 1 or Biology 10. Lectures and readings concerned with the reproduction, development, genetics, functional anatomy, behavior, ecology, and evolution of the human species. Three hours of lecture per week.

## 111 Issues in Geriatric Health Care (2)

(Same as Nursing 111.) A course designed to acquaint the student with aspects of chronic disease frequent in later life, as well as a synopsis of biological aging processes. Disease symptomatology, aspects of health maintenance, and medical intervention with an older adult population will be discussed. In addition, issues in health-care delivery will also be explored.

## 113 Human Physiology and Anatomy I (4)

Prerequisite: Biology 1 or its equivalent. The basic aspects of the structure of the healthy human body and how it functions. Special emphasis is on how the human body adapts itself to its environment and how changes affect physiological activities. Three hours of lecture and two hours of laboratory per week.

## 114 Human Physiology and Anatomy II (4)

Prerequisite: Biology 113. A continuation of Biology 113. A study of the basic aspects of human physiology and anatomy. Three hours of lecture and two hours of laboratory per week.

## 115 Human Heredity and Evolution (3)

Prerequisite: Biology 1 or Biology 10. The study of heredity and evolution with special reference to human populations. Three hours of lecture per week.

## 116 General Microbiology (3)

Prerequisite: Biology 1 or its equivalent. A survey of microbial structure, genetics, and physiology. Special emphasis will be placed on the transmission and control of such organisms as they relate to the maintenance of human health. Three hours of lecture per week.

## 118 General Microbiology Laboratory (2)

Prerequisite: Biology 116 (may be taken concurrently). Standard techniques for identification, growth, and control of microorganisms. Three and one-half hours of laboratory per week.

## 120 Environmental Biology (3)

Prerequisite: Biology 1 or Biology 10. An examination of the biological basis of current environmental problems, with emphasis upon resources, energy, pollution, and conservation. Three hours of lecture per week.

## 140 Female Sexuality (3)

(Same as Psychology 140.) Prerequisites: Psychology 3 and Biology 1 or Biology 10. This course will present a biological-psychological orientation toward the study of female sexuality. Topics include: sexual anatomy, hormonal influences on sexual behavior, psychosexual development, sexual attraction and relationships, sexual response and dysfunction, menstruation, pregnancy, menopause, reproductive health issues, and social issues in sexuality.

## 150 Plants and Civilization (3)

Prerequisite: Biology 1 or Biology 10. A study of use and dependency on plants. Primary topics of discussion will center on the origin of agriculture and its influence on the development of nations, the origin and evolution of food crops, drug and medicinal plants, and problems in feeding the world's population. Three hours of lecture per week.

## 210 Cell Structure and Function (3)

Prerequisites: Biology 10, Chemistry 11, and Chemistry 12 or equivalent. Chemistry 261 recommended. General cell biology, stressing cell structure and ultrastructure, as related to cell function. Three hours of lecture per week.

# Biology

## 212 Histology and Microtechniques (4)

Prerequisites: Biology 10 and Biology 210 (may be taken concurrently). The basic principles and techniques of histology. Two hours of lecture per week and four hours of laboratory. (Additional lab hours arranged.)

## 213 Vertebrate Physiology (3)

Prerequisites: Biology 10 and Chemistry 11 (or Chemistry 1 plus Chemistry 9). Basic functional aspects of organ systems in relation to the physiochemical properties of protoplasm. Three hours of lecture per week.

## 215 Vertebrate Physiology Lab (2)

Prerequisite: Biology 213 (may be taken concurrently). Instrumental and experimental studies in physiology. Three and one-half hours of laboratory per week.

## 216 Microbiology (3)

Prerequisites: Biology 10 and Chemistry 11 (or Chemistry 1 plus Chemistry 9). Study of microorganisms, their metabolism, genetics, and their interaction with other forms of life. Three hours of lecture per week.

## 218 Microbiology Laboratory (2)

Prerequisite: Biology 216 (may be taken concurrently). Experimental studies and procedures of microbiological techniques. Three and one-half hours of laboratory per week.

## 220 General Ecology (3)

Prerequisite: Biology 10. An examination of the relationships between living organisms and their environment. Three hours of lecture per week.

## 222 General Ecology Laboratory (2)

Prerequisites: Biology 220 required (may be taken concurrently); a general statistics course strongly recommended. An analysis of factors influencing the abundance and distribution of living organisms. Three and one-half hours of laboratory per week.

## 224 Genetics (3)

Prerequisites: Biology 10 and Chemistry 11 (or Chemistry 1 plus Chemistry 9). Fundamental principles of inheritance, including classical genetic theory as well as recent advances in the molecular basis of heredity. Three hours of lecture per week.

## 226 Genetics Laboratory (2)

Prerequisite: Concurrent registration in Biology 224, or by permission of instructor. Laboratory to accompany Biology 224. Three and one-half hours of laboratory per week.

## 235 Development (3)

Prerequisite: Biology 10. Basic principles of development from the point of view of growth, morphogenesis, and differentiation. Three hours of lecture per week.

## 237 Development Laboratory (2)

Prerequisite: Biology 235 (may be taken concurrently). Laboratory to accompany Biology 235. Three and one-half hours of laboratory per week.

## 246 Introduction to Evolution (3)

Prerequisite: Biology 10. Introduction to the theory, events, and processes of organic evolution.

## 250 Biology of Plants (3)

Prerequisite: Biology 10. General survey of the plant groups from algae through angiosperms. Morphology, reproduction, and central physiological concepts unique to the plant kingdom will be discussed. Three hours of lecture per week.

## 252 Biology of Plants Laboratory (2)

Prerequisite: Biology 250 (may be taken concurrently). Examination of representatives of the plant kingdom and experimentation in plant physiology. Three and one-half hours of laboratory per week.

## 254 General Plant Physiology and Development (3)

Prerequisites: Biology 10, Chemistry 11 (or Chemistry 1 and 9). An examination of photosynthesis, water relations, development, and response to environmental stress in plants. Three hours of lecture per week.

## 256 Plant Physiology and Development Laboratory (2)

Prerequisite: Biology 254 (may be taken concurrently). Laboratory to accompany Biology 254. Exercises will demonstrate basic plant biochemical and biophysical mechanisms and responses to environmental stress. Three and one-half hours of lab per week.

## 260 Vertebrate Biology (3)

Prerequisite: Biology 10. Development, structure, function, interrelationships, and zoogeography of vertebrate animals with particular attention to phylogenetic aspects. Three hours of lecture per week.

## 262 Vertebrate Biology Laboratory (2)

Prerequisite: Biology 260 (may be taken concurrently). Laboratory to accompany Biology 260. Morphological analysis and systematic survey of major vertebrate groups. Overview of the vertebrate life forms and their adaptations to habitats and resources. Three and one-half hours of laboratory per week.

## 264 Invertebrate Biology (3)

Prerequisite: Biology 10. Structure and function of invertebrate animals with emphasis on evolution and phylogenetic interrelationships. A field trip to the Florida Gulf Coast will be offered but not required. Three hours of lecture per week.

## 266 Invertebrate Biology Laboratory (2)

Prerequisite: Biology 264 (may be taken concurrently). Laboratory to accompany Biology 264. Dissection and analysis of invertebrates with an emphasis on structure and function; includes field trips to area stations. A field trip to the Florida Gulf Coast will be offered but not required. Three and one-half hours of laboratory per week.

## 276 Biological Chemistry (3)

Prerequisites: Chemistry 261 and Biology 10. The chemistry and function of the living cell and its constituents, and the interactions and conversions of intracellular substances. Three hours of lecture and one hour of discussion per week.

## 278 Biological Chemistry Laboratory (2)

Prerequisite: Biology 276 (may be taken concurrently). Experiments designed to illustrate biochemical principles and modern biochemical procedures. Three and one-half hours of laboratory per week.

# Biology

## 280 Animal Behavior (3)

Prerequisite: Biology 10. The study of invertebrate and vertebrate behavior, including developmental, genetic, and ecological aspects of behavior; behavior interactions within and between populations. Three hours of lecture per week.

## 282 Animal Behavior Laboratory (2)

Prerequisite: Biology 280 (may be taken concurrently). Observational and experimental studies of animal behavior in the field and laboratory. Three and one-half hours of laboratory per week.

## 285 Curriculum and Methods of Teaching Life Sciences (4)

(Same as SEC ED 285.) Prerequisites: SEC ED 213 and a near-major in biology. A study of the scope and sequence of the life science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. The analysis of teaching/learning and field experience observations in secondary school classrooms will be integrated into classroom activities and discussions.

## 286 Laboratory in Teaching Life Sciences (2)

(Same as SEC ED 286.) Prerequisite: SEC ED 213. Discussion, development, utilization, and evaluation of equipment, materials, and techniques applicable to instruction in the life sciences. Must be taken concurrently with Biology 285/SEC ED 285.

## 300 Radiation Safety in Biological Research (2)

Prerequisite: Consent of instructor. A description of the basic principles of radiation safety and the more important numerical data upon which the practice of radiation safety is based. Topics include interaction of radiation with matter, biological effects of radiation, operation of field and laboratory instruments, and control of exposure. Both ionizing and nonionizing radiation will be discussed. Two hours of lecture/demonstration per week.

## 306 Morphology of Vascular Plants (3)

Prerequisite: Biology 250 or consent of instructor. An intensive study of ferns through angiosperms, stressing relationships between the groups. Field studies and phytoecology stressed. Three hours of lecture per week.

## 308 Vascular Plant Laboratory (2)

Prerequisite: Biology 306 (may be taken concurrently). Laboratory to accompany Biology 306. Three and one-half hours of laboratory per week.

## 309a Introduction to Cytology (5)

Prerequisites: Biology 113, Biology 114, and Biology 210, Mathematics 30, and acceptance to the Cytotechnology program at Barnes Hospital. Orientation to the profession of cytotechnology including basic cell biology, ethics, the microscope, history of the profession. Also basic concepts of pathology are introduced including normal, benign proliferative inflammatory, and reparative processes. The cellular alterations caused by these processes are introduced using the female genital system. The histology, anatomy, and endocrine system of the female genital tract are also covered. Microscopy of this section includes proper use and care of the microscope, hormonal cytology, and the range of normal reparative reactions. The recognition of specific infectious agents and/or their cellular manifestations is also included using the female genital tract as the body system under investigation. Units include Orientation; Hormonal Cytology; Cytotechnology and the Microscope; Basic Cell Structure; Anatomy, Histology, Normal Cytology, and Benign Proliferative Cytology; and Inflammation and Repair. thirty hours of lectures per week and 20 hours of laboratory per week for six weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

## 309b Neoplasia in the Female Genital Tract I (5)

Prerequisites: 309a and acceptance to the Cytotechnology Program at Barnes Hospital. The pathologic concepts of neoplasia, the morphogenesis of carcinoma, and the cellular changes associated with both premalignant and malignant changes of squamous cell lesions in the cervix are studied. Microscopy in this section includes pre-

screening of clinical case load identifying normal and abnormal cellular criteria. Units include Dysplasia; CIS; and Carcinoma of the Uterine Cervix. 20 hours of lecture per week and 20 hours of laboratory per week for six weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

## 309c Neoplasia in the Female Genital Tract II (6)

Prerequisites: 309b and acceptance to the Cytotechnology Program at Barnes Hospital. Emphasis on lesions of the uterine corpus, metastatic lesions, and lesions of the vulva and vagina. Also treatment effect and pregnancy changes are included in this section. Practical microscopy is also continued with the pre-screening of clinical cases. Units include Diseases of the Uterine Corpus; Cytogenetics and Endocrinopathies; Radiation Effect, Metastatic Disease, Pregnancy Changes, and Diseases of the Vulva and Vagina; Review; and Comprehensive GYN Examination. Fifteen hours of lecture per week and 25 hours of laboratory per week for seven weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

## 309d The Processing Laboratory (3)

Prerequisites: 309c and acceptance to the Cytotechnology program at Barnes Hospital. Lectures include routine procedures for receipt, staining, coverslipping, and filing of GYN and non-GYN specimens; centrifugation, filtration, special stains, laboratory safety, quality control, and the organization of a laboratory are also covered. Clinical laboratory includes time working under the direct supervision of a cytotechnologist practicing laboratory techniques and procedures for the processing of all GYN and non-GYN specimens. Laboratory safety, quality control, and management procedures are also practiced. Microscopy during this time includes further practice in the pre-screening of GYN specimens while increasing speed and accuracy of the diagnosis. Five hours of lecture per week and 35 hours of laboratory per week for four weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.



## Biology

### **309e Respiratory and Oral Cytology (3)**

Prerequisites: 309d and acceptance to the Cytotechnology program at Barnes Hospital. This course is designed to acquaint the student with the normal, benign, and malignant changes of the upper and lower respiratory tract and the oral cavity. The anatomy, histology, and cytology of each of the body sites is studied, as well as infectious agents common to these sites. Microscopy includes pre-screening GYN material while further increasing speed and accuracy. Respiratory and oral specimens are also included in the practical microscopy. Students rotate through the processing laboratory. Ten hours of lecture per week and 30 hours of laboratory per week for three weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

### **309f Effusion, CSF, and Miscellaneous Cytology (3)**

Prerequisites: 309e and acceptance to the Cytotechnology program at Barnes Hospital. This course includes the cytology of the reticulo-endothelial system, effusions, CSF, and other miscellaneous fluids. Normal, benign, and malignant cellular are covered, as well as the anatomy and histology of each body site. Microscopy includes further practice in GYN material and all non-GYN specimens studied to this point. Students continue to rotate through the processing laboratory. Five hours of lecture per week and 35 hours of laboratory per week for four weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

### **309g GI, Breast, GU, and FAN Cytology (6)**

Prerequisites: 309f and acceptance to the Cytotechnology program at Barnes Hospital. This course includes the cytology of the GI system, the breast, the urinary tract, and other miscellaneous body sites. The anatomy and histology of each of the body sites is studied; cellular criteria for benign, normal, and malignant changes are introduced. Advanced topics such as aspiration cytology will also be covered. Microscopy includes further practice in the pre-screening of GYN material, as

well as all non-GYN material studied to this point. Students continue to rotate through the processing laboratory. Units include Breast; Urine; and FNA Cytology; as well as the Non-GYN Review and Comprehensive Examination. Five hours of lecture per week and 35 hours of laboratory per week for six weeks. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

### **309h Scientific Methods and Literature in Cytology (1)**

Prerequisites: 309g and acceptance to the Cytotechnology program at Barnes Hospital. This course will focus on the scientific method and research tools as used in recent journal articles. Discussion will specifically focus on critical evaluation of the conclusions presented and the evidence used to support those conclusions. Also, data retrieval will be practiced as the students research and write a paper on a cytology-related topic. Unit includes the Scientific Method and Research and Data Retrieval in Cytology. Eight seminar hours and 50 hours for writing an independent research paper. Taken concurrently with 309i, Advance Practices in Cytology. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

### **309i Advance Practices in Cytology (3)**

Prerequisites: 309g and acceptance to the Cytotechnology program at Barnes Hospital. Microscopy includes further practice in the screening of all GYN and non-GYN material at professional entry levels of speed and accuracy. Students continue to rotate through the processing laboratory and participate in case conference. Thirty-five hours of laboratory per week for eight weeks taken concurrently with 309h, Scientific Methods and Literature in Cytology. Offered exclusively for students meeting Cytotechnology requirements in the NAACLS accreditation program at Barnes Hospital.

### **310 Cell Physiology (3)**

Prerequisite: Biology 276 (Biology 210 recommended). A study of cellular functions and their relationship to the structural and chemical properties of cellular components. Areas discussed: the cell and its environment, energy flow, exchange of materials across membranes, information transfer within and between cells, and cellular aspects of movement. Three hours of lecture per week. Students may not receive credit for both Biology 310 and Biology 410.

### **311 Physiology of Aging (3)**

Prerequisite: Biology 10, Biology 213 or equivalent, or consent of instructor. An overview of the aging process in animal populations with special emphasis on physiological changes that occur with human aging. Current theories as to the mechanism of aging are considered and critically evaluated in view of recent research findings. Premature aging diseases and age-related diseases are discussed. Three hours of lecture per week.

### **312a Hematology and Coagulation (7)**

Prerequisites: Biology 213 and acceptance to medical technology program at area hospitals. A study of the formed elements of the blood. Erythrocytes, leukocytes, and platelets are studied to aid in the diagnosis and treatment of disorders which cause changes in numbers, maturation, and morphological characteristics of these cells. Anemias, leukemias, as well as other blood dyscrasias, and some coagulation defects are identified through these studies. Coagulation studies done in this division identify factors in the plasma which deal with the clotting mechanism of the blood. Studies are done to identify and treat coagulation disorders in patients, as well as to monitor anticoagulant therapy. Seven and one-half hours of lecture per week (for eight weeks) and thirty-four and two-thirds hours of laboratory per week (for nine weeks). Offered exclusively for students meeting medical technology requirements in an NAACLS accredited program at area hospitals.

# Biology

## **312b Transfusion Services Immunohematology (7)**

Prerequisites: Biology 317 and acceptance to medical technology program at area hospitals. A course that teaches the student all the necessary testing needed for a patient to receive a safe blood transfusion. Tests included are serological methods for compatibility testing, ABO, Rh, and other antibody studies on blood to be transfused, and prenatal studies to identify antibodies which cause hemolytic diseases in the newborn. Eleven and one-half hours of lecture per week (for eight weeks) and 31 hours of laboratory per week (for six weeks). Offered exclusively for students meeting medical technology requirements in an NAACLS accredited program at area hospitals.

## **312c Clinical Microbiology and Serology (11)**

Prerequisites: Biology 216 and Biology 218 and acceptance to medical technology program at area hospitals. The study of bacteriology, parasitology, and mycology. The primary function is to identify and distinguish between disease-causing and normal microorganisms. Once potentially pathogenic organisms have been isolated and identified, the sensitivity of an organism to antimicrobial drugs is determined. To identify these organisms, techniques are used which show growth requirements, morphology, and staining characteristics. Serological tests are also conducted to study antigen-antibody reactions in vitro. These reactions are used to identify a number of specific bacterial, rickettsial, viral, and autoimmune diseases. Some of the types of testing in the area include precipitation, agglutination, complement fixation, immunofluorescence, and radio immunoassay. Fourteen hours of lecture per week (for eight weeks) and 29 hours of laboratory per week (for 16 weeks). Offered exclusively for students meeting medical technology requirements in an NAACLS accredited program at area hospitals.

## **312d Clinical Biochemistry (11)**

Prerequisites: Biology 276 and acceptance to medical technology program at area hospitals. A study of the chemical basis of biological systems. It encompasses components found in body fluids, the most common being urine and plasma or serum. Some of the chemical constituents of blood studied are glucose, enzymes, proteins, nonprotein nitrogens, lipids, hormones, and some toxic substances. Instrumentation used in this area includes spectrophotometers, flame photometers, atomic chromatographs, electrophoresis, and gamma and beta counters. Nine hours of lecture per week (for 14 weeks) and forty-two and one-half hours of laboratory per week (for 14 weeks). Offered exclusively for students meeting medical technology requirements in an NAACLS accredited program at area hospitals.

## **312e Special Topics (0)**

Prerequisites: Junior or senior standing and acceptance to medical technology program at area hospitals. A series of lectures in medical technology, education, and laboratory administration, as well as some review sessions. Offered exclusively for students meeting medical technology requirements in an NAACLS accredited program at area hospitals.

## **313 Comparative Animal Physiology (3)**

Prerequisite: Biology 213. The unity and diversity of physiological mechanisms found throughout the animal kingdom. Three hours of lecture per week. Students may not receive credit for both Biology 313 and Biology 413.

## **314 Environmental Physiology (3)**

Prerequisite: Biology 213. Physiological responses of animals to environmental changes. Adaptation of organisms to various environments. Three hours of lecture per week. Students may not receive credit for both Biology 314 and Biology 414.

## **315 Comparative and Environmental Physiology Laboratory (2)**

Prerequisite: Biology 313 or Biology 314. An open-ended laboratory course to accompany either Biology 313 or Biology 314.

## **316 Parasitology (3)**

Prerequisites: Biology 10, 10 hours of biology and upper-division standing. Biology 210 strongly recommended. A broadly based course emphasizing the phylogeny, life history, ecology, and physiology of parasites of medical and veterinary importance. Modern aspects of experimental parasitology, immunoparasitology, and parasite molecular biology will be addressed.

## **317 Immunobiology (3)**

Prerequisites: Biology 276 and Chemistry 261. The fundamental principles and concepts of immunology and immunchemistry. Emphasis on the relation of immunological phenomena to biological phenomena and biological problems. Three hours of lecture per week.

## **319 Immunobiology Laboratory (2)**

Prerequisite: Biology 317 (may be taken concurrently). Basic experimental procedures in immunology. Introduction to experimental evidence underlying concepts of immunology. Three and one-half hours of laboratory per week.

## **320 Neurophysiology (3)**

Prerequisite: Biology 213 or consent of instructor. A study of cellular neurophysiology including initiation, propagation, and transmission of nervous signals. Three hours of lecture per week.

## **322 Neurophysiology Laboratory (2)**

Prerequisites: Biology 320 (may be taken concurrently) and consent of instructor. Experiments designed to accompany Biology 320. Techniques and special research problems emphasized.

# Biology

## 326 Gene Expression in Eukaryotes (3)

Prerequisites: Biology 224 and Biology 276. A discussion of the current concepts of molecular biology as they apply to understanding genetic regulation of DNA, RNA, and protein synthesis and function in the cell. Three hours of lecture per week. Students may not receive credit for both Biology 326 and Biology 426.

## 328 Techniques in Molecular Biology (5)

Prerequisites: Biology 224 and Biology 326 or consent of instructor. An in-depth look at theory and practice of current technologies in molecular biology. Topics covered will include nucleic acid isolation, construction of gene clones and libraries, maintenance of cloned genes, vector analysis, restriction endonuclease mapping, Northern and Southern blotting, nucleic acid hybridization and electrophoresis. Laboratory will present hands-on experience with these techniques. Three hours of lecture and three and one-half hours of laboratory per week. Students may not receive credit for both Biology 328 and Biology 428.

## 330 Advanced Development (3)

Prerequisite: Biology 235. A discussion of experimental approaches as applied to the analysis of development. Three hours of lecture per week.

## 332 Advanced Development Laboratory (2)

Prerequisite: Biology 330 (may be taken concurrently). Instruction and practice in the application of experimental techniques to the study of development. Three and one-half hours of laboratory per week to be arranged.

## 334 Virology (3)

Prerequisites: Biology 216 and Biology 224. A comparative study of the structure, reproduction, and genetics of viruses. Three hours of lecture per week. Students may not receive credit for both Biology 334 and Biology 434.

## 336 Virology Laboratory (2)

Prerequisite: Biology 334 (may be taken concurrently). Laboratory to accompany Biology 334. Three and one-half hours of laboratory per week.

## 338 Gene Expression in Prokaryotes (3)

Prerequisites: Biology 216 and Biology 224. The principles and mechanisms of inheritance and transfer of genetic material in microorganisms. Includes the study of mutation, gene transfer, and genetic manipulation of microorganisms. Three hours of lecture per week. Students may not receive credit for both Biology 338 and Biology 438.

## 342 Population Biology (3)

Prerequisite: Biology 224 (Biology 220 recommended). The structure, operation, and evolution of populations. Three hours of lecture per week.

## 344 Gene Activity During Development (3)

Prerequisites: Biology 235 and Biology 326 or consent of instructor. Discussion of selected experimental systems in which molecular genetic and cell biological approaches have provided insights about the genes and/or gene products that regulate animal development. Three hours of lecture per week. Students may not receive credit for both Biology 344 and Biology 444.

## 346 Evolution (3)

Prerequisites: Biology 224 and Chemistry 261. The course and mechanisms of organic evolution, covering topics ranging from biochemical evolution to comparative anatomy and population genetics. Three hours of lecture per week.

## 348 Animal Societies and Aggregations (3)

Prerequisites: Biology 220, Biology 280, or Biology 242 and junior standing. Studies of natural selection and evolution with specific reference to animal groups. Critical examination of group selection, altruism, and kin selection. Survey of social insects and vertebrate societies. Two hours of lecture, one hour of discussion per week.

## 350 Plant Environmental Physiology (3)

Prerequisites: Biology 254 and Biology 276 or consent of instructor. An examination of plant physiological acclimation and Darwinian adaptation in variable environments. Three hours of lecture per week. Students may not receive credit for both Biology 350 and Biology 450.

## 352 Plant Environmental Physiology Laboratory (2)

Prerequisite: Biology 350 (may be taken concurrently). Laboratory to accompany Biology 350. Exercises will include measurement and analysis of energy budgets, gas exchange, and acclimation to drought. Two field trips will be taken late in the spring to study physiological parameters in the field. Three and one-half hours of laboratory per week. Students may not receive credit for both Biology 352 and Biology 452.

## 354 Entomology (3)

Prerequisites: Biology 10, 10 hours of biology, and upper-division standing. Development, structure, function, behavior and ecology of insects, including a systematic survey of the orders of Insecta. Three hours of lecture per week.

## 356 Entomology Laboratory (2)

Prerequisite: Biology 354 (may be taken concurrently). Laboratory to accompany Biology 354. Studies of the morphology, physiology, and behavior of insects to give a sampling of biological studies of the class Insecta. Formation of a collection of insects, comprising a systematic survey of orders and principal families, will be an integral part of the course and will require additional time beyond the official lab hours. Three and one-half hours of lab per week.

## 358 Evolutionary Ecology of Plants (3)

Prerequisites: Biology 224 and 220, or 342, or 246. This course will explore topics concerning evolution in natural plant populations emphasizing current empirical research on the genetics and ecology of plant populations. Specific topics will include natural selections and local adaptations, gene flow through pollination and seed dispersal, role of genetic drift, coevolution between plants and animals, molecular evolution, speciation, conservation of natural populations, and artificial selection. Students may not receive credit for both Biology 358 and Biology 458. Three hours of lecture per week.

# Biology

## 360 Techniques in Electron Microscopy (5)

Prerequisites: Biology 210 and consent of instructor. Discussion of electron microscopy and associated techniques. Students will learn techniques associated with the preparation of materials for electron microscopy and learn to operate and perform minor servicing of the electron microscope. Two hours of lecture per week and seven hours of laboratory per week to be arranged.

## 362 Plant Taxonomy (4)

Prerequisites: Biology 250 or consent of instructor. The history, literature and methodology of plant taxonomy, emphasizing the flowering plants or angiosperms. Modern methods, e.g., phenetics, cladistics, and vicariance biogeography will also be covered. The labs will feature most angiosperm groups, using living and herbarium material. Two hours of lecture and three and one-half hours of laboratory per week.

## 368 Quantitative Plant Ecology (4)

Prerequisite: Biology 220 or consent of instructor. Lectures and assigned readings will cover sampling and analytic techniques for soils and plant material. Laboratories will include practice in the technique of plant demography, water relations, photosynthetic measurement, and habitat description and analysis of communities. Attention will be given to experimental design and statistical treatment and interpretation of ecological data. Students will design and execute an independent laboratory or field study. One-hour lecture and four and one-half hours of laboratory per week.

## 370 General and Comparative Endocrinology (3)

Prerequisite: Biology 213 (Biology 276 recommended). A survey of chemical coordinating mechanisms with special emphasis on the evolution of hormonal control systems. Three hours of lecture per week. Students may not receive credit for both Biology 370 and Biology 470.

## 372 General and Comparative Endocrinology Laboratory (2)

Prerequisite: Biology 370 (may be taken concurrently). An introduction to techniques and procedures used in endocrine research. Three and one-half hours of laboratory per week.

## 376 Topics in Biological Chemistry (3)

Prerequisite: Biology 276. Topics include control of cellular metabolism, membrane transport mechanisms of action of enzymes and hormones, and enzyme kinetics. Three hours of lecture per week.

## 378 Topics in Biological Chemistry Laboratory (2)

Prerequisite: Biology 278 or consent of instructor. Independent projects related to analytical and metabolic control, using advanced analytical and synthetic procedures. Three and one-half hours of laboratory per week.

## 380 Ecological and Evolutionary Aspects of Behavior (3)

Prerequisite: Biology 280 (Biology 220 recommended). Topics in animal behavior with an emphasis on ecological and evolutionary aspects of behavior. Topics will include the role of behavior in population regulation, habitat selection and spacing, feeding and predator-prey interactions, the ecology of social systems, competition, and the evolution of behavioral isolating mechanisms. Three hours of lecture per week. Students may not receive credit for both Biology 380 and Biology 480.

## 381 Theoretical Systematics and Evolution (3)

Prerequisite: Biology 342 or equivalent. Mechanisms of speciation, the role of such phenomena as isolation, hybridization, polyploidy, gene flow, and breeding systems in the evolution and maintenance of species and modern theoretical systematics in phylogenetic reconstructions. Three hours of lecture per week. Students may not receive credit for both Biology 381 and Biology 481.

## 382 Ecological and Evolutionary Behavior Laboratory (2)

Prerequisite: Biology 380 (may be taken concurrently). Observational and experimental studies of animal behavior in the field and laboratory. Three and one-half hours of laboratory per week.

## 387 Tropical Ecology and Conservation (3)

Prerequisite: Biology 220, 342, 442, or equivalent. This course will cover research areas in tropical population, community and ecosystem ecology, with emphasis on interspecies and environment-organism interactions, population control factors, and genetic structure of populations. Topics include the current status and causes of tropical habitat destruction, ongoing attempts to manage those habitats, and development of strategies leading to sustained use of nonrenewable resources. Students may not receive credit for both Biology 387 and 487. Three hours of lecture per week.

## 388 Biometry (3)

Prerequisites: Mathematics 30 and a minimum of 15 hours in biology. This course reviews descriptive, analytical, and experimental methods useful for the statistical study of biological phenomena. Students will develop the skills needed to better appreciate and evaluate the published literature, as well as the ability to design their own research programs. Topics include: the collection and summarization of biological observations; development, design, and testing of hypotheses; analysis and presentation of data. Three-hour lecture. This course fulfills the statistics requirement for the B.A. or B.S. degree in biology. Students may not receive credit for both Biology 388 and Biology 488.

## 389 Senior Seminar (2)

Prerequisite: Senior standing. Required of biology majors. Presentation of selected papers by students.

## 390 Research (1-3)

Prerequisite: Consent of the Biology 390 course coordinator. Generally restricted to junior or senior standing. Research (laboratory and/or library) in an area selected by the student in consultation with and under the supervision of a faculty research adviser. Credit arranged. Course may be repeated for a total of up to five credit hours. No more than two credit hours may be applied toward the minimum number of biology course credits for the major in biology.



# Biology

## 392 Selected Topics (1-10)

Prerequisites: Junior standing and consent of instructor. Selected topics in biology. The topics will vary each semester. Topics available in the departmental office. Credit arranged. May be taken more than once for credit.

## 395 Field Biology (2-5)

Prerequisites: Three biology courses and consent of instructor. Intensive study of the flora and fauna of selected areas of the North American continent including a 10-day field trip during spring recess and associated laboratory work. The area studied will be announced in the schedule of courses. Note: There is a specific fee charged for this course.

## 396 Marine Biology (3)

Prerequisite: Biology 264 (Biology 266 recommended). A survey of the major groups of marine plants and animals and their interactions in the various North American marine communities. Three hours of lecture per week.

## 398 Marine Biology Laboratory (2)

Prerequisites: Biology 396 (may be taken concurrently) and consent of instructor. Intensive laboratory and field study of selected North American marine communities. Consult the instructor for area to be visited. Students must pay their own travel and living expenses.

## 399 Science Teaching Intern Seminar (3)

Prerequisites: Biology 285 and Biology 286. Addresses the application of educational philosophy, science curriculum, teaching strategies, and instructional technology in the classroom setting. Offered concurrently with Secondary School Student Teaching, SEC ED 290.

## 401 Current Topics in Biology (1)

Prerequisite: Graduate standing. An introduction to advanced topics in biology as seen through the eyes of the faculty. Faculty members will discuss current research in their area of interest and will review research being conducted in the department. One and one-half hours of lecture and discussion per week. Required of all graduate students.

## 403 Biology Colloquium (1)

Prerequisite: Biology 401. Presentation of papers by students, faculty, and invited speakers. One hour per week. May be repeated for a maximum of three credit hours.

## 405 Topics in Ecology, Evolution, and Systematics (1)

Prerequisite: Graduate standing. Presentation and discussion of current faculty and student research projects in behavior, ecology, evolution, and systematics. May be repeated with permission of the director of graduate studies. One hour per week.

## 407 Topics in Floristic Taxonomy (1)

Prerequisite: Biology 250 or equivalent, and graduate standing. Seminar course in systematics of higher plants, arranged in the Cronquist sequence of families, covering morphology, anatomy, palynology, biogeography, chemosystematics, cytology, and other aspects of plant classification and phylogenetics. Given at the Missouri Botanical Garden. One hour per week.

## 410 Advanced Cell Physiology (3)

Prerequisite: Biology 276 (Biology 210 recommended). An advanced study of cellular functions and their relationships to the structural and chemical properties of cellular components. Areas discussed: the cell and its environment, energy flow, exchange of materials across membranes, information transfer within and between cells, and cellular aspects of movement. Three hours of lecture, one hour of discussion or seminar per week. Students may not receive credit for both Biology 310 and Biology 410.

## 413 Advanced Comparative Animal Physiology (3)

Prerequisite: Biology 213. Advanced aspects of the unity and diversity of physiological mechanisms found through the animal kingdom. Three hours of lecture, one hour of discussion or seminar per week. Students may not receive credit for both Biology 313 and Biology 413.

## 414 Advanced Environmental Physiology (3)

Prerequisite: Biology 213. Advanced aspects of physiological responses of animals to environmental changes. Adaptation of organisms to various environments. Three hours of lecture, one hour of discussion or seminar per week. Students may not receive credit for both Biology 314 and Biology 414.

## 417 Advanced Immunology (3)

Prerequisite: Biology 317. Advanced consideration of techniques of measuring antigen-antibody interaction; immunogenetics as applied to cellular immunity and transplantation; evolution of the immune response. Three hours of lecture per week.

## 426 Advanced Gene Expression in Eukaryotes (3)

Prerequisites: Biology 224 and Biology 276. An advanced discussion of the current concepts of molecular biology as they apply to understanding genetic regulation of DNA, RNA, and protein synthesis and function in the cell. Three hours of lecture, one hour of discussion or seminar per week. Students may not receive credit for both Biology 326 and Biology 426.

## 428 Advanced Techniques in Molecular Biology (5)

Prerequisites: Biology 224 and Biology 326 or consent of instructor. An in-depth look at theory and practice of current technologies in molecular biology. Topics covered will include nucleic acid isolation, construction of gene clones and libraries, maintenance of cloned genes, vector analysis, restriction endonuclease mapping, Northern and Southern blotting, nucleic acid hybridization and electrophoresis. Laboratory will present hands-on experience with these techniques. Three hours of lecture, three and one-half hours of laboratory, and one hour of seminar per week. Students will participate in a weekly seminar where techniques used to address research projects will be discussed. Students may not receive credit for both Biology 328 and Biology 428.

# Biology

## 434 Advanced Virology (3)

Prerequisites: Biology 216 and Biology 224. An advanced comparative study of the structure, reproduction, and genetics of viruses. Three hours of lecture, one hour of discussion or seminar per week. Students may not receive credit for both Biology 334 and Biology 434.

## 438 Advanced Gene Expression in Prokaryotes (3)

Prerequisites: Biology 216 and Biology 224. Advanced aspects of the principles and mechanisms of inheritance and transfer of genetic material in microorganisms. Includes the study of mutation, gene transfer, and genetic manipulation of microorganisms. Three hours of lecture, one hour discussion or seminar per week. Students may not receive credit for both Biology 338 and Biology 438.

## 442 Population and Community Ecology (3)

Prerequisite: Biology 220 or Biology 342 or their equivalents. Studies of structure and organization of natural communities stressing the abundance and distribution of species, the regulation of species diversity, and the evolution of demographic parameters in populations. Three hours of lecture per week.

## 444 Advanced Gene Activity During Development (3)

Prerequisites: Biology 235 and Biology 326/426 or consent of instructor. Advanced discussion of selected experimental systems in which molecular genetic and cell biological approaches have provided insights about the genes and/or gene products that regulate animal development. Three hours of lecture and one hour of discussion per week. Students may not receive credit for both Biology 344 and Biology 444.

## 445 Conservation I. Public Policy of Conservation and Sustainable Development (3)

Prerequisites: Graduate standing in Biology or Political Science and consent of instructor. Prior course in ecology recommended. This course will introduce the student to concepts and techniques for formulating, implementing, and analyzing public policy with an emphasis on environmental concerns, conservation, and sustainable development. The course will be team taught by a political scientist and a biologist. Course materials will include case studies that demonstrate the special problems of environmental policy-making in developing and developed economies.

## 446 Conservation II. Theory and Applications (3)

Prerequisite: Biology 342, Biology 442, or equivalent; or consent of instructor. Prerequisites may be taken concurrently. Advanced analysis of conservation theory with emphasis on conservation of populations, their genetic diversity, and the biodiversity of habitats. Applied aspects of conservation and sustainable development will be illustrated through case studies presented by conservation professionals.

## 447 Internship in Conservation Biology (1-4)

Prerequisites: Biology 445 or Biology 446 and consent of the director of graduate studies in Biology. Internships will consist of a period of study, observation, and on-the-job training at a conservation or environmental agency. Specific placements will be selected according to student's interests and career goals. Internships may vary from 2 weeks to 4 months in duration.

## 450 Advanced Plant Environmental Physiology (3)

Prerequisites: Biology 445 or Biology 446 or consent of instructor. An examination of advanced aspects of plant physiological acclimation and Darwinian adaptation in variable environments. A formal research paper on a topic concerning the environmental physiology of plants will be required. Students may not receive credit for both Biology 350 and Biology 450.

## 452 Advanced Plant Environmental Physiology Lab (2)

Prerequisite: Biology 450 (may be taken concurrently). Laboratory to accompany Biology 450. Exercises will include detailed measurement and analysis of energy budgets, gas exchange, and acclimation to drought. Two field trips will be taken late in the spring to study physiological parameters in the field. A research project involving the greenhouse, laboratory or computer facilities will be required. Meets three and one-half hours per week. Students may not receive credit for both Biology 352 and Biology 452.

## 458 Advanced Evolutionary Ecology of Plants (3)

Prerequisites: Biology 224 and 220 or 342, or 246 or their equivalent. This course will explore topics concerning evolution in natural plant populations, emphasizing current empirical research on the genetics and ecology of plant populations. Specific topics will include natural selection and pollination and seed dispersal, role of genetic drift, coevolution between plants and animals, molecular evolution, speciation, conservation of natural populations, and artificial selection. A formal research paper on a topic concerning the evolutionary ecology of plants will be required. Students may not receive credit for both Biology 358 and Biology 458. Three hours of lecture per week.

## 465 Methods in Plant Systematics (4)

Prerequisites: Biology 362 or consent of instructor. A techniques course covering the use of anatomical, cytological, chemical, palynological and numerical methods in taxonomic research. Herbarium management, databases, scientific publication and library techniques will also be covered. Two hours of lecture and discussion and three and one-half hours of laboratory per week.

## 470 Advanced General and Comparative Endocrinology (3)

Prerequisite: Biology 213 (Biology 276 recommended). An advanced survey of chemical coordinating mechanisms with special emphasis on the evolution of hormonal control systems. Three hours of lecture, one hour discussion or seminar per week. Students may not receive credit for both Biology 370 and Biology 470.



## Biology

### **474 Hormones, Pheromones, and Behavior (3)**

Prerequisites: Biology 213 and Biology 280 required, Biology 370 recommended. This course will survey the hormonal and phenomenal control of behavior in both invertebrates (annelids, arthropods, and molluscs) and vertebrates (from fish to primates). Particular attention will be given to organizational and activational effects of hormones on sexual, parental, and aggressive behaviors. Interactions between hormonal, pheromonal, and neural control of behavior will be discussed. Three hours of lecture per week.

### **480 Advanced Topics in Animal Behavior (3)**

Prerequisite: Biology 280 (Biology 220 recommended). Advanced topics in animal behavior with an emphasis on ecological and evolutionary aspects of behavior. Topics will include the role of behavior in population regulation, habitat selection and spacing, feeding and predator-prey interactions, the ecology of social systems, competition, and the evolution of behavioral isolating mechanisms. Three hours of lecture, one hour discussion or seminar per week. Students may not receive credit for both Biology 380 and Biology 480.

### **481 Advanced Theoretical Systematics and Evolution (3)**

Prerequisite: Biology 342 or equivalent. Advanced aspects of mechanisms of speciation, the role of such phenomena as isolation, hybridization, polyploidy, gene flow and breeding systems in the evolution and maintenance of species, and modern theoretical systematics in phylogenetic reconstruction. Three hours of lecture, one hour of discussion or seminar per week. Students may not receive credit for both Biology 381 and Biology 481.

### **485 Problems in Teaching College Biology (3)**

(Same as ADU ED 435.) Prerequisites: Teaching experience, 30 semester hours in biology, and consent of instructor. Basic philosophies underlying undergraduate biology education at the college level will be presented and examined with concern for establishment of an individual philosophy in the prospective college teacher. Teaching techniques suitable for college-level instruction will be considered, practiced, and evaluated. Advantages and limitations of various methods of instruction will be considered with respect to current research findings.

### **486 Techniques in Teaching Biology for Graduate Students (2)**

(Same as SEC ED 486.) Prerequisites: Graduate standing and teaching assignment. Discussion and practice of techniques specific to instruction in the life sciences. Consideration will be given to teaching strategies, curriculum design, evaluation, instrumentation, and student-teacher interaction. Recommended for all graduate students with teaching assistantships.

### **487 Advanced Tropical Ecology and Conservation (3)**

Prerequisite: Biology 220, or 342, or 442, or their equivalent. This course will cover research areas in tropical population, community and ecosystem ecology, with emphasis on interspecies and environment-organism interactions, population control factors, and genetic structure of populations. Topics include the current status and causes of tropical habitat destruction, ongoing attempts to manage those habitats, and development of strategies leading to sustained use of nonrenewable resources. A research proposal designed to investigate a current topic in tropical ecology will be required. Students may not receive credit for both Biology 387 and Biology 487. Three hours of lecture per week.

### **488 Advanced Biometry (3)**

Prerequisites: Mathematics 30 and a minimum of 15 hours in biology. This course reviews descriptive, analytic, and experimental methods useful for the statistical study of biological phenomena. Students will develop the skills needed to better appreciate and evaluate the published literature, as well as the ability to design their own research programs. Topics include the collection and summarization of biological observations; development, design, and testing of hypotheses; analysis and presentation of data. In addition to the take-home assignments and exams, students will be required to analyze a problem of their choice. This can be an analysis of published material or unpublished, original research. Three-hour lecture, one-hour discussion per week. Students may not receive credit for both Biology 388 and Biology 488.

### **489 Graduate Seminar (2)**

Presentation and discussion of various research problems in biology. Graduate student exposure to the seminar process.

### **490 Graduate Research in Biology (1-10)**

Research in area selected by student in consultation with faculty members. May be taken for a maximum of ten hours.

### **492 Topics in Biology (2-5)**

In-depth studies of selected topics in contemporary biology. May be repeated. Three hours of lecture per week.

# Chemistry

Prerequisites may be waived by consent of the department or instructor. Some courses as indicated in the course description may be taken concurrently with the listed offering. Consult your adviser for further information.

The following courses fulfill the Natural Sciences and Mathematics [SM] breadth of study requirements: 1, 2, 3, 4, 9, 10, 11, 12, 13, 122, 202, 230, 231, 232, 233, 234, 261, 262, 263, 289, 290, 302, 303, 304, 306, 310, 324, 331, 333, 336, 341, 342, 343, 352, 361, 362, 364, 366, 371, 372, 373, 374, 380, 381.

## 1 General Chemistry I (3)

Prerequisite: Mathematics 02 or equivalent (may be taken concurrently). A broad introductory survey of chemical principles. Chemistry 1 plus Chemistry 9 are equivalent to Chemistry 11. This alternative may be attractive to students who are not mathematically prepared for Chemistry 11. Chemistry 1 and Chemistry 2 will ordinarily satisfy chemistry requirements in nursing, forestry, physical therapy, and related professions. No student may take both Chemistry 1 and Chemistry 10 for credit. Chemistry majors may not include both Chemistry 1 and Chemistry 11 in the 120 hours required for graduation. Three hours of lecture per week.

## 2 General Organic Chemistry (3)

Prerequisite: Chemistry 1. A short course in organic chemistry with biochemical applications. Recommended for students in nursing, forestry, physical therapy, and related professions. This course should not be taken by majors in the physical or biological sciences. Chemistry majors may not include Chemistry 2 in the 120 hours required for graduation. Three hours of lecture per week.

## 3 General Chemistry Laboratory (2)

Prerequisite: Chemistry 1 or Chemistry 10 (may be taken concurrently). Experiments to acquaint students with chemistry in the laboratory. No student may take both Chemistry 3 and Chemistry 9 for credit.

## 4 Laboratory in General Organic Chemistry (2)

Prerequisite: Chemistry 2 (may be taken concurrently). Experiments to introduce the student to organic and biochemistry.

These will include studies of the properties of organic compounds and introduce students to methods of synthesis and analysis.

## 9 General Chemistry II (3)

Prerequisites: Chemistry 1 (or equivalent and consent of instructor) and Mathematics 30 and Mathematics 35 (may be taken concurrently). Additional work on the topics of Chemistry 1, with emphasis on quantitative material. Introduction to the chemical laboratory. Chemistry 1 plus Chemistry 9 is equivalent to Chemistry 11 for science majors. Chemistry majors who receive credit for Chemistry 1 and Chemistry 9 may not also include Chemistry 10 or Chemistry 11 in the 120 hours required for graduation. No student may take both Chemistry 3 and Chemistry 9 for credit. Two hours of lecture per week, three and one-half hours of lab or one hour of discussion on alternate weeks.

## 10 Chemistry in Society (3)

A survey of chemistry and its relevance to contemporary problems, including an introduction to important chemical principles. Laboratory experiments are designed to complement the lectures. Chemistry 10 does not satisfy the prerequisite of any course. No student may take both Chemistry 1 and Chemistry 10 for credit. Chemistry majors may not include Chemistry 10 in the 120 hours required for graduation. Two hours of lecture per week; two hours of lab and one hour of discussion on alternate weeks.

## 11 Introductory Chemistry I (5)

Prerequisites: Mathematics through college algebra and trigonometry (may be taken concurrently). Presents an introduction to the fundamental laws and theories of chemistry. Laboratory experiments are designed to demonstrate some aspects of qualitative and quantitative analysis and to develop skills in laboratory procedures. Chemistry majors may not include both Chemistry 1 and Chemistry 11, nor both Chemistry 10 and Chemistry 11 in the 120 hours required for graduation. Three hours of lecture and one hour of discussion per week; one hour of laboratory-lecture and three hours of laboratory per week.

## 12 Introductory Chemistry II (5)

Prerequisite: Chemistry 11 or advanced placement. Lecture and laboratory are a continuation of Chemistry 11. Three hours of lecture and one hour of discussion per week; one hour laboratory-lecture and three hours of laboratory weekly.

## 13 Special Topics in Introductory Chemistry (1-5)

Prerequisite: Consent of instructor. A lecture or laboratory course to assist transfer students in meeting the requirements of Chemistry 11 and Chemistry 12.

## 122 Quantitative Analysis (3)

Prerequisite: Chemistry 12. Principles and practice of elementary quantitative chemistry. The lecture treats descriptive statistics with emphasis on small samples; various types of competing equilibria pertaining to acid-base, buffer, and polyprotic acid systems; quantitative explanations of acid-base, complexometric, and potentiometric titrations; and an introduction to spectrophotometric processes. The laboratory provides exercises in titrimetric, gravimetric, and spectrophotometric techniques. Two hours of lecture and four and one-half hours of laboratory weekly.

## 202 Introduction to Chemical Literature (1)

Prerequisite: Chemistry 262 (may be taken concurrently). The course will familiarize the student with the literature of chemistry and its use. One hour of lecture per week.

## 230 Physical Chemistry for the Life Sciences (4)

Prerequisites: Chemistry 122, Mathematics 80, Mathematics 101, or equivalent, and Physics 11 and Physics 12. Principles and application of physical chemistry appropriate to students pursuing degree programs in the life sciences. Topics discussed include thermodynamics, equilibria, kinetics, and spectroscopy. Chemistry majors may not include Chemistry 230 in the 120 hours required for graduation. Three hours of lecture and one hour of discussion per week.

# Chemistry

## 231 Physical Chemistry I (3)

Prerequisites: Chemistry 122 and Mathematics 180 (may be taken concurrently), and Physics 111 (or equivalent). Principles of physical chemistry including thermodynamics, theory of gases, phase equilibria, kinetics, crystal structure, spectroscopy, and quantum mechanics. Three hours of lecture per week.

## 232 Physical Chemistry II (3)

Prerequisite: Chemistry 231. Continuation of Chemistry 231. Three hours of lecture per week.

## 233 Laboratory in Physical Chemistry I (2)

Prerequisite: Chemistry 231 (may be taken concurrently). Experiments designed to illustrate principles introduced in Chemistry 231. One hour of lecture and four and one-half hours of laboratory per week.

## 234 Laboratory in Physical Chemistry II (2)

Prerequisites: Chemistry 232 (may be taken concurrently) and Chemistry 233. Experiments designed to illustrate principles introduced in Chemistry 232. One hour of lecture and four and one-half hours of laboratory per week.

## 261 Structural Organic Chemistry (3)

Prerequisite: Chemistry 12. An introduction to the structure, properties, synthesis, and reactions of aliphatic and aromatic carbon compounds. Three hours of lecture per week.

## 262 Organic Reactions (3)

Prerequisite: Chemistry 261. A systematic study of organic reactions and their mechanisms; organic synthetic methods. Three hours of lecture per week.

## 263 Techniques of Organic Chemistry (2)

Prerequisite: Chemistry 261 or consent of instructor. An introduction to laboratory techniques and procedures of synthetic organic chemistry. One hour of lecture and four and one-half hours of laboratory per week.

## 280 Methods of Teaching Physical Sciences (3)

(Same as SEC ED 240.) Prerequisites: SEC ED 213 and a near-major in the subject matter. A study of the scope and sequence of the physical science

courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science. To be taken concurrently with student teaching.

## 283 Chemistry/Physics Teaching Intern Seminar (1)

(Same as Physics 283.) Prerequisite: Chemistry 280 or Physics 280. A seminar to accompany student teaching covering integration of physical science curricula and methods into the classroom setting. To be taken concurrently with Secondary Student Teaching, SEC ED 290.

## 289 Seminar (1)

Prerequisites: Chemistry 202 and senior standing. Presentation of papers by students, faculty, and invited speakers. All majors must enroll for credit during two semesters of their senior year. Completion of a comprehensive examination during one of the semesters is a course requirement.

## 290 Chemical Research (1-10)

Prerequisite: Consent of instructor. Independent laboratory and library study, in conjunction with faculty member, of fundamental problems in chemistry. A written report describing the research is required.

## 302 Intermediate Analytical Chemistry (3)

Prerequisites: Chemistry 122 and consent of the graduate adviser. A review of the basic concepts of analytical chemistry. Topics to include principles of quantitative analysis, with emphasis on modern instrumental techniques. Course designed for post baccalaureate students; may not be used to fulfill requirements for undergraduate degree programs in chemistry. One to three hours of lecture per week.

## 303 Intermediate Physical Chemistry (3)

Prerequisites: Chemistry 231, 232, 233, and permission of graduate adviser. A review of basic principles of physical chemistry. Topics to include thermodynamics, kinetics, and quantum chemistry. Course designed for post baccalaureate students; may not be used to fulfill requirements for undergraduate programs in chemistry. Three hours of lecture per week.

## 304 Intermediate Inorganic Chemistry (3)

Prerequisite: Permission of the graduate adviser. A review of basic inorganic chemistry. Topics will include atomic and molecular structure, acids and bases, the chemistry of the solid state, and main group and transition metal chemistry. Course designed for post-baccalaureate students; may not be used to fulfill requirements for undergraduate degree programs in chemistry. Three hours of lecture per week.

## 306 Intermediate Organic Chemistry (3)

Prerequisites: Chemistry 261, 262, 263, and permission of the graduate adviser. A review of the basic principles of organic chemistry. Topics to include structure, physical and spectroscopic properties and reactions of major classes of organic compounds, reaction mechanisms, and a survey of synthetic methods. Course designed for post-baccalaureate students; may not be used to fulfill requirements for undergraduate degree programs in chemistry. Three hours of lecture per week.

## 310 History of Chemistry (3)

Prerequisite: Chemistry 12 or consent of instructor. The development of chemistry, including early theories of matter, alchemy, iatrochemistry, the period of Lavoisier, and selected topics from the nineteenth and twentieth centuries. Three hours of lecture per week.

## 324 Instrumental Analysis (3)

Prerequisite: Chemistry 233. Principles and applications of modern methods of instrumental analysis for analytical chemistry measurements selected from the areas of electrochemistry, absorption and emission spectroscopy, chromatography, mass spectrometry, nuclear magnetic resonance spectroscopy and surface analysis techniques. Two hours of lecture and four and one-half hours of laboratory per week.

## 331 Advanced Physical Chemistry (3)

Prerequisite: Chemistry 232. Study of advanced theoretical and experimental problems in modern physical chemistry. Selected topics such as statistical mechanics, properties of solids, reaction dynamics, molecular orbital theory, and spectroscopic methods may be included. Three hours of lecture per week.

# Chemistry

## 333 Thermodynamics (3)

Prerequisite: Chemistry 232. Selected advanced topics including solid-state, nonequilibrium, and statistical thermodynamics. Three hours of lecture per week.

## 336 Introduction to Quantum Chemistry (3)

Prerequisite: Chemistry 232 or consent of instructor. A brief but quantitative introduction to the application of quantum mechanics to problems in chemistry, covering the uncertainty principle, operators, solution of Schrodinger's equation for simple systems, perturbation theory, variation methods, interaction of radiation with matter, atomic and molecular structure, and theory of collisions. Three hours of lecture per week.

## 341 Inorganic Chemistry I (3)

Prerequisites: Chemistry 232 and Chemistry 262 (may be taken concurrently). An introduction to the chemistry of the elements, including atomic and molecular structure, acids and bases, the chemistry of the solid state, and main group and transition metal chemistry. Three hours of lecture per week.

## 342 Inorganic Chemistry II (3)

Prerequisite: Chemistry 341. Continuation of Chemistry 341 with emphasis on such topics as metals, nonaqueous solvents, chemical dynamics, organometallic chemistry, chemistry of the less common elements, and certain frontier areas. Three hours of lecture per week.

## 343 Inorganic Reactions (2)

Prerequisite: Chemistry 341 (may be taken concurrently). The more sophisticated techniques of physical and analytical chemistry will be used to study inorganic compounds and their reactions. One hour of lecture and four and one-half hours of laboratory per week.

## 352 Nuclear Chemistry (3)

Prerequisite: Chemistry 232. Properties of radioactive nuclei, nature of radioactivity, nuclear reactions, and applications of nucleonics to chemistry. Three hours of lecture per week.

## 361 Advanced Organic Chemistry (3)

Prerequisite: Chemistry 262. Contemporary developments in the study of the structure of carbon compounds and the mechanism of their reactions. Selected topics such as natural products, heterocyclic compounds, stereochemistry, aromaticity, reaction intermediates, and photochemistry will be included. Three hours of lecture per week.

## 362 Spectroscopic Identification of Organic Compounds (3)

Prerequisite: Chemistry 364. An applied approach to the use of spectroscopic techniques in organic chemistry. Topics to include integrated applications of infrared and Raman spectroscopy, nuclear magnetic resonance (C and H, cw and pulsed) and mass spectroscopy for the purpose of elucidating the structure of organic compounds. Three hours of lecture per week.

## 364 Synthetic and Analytical Methods of Organic Chemistry (2)

Prerequisites: Chemistry 122, Chemistry 202 (may be taken concurrently), Chemistry 262, and Chemistry 263. Identification of organic compounds by classical and spectroscopic methods; advanced techniques in synthesis and separation of organic compounds. One hour of lecture and four and one-half hours laboratory per week.

## 366 Physical Organic Chemistry (3)

Prerequisites: Chemistry 262 and Chemistry 232 (may be taken concurrently). Advanced topics in the theory of organic chemistry, including conformational analysis, reaction kinetics and mechanisms, and transition state theory. Three hours of lecture per week.

## 371 Biochemistry (3)

Prerequisite: Chemistry 263. The isolation, chemical characterization, and function of the structural and catalytic components of living cells and subcellular particles. Three hours of lecture per week.

## 372 Advanced Biochemistry (3)

Prerequisite: Chemistry 371. Selected advanced topics in the chemistry of life processes. Three hours of lecture per week.

## 373 Biochemical Techniques (2)

Prerequisite: Chemistry 371 (may be taken concurrently). Laboratory study of

biochemical processes in cellular and subcellular systems with emphasis on the isolation and purification of proteins (enzymes) and the characterization of catalytic properties. One hour of lecture and three and one-half hours of laboratory per week.

## 374 Advanced Biochemistry Laboratory (2)

Prerequisites: Chemistry 372 and Chemistry 373 (latter may be taken concurrently). Continuation of Chemistry 373. Laboratory to accompany Chemistry 372. One hour of lecture and three and one-half hours of laboratory per week.

## 380 The Teaching and Practice of Chemistry in Colleges and Universities (1)

Prerequisite: Consent of instructor. A study of modern practices in the teaching of chemistry. The course focuses on methods of instruction, safety in the chemical laboratory, and approved practices of waste disposal. This is a required course for all graduate students in chemistry involved in teaching or research and must be completed by the end of the first year of enrollment.

## 381 Special Topics (1-10)

Prerequisite: Consent of instructor. A reading and seminar course in selected advanced topics.

## 414 Molecular Spectroscopy (3)

Prerequisite: Chemistry 232. A broad treatment of the interaction of electromagnetic radiation with matter, emphasizing the unity of such interactions. Interpretation of molecular structure in terms of molecular, electronic, and geometric structure and dynamics. Description and interpretation of physical techniques applied to chemistry. Three hours of lecture per week.

## 415 Organometallic Chemistry (3)

Prerequisite: Consent of instructor. A systematic study of the compounds containing a carbon-metal or a carbon-metalloid bond. Emphasis will be placed upon the structural types and chemical reactivity of this class of compounds. Topics will also include the role of organometallic compounds in synthesis and their catalytic behavior. Three hours of lecture per week.



# Chemistry

## 416 Chemical Applications of Group Theory (3)

Prerequisite: Chemistry 232. A brief introduction to the fundamental relationships of group theory. Application of group theory to molecular orbital theory, molecular vibrations, and molecular spectra. Three hours of lecture per week.

## 417 Environmental Chemistry (3)

Prerequisite: Consent of instructor. Selected topics in the chemistry of the environment including air and water pollution. Subjects to be discussed include photochemical smog, gaseous and particulate contamination, biodegradability of chemicals, and chemical effects of contaminants on living species. Three hours of lecture per week.

## 419 Advanced Reading in Chemistry (1)

Prerequisite: Admission to the Ph.D. degree program. Reading and examinations in the subdisciplines of chemistry. Enrollment must begin after completion of any course deficiencies.

## 431 Advanced Chemical Calculations (3)

Prerequisites: Mathematics 180 and Chemistry 232. Advanced application of analytical techniques to chemical problems; complex variables, linear algebra, and series techniques. Three hours of lecture per week.

## 433 Statistical Mechanics (3)

Prerequisites: Chemistry 333 and Chemistry 431. Consideration of topics of chemical-physical interest including thermophysical properties of fluids and solids, Fermi-Dirac and Bose-Einstein fluids, theory of fluctuations, and irreversible processes. Three hours of lecture per week.

## 434 Interaction of Electromagnetic Radiation and Matter (3)

Prerequisite: Chemistry 436. Treatment of the theoretical description of interaction between atoms and molecules and electromagnetic fields. Includes such topics as electromagnetic field theory, spin systems in electromagnetic fields, time-dependent perturbation theory, emission and absorption of radiation, and selected applications to chemical and physical systems. Three hours of lecture per week.

## 436 Quantum Chemistry II (3)

Prerequisites: Chemistry 336 and Chemistry 431. Advanced theoretical concepts; angular momentum, atomic and molecular structure. Three hours of lecture per week.

## 439 Special Topics in Physical Chemistry (1-3)

Prerequisite: Consent of instructor. Selected topics in physical chemistry. May be taken more than once for credit.

## 441 Typical Element Chemistry (3)

Prerequisite: Chemistry 342. Chemistry of the main group elements and their compounds including such topics as electron deficient compounds, acids, bases and nonaqueous solvents, catenation and inorganic polymers, the solid state, organotypical element chemistry and energetics. Three hours of lecture per week.

## 442 Coordination Chemistry (3)

Prerequisite: Chemistry 342. The chemistry of the coordination compounds of the transition metals including such topics as kinetics and mechanisms of reaction, stereochemistry, ligand field theory, stability and organotransition element chemistry. Three hours of lecture per week.

## 443 Physical Inorganic Chemistry (3)

Prerequisites: Chemistry 342, Chemistry 414, and Chemistry 416. Study of physical concepts with emphasis on physical methods applied to inorganic systems, spectral and magnetic properties of coordination compounds, and application of bonding theories to inorganic chemistry. Three hours of lecture per week.

## 448 Problem Seminar in Inorganic Chemistry (1)

Prerequisite: Consent of the inorganic chemistry staff. Problems from the current literature, presentations, and discussions by faculty and students.

## 449 Special Topics in Inorganic Chemistry (1-3)

Prerequisite: Consent of instructor. Selected topics in inorganic chemistry. May be taken more than once for credit.

## 463 Stereochemistry (3)

Prerequisite: Chemistry 361 or Chemistry 366. A study of molecular geometry and relationships in space between atoms and groups in a molecule. Topics to be covered include optical isomerism, conformational analysis, asymmetric synthesis, and topology. Three hours of lecture per week.

## 464 Organic Photochemistry (3)

Prerequisites: Chemistry 361 and Chemistry 366. A study of the synthetic and theoretical aspects and applications of light-induced reactions. Topics to be covered include primary photophysical processes, reaction types, and photosensitization. Three hours of lecture per week.

## 465 Chemistry of Natural Products (3)

Prerequisite: Chemistry 361. The chemistry and physiological action of natural products; methods of isolation, determination of structures, synthesis, and biosynthesis. Three hours of lecture per week.

## 468 Problem Seminar in Organic Chemistry (1)

Prerequisite: Consent of the organic chemistry staff. Problems from the current literature, presentations, and discussions by faculty, students, and visiting scientists. Ph.D. students may take more than once for credit. Up to three credits may be applied to the M.S. degree program.

## 469 Special Topics in Organic Chemistry (3)

Prerequisite: Consent of instructor. Advanced topics of special current interest. May be taken more than once for credit.

## 489 Chemistry Colloquium (1)

Presentation of papers by students, faculty, and invited speakers. One hour per week.

## 490 Graduate Research in Chemistry (1-10)



# Communication

Prerequisites may be waived by consent of the department.

The following courses fulfill the Humanities [H] breadth of study requirements: 70, 80, 160, 260, 271, 272, 340, 341, 342, 343, 344, 350, 352.

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 65, 135, 218, 230, 231, 243, 330, 331, 332, 333, 335, 350, 354, 356.

## 21 Fundamentals of Acting (3)

(Same as English 21.) Oral and physical communication of a role through improvisations, exercises, and scene work. Emphasis on modern representational method with some attention given to other styles.

## 23 Production Aesthetics (3)

(Same as English 23.) An analysis of the visual components of dramatic presentation, including an introduction to theatrical styles and forms, technical design elements, and presentational techniques. A broad survey of theatre production.

## 30 Interpersonal Communication I (3)

Development of basic one-to-one communication skills. Includes self-awareness, listening, nonverbal communication, feedback, roleplaying, and receiver awareness.

## 40 Introduction to Public Speaking (3)

Theories and techniques of organization, evidence, argumentation, persuasion, and delivery in public speaking.

## 50 Introduction to Mass Media (3)

Introduction to oral, print, and electronic media of communication. Emphasis on history, theory, and criticism of the mass media as cultural institutions.

## 65 Introduction to Information Technology (3)

The production and consumption of information by individuals, the work place and society. Emphasis on the changing nature of communication processes as a result of the expansion of communication technologies.

## 70 Introduction to Cinema (3)

An introduction to the history, rhetoric, and aesthetics of film. Film theory and criticism will be studied as well as major genres, authors, and artists.

## 80 Introduction to the Theatre (3)

(Same as English 80.) A study of theatre as an art form, emphasizing the audience's appreciation of the art of the playwright, actor, director, and designer. Study of major periods, genres, and plays from classical to modern times.

## 95 Seminar in Communication (3)

Prerequisite: Consent of instructor. In-depth treatment of topics pertaining to current research in the department or otherwise of timely interest to students or faculty.

## 110 Introduction to Radio and Television Broadcasting (3)

An introduction to broadcasting, including the areas of history, government regulations, station operation, and program development.

## 114 Radio Production I (3)

Prerequisite: Communication 110. Theory and practice in the creation of radio programs. Laboratory experience included.

## 118 Radio and Television Announcing (3)

Prerequisite: Communication 110; Communication 60, Communication 114, and Communication 210 recommended. Training in radio and television studio procedures. Production and criticism of lab programs, including news, continuity, interviews, and oral improvisation. Classroom meetings at the radio lab and the television lab, plus lab hours to be arranged.

## 130 Interpersonal Communication II (3)

Prerequisite: Communication 30. Interpersonal communication in relationships within group contexts, such as family, classroom, and business. Various theories and diagnostic approaches to interpersonal communication. Extensive laboratory sessions utilizing individual and group exercises.

## 135 Communication Theory (3)

Survey of elements and processes critical to human communication behavior. Comparison of influential communication theories.

## 140 Advanced Public Speaking (3)

Prerequisite: Communication 40. Application of advanced public speaking skills, with emphasis on special occasion speaking situations.

## 141 Business and Professional Speaking (3)

Prerequisite: Communication 40. Application of communication skills in the business and professional environment with emphasis on presentational speaking, organizational constructs germane to professional careers, and uses of various media.

## 143 Parliamentary Procedure (2)

Prerequisite: Communication 40. Study and practice in rules of procedure by which self-governing groups transact business.

## 150 Introduction to Public Relations (3)

Prerequisite: Communication 40 or 50. Publicity methods and public relations representation of profit and nonprofit institutions to the public; use of communication research and media, as applied to the public relations profession.

## 160 Fundamentals of Oral Interpretation (3)

Prerequisite: Communication 40 or consent of instructor. An introduction to the analysis of literature and to the principles of its oral presentation by the interpreter.

## 193 Practicum in Applied Communication (1-3)

Prerequisite: Consent of instructor. Practicum work at any of the UM-St. Louis public relations offices, sports and school newspapers, Office of Research or Photography Services. Work must be done on campus, under supervision of a working professional in the field, in consultation with a faculty member.

# Communication

## **194 Practicum in Debate/Forensics (1-3)**

Practical work in the University debate and forensics program, supervised by a faculty member. Repeatable, but no more than six credit hours may be earned in departmental practicum courses.

## **195 Seminar in Communication (3)**

Prerequisite: Consent of instructor. In-depth study of topics pertaining to current research in the department or otherwise of timely interest to students or faculty.

## **196 Practicum in Radio (1-3)**

Prerequisites: Communication 110 and consent of instructor; open to communication majors only; not open to students who have any Y or delayed grades outstanding. Practical work at the campus radio station, supervised by a faculty member. Repeatable, but no more than six credit hours may be earned in departmental practicum courses.

## **197 Practicum in Television/Film (1-3)**

Prerequisites: Communication 110 and consent of instructor; open to communication majors only; not open to students who have any Y or delayed grades outstanding. Practical work at one of the campus television studios or for the UM-St. Louis Television/Film Club, supervised by a faculty member. Repeatable, but no more than six credit hours may be earned in departmental practicum courses.

## **210 Television Production I (3)**

Prerequisites: Communication 110 and consent of instructor. A study of the basic theories and practices of television production. The areas of producing and directing will be studied. The class will provide the student with practical experience in camera operation, switching, lighting, and mixing. Lab arranged.

## **212 Broadcast Writing and Reporting (3)**

Prerequisites: Communication 110 and Communication 214, or English 214, or permission of instructor. Elementary principles and practice of writing for radio and television in varied program formats, emphasis on preparation of written materials for news and public affairs presentation. Lecture and lab.

## **214 News Writing (3)**

(Same as English 214.) Prerequisite: English 10 or equivalent. An introduction to news writing and reporting. Course covers basic components of news reporting principles, and news writing style and structure. Daily writing assignments include coverage of speeches, meetings and interviews, accidents, deaths, courts, sports, consumer affairs, and government. Emphasis on clarity, accuracy, and speed.

## **215 Radio Production II (3)**

Prerequisite: Communication 114. Study of advanced theories and techniques of audio production, building on principles and skills learned in Radio Production I. Exploration of complex program formats such as radio drama and special problems such as those encountered in recording live music.

## **216 Radio News (3)**

Prerequisite: Communication 114. Theory and laboratory practice in the gathering, writing, and delivery of news through radio. Lab hours to be arranged.

## **217 Script Writing for Business and Industry (3)**

Prerequisites: Communication 210 and Communication 212. Script writing for training, motivation, education, and other applications. Students will identify and discuss communication problems and solutions in live, slide/tape, video, and film script formats.

## **218 Public Policy in Telecommunication (3)**

Prerequisite: Communication 65 or 110 or consent of instructor. An examination of the structure and operation of domestic, international, commercial and public telecommunication. Regulatory agencies, both private and public, will be considered in terms of their effect on programming and ownership.

## **219 Promotion, Publicity, and Advertising in Broadcasting (3)**

Prerequisite: Communication 110. Introduction to theory and practice in the planning, execution, and evaluation of persuasive campaigns involving radio and television. Emphasis on concept developments and production elements. Discussion of broadcast ethics.

## **230 Small Group Communication (3)**

Prerequisite: Communication 40. Development of communication skills needed in small group decision making. Application of these skills to contemporary problems.

## **231 Communication in the Organization (3)**

Prerequisite: Junior standing or consent of instructor. Course integrates communication theories applicable to the structure and function of organizations. The effect of communication variables on departmental interface, member satisfaction and motivation, leadership and subordinate styles, and perception of the organization by the external environment.

## **237 Male/Female Communication (3)**

This course explores the influence of gender upon contemporary American communication behavior. Topics include semantic and syntactic variation in male and female speech, sex-role development as process and product of communication, analysis of communication patterns and barriers within gender groups. Mass, public, interpersonal, and dyadic communication contexts are considered.

## **240 Persuasive Communication (3)**

Prerequisite: Communication 40. A study of persuasive communication, including theories, techniques, forms, functions, applications, potential, and limitations for the individual and organizations. Insights from both classical rhetoric and contemporary communication theory.

## **241 Argumentation and Debate (3)**

Prerequisite: Communication 40 or consent of instructor. Principles of argumentation and debate with practice in preparing briefs and in delivering spoken arguments in formal debate. Emphasis on analysis of issues, logical reasoning, and audience analysis.

## **242 Theory and Practice of Interviewing (3)**

Prerequisite: Communication 40. The application of modern communication theory to interview situations. This theory and practicum course is designed to aid the student in mastering specific skills appropriate to specialized settings.

# Communication

## **243 Communication in American Politics (3)**

Prerequisite: Communication 40. Analysis of audience response and media preferences in political campaigns, campaign speeches, candidates' uses of television and other mass media, and measuring effectiveness of campaign communications.

## **260 Advanced Oral Interpretation (3)**

Prerequisite: Communication 160. Advanced practice in analyzing and performing oral interpretation of literary forms.

## **271 History of Film to World War II (3)**

Prerequisite: Communication 70 or consent of instructor. History of world cinema from the late nineteenth century to the 1940s.

## **272 History of Film Since World War II (3)**

Prerequisite: Communication 70 or consent of instructor. History of world cinema from the 1940s to the present day.

## **273 Basic Film Production (3)**

Prerequisite: Communication 70. Introduction to filmmaking equipment and practices. Production of short films.

## **310 Television Production II (3)**

Prerequisite: Communication 210. Study of advanced theories of television production. Refinement of studio television principles learned in Communication 210. Exploration of complex program formats. Lab arranged.

## **311 Broadcast Management (3)**

Prerequisite: Communication 110. Introduction to theories of management, with application to radio and television station operations. Discussion of economic, legal, and ethical problems and issues.

## **316 Television News (3)**

Prerequisite: Communication 210. Theory and laboratory practice in the gathering, writing, and delivery of news through television. Lab arranged.

## **317 Radio and the Recording Industry (3)**

Prerequisite: Junior standing. Historical development and current status of the recording industry, particularly as it interacts with the broadcast industry. Impact of radio and recording technology on the development of rock and other popular music.

## **330 Empirical Research in Communication (3)**

Prerequisite: Communication 135. Introduction to the fundamental tools of quantitative research in communication, including data analysis, statistical design and methods, basic measurement concepts and designs for empirical research.

## **331 Research Methods in Communication (3)**

Prerequisite: Communication 135. Introductory study of research designs and methodologies employed in communication, including historical, critical, and empirical methods. Review of research reports which exemplify these methods.

## **332 Intercultural Communication (3)**

Prerequisite: Junior standing or consent of the instructor. Study of culture as a variable in both interpersonal and collective communicative situations. Emphasis upon opportunities and problems arising from similarities or differences in communication patterns, processes, and codes among various cultural groups.

## **333 Communication Audit (3)**

Prerequisite: Communication 231. The application of specific empirical research designs to evaluate communication flows, effectiveness, or channels in complex organizations.

## **334 Communication in Advertising (3)**

Prerequisites: Communication 240 and junior standing, or consent of instructor. Overview of components in persuasive messages and how advertising messages and campaigns use various media to reach target audiences.

## **335 Seminar in Applied Communication Research (3)**

Prerequisites: Communication 135 and consent of instructor. This course explores the use of communication concepts, theories, methods, and designs in applied field settings with an emphasis on original research.

## **340 Rhetorical Criticism (3)**

Prerequisite: Communication 40. The application of rhetorical theories to the analytical and critical explanation of persuasive messages.

## **341 Classical Rhetoric and Public Address (3)**

Prerequisite: Communication 40 or consent of instructor. A survey of the history and theories of persuasion and public address from ancient times to the Renaissance.

## **342 Modern Rhetoric and Public Address (3)**

Prerequisite: Communication 40 or consent of instructor. A survey of the history and theories of persuasion and public address from the post-Renaissance era to the present.

## **343 The Rhetoric of Protest (3)**

Prerequisite: Communication 40. An examination of the persuasive messages and tactics used in social movements and their campaigns.

## **344 Advanced Argumentation Theory (3)**

Prerequisite: Communication 241 or consent of instructor. This course focuses on advanced argumentation theory. It is aimed at providing an advanced understanding of the complex issues faced by argumentation scholars.

## **345 Advanced Interviewing Techniques (3)**

Prerequisite: Communication 242 or consent of instructor. Examination and application of problem solving and information-getting methods, with emphasis on specialized situations such as journalistic; health, crisis intervention, and counseling; superior-subordinate relationships and employment. In-class study approach and field interview assignments.

## Communication

### **350 Mass Communication History (3)**

Prerequisite: Communication 50 or Communication 110. Examination of the social, economic, and political factors contributing to the development of American mass media. Emphasis on significant personalities who helped shape its course.

### **352 Mass Media Criticism (3)**

Prerequisite: Communication 50 or Communication 110. The study of media content and its effect on society. Reading and viewing of selected works. Independent reading and critical analysis required.

### **354 Comparative Telecommunication Systems (3)**

Prerequisite: Communication 65 or consent of instructor. Historical aspects of various systems of telecommunication throughout the world. Examination of American, Canadian, European Economic Community (EC), and other telecommunication systems.

### **355 Media Law and Regulation (3)**

Prerequisite: Communication 50 or Communication 110. Discussion of laws affecting the mass media. Exploration of problems and issues in legal regulation of media content, ownership, access, and accountability. Discussion of industry self-regulation and the influence of citizens' organizations.

### **356 International Communication (3)**

Prerequisite: Communication 50 or Communication 110. Examination of the social, technical, economic, and political factors affecting international broadcasting and transnational media systems.

### **358 Communication in Public Relations (3)**

Prerequisite: Communication 150. An overview of communication within the area of public relations. Emphasis on ethics, law, professional standards, and written communication. Case study approach.

### **362 Storytelling (3)**

Prerequisite: Junior standing or consent of instructor. This course gives an overview of the history of storytelling, types of tales, and appropriate uses for storytelling. The primary emphasis of the course is in developing storytelling skills through preparation, performances, and evaluation.

### **363 Introduction to Cataloging (3)**

Prerequisite: Senior or postgraduate status. Cataloging books using Anglo-American Cataloging Rules II and the Dewey classification.

### **364 Selection and Acquisition of Library Materials (3)**

Prerequisite: Senior or postgraduate status. Introduction to types of materials in libraries; their source of supply, evaluation, selection, and acquisition routines and procedures.

### **365 Introduction to Reference (3)**

Prerequisite: Senior or postgraduate status. Introduction to reference materials and procedures, including automated reference sources.

### **366 Administration of School Libraries/Media Centers (3)**

Prerequisite: Senior or postgraduate status. Operational objectives and functions of school learning resource centers, including physical facilities and personnel standards.

### **370 Documentary Film (3)**

Prerequisite: Communication 70. Consideration of the history, theory, and criticism of nonfiction film. Screening of representative documentary films.

### **390 Directed Readings (3)**

Prerequisites: Consent of instructor; not open to students who have any Y or delayed grades outstanding. Supervised independent study involving readings, conferences, papers, etc., in one of the department's disciplines: communication theory and rhetoric, or mass communication.

### **391 Supervised Research (1-5)**

Prerequisites: Junior/senior standing and consent of instructor; not open to students who have any Y or delayed grades outstanding. Supervised field or laboratory research, data collection, literature searches, qualitative or quantitative data analysis, report writing and other techniques used by communication researchers. Repeatable, but no more than five credit hours may be earned in supervised research courses.

### **392 Administration of Cocurricular Activities (3)**

Prerequisites: Junior standing and consent of instructor. A survey of the skills required to administer the various cocurricular activities associated with teachers in the secondary schools, such as: operation of debate tournaments, public speaking competitions, theatre productions, mass media centers, etc.

### **393 Internship in Applied Communication (3-6)**

Prerequisites: Senior standing, with a least 12 hours of course work in communication theory and rhetoric; an overall GPA of at least 3.0; consent of instructor; open to communication majors only; not open to students who have any Y or delayed grades outstanding. Advanced practical work in business communication, political campaign communication, advertising, public relations, or other forms of organizational or public communication. Work must be done off campus, under supervision of a working professional in the field, in consultation with a faculty member. Repeatable, but no more than six hours total credit may be earned in internship courses toward the 36-hour minimum required for the degree.

## Communication

### **394 Internship in Journalism (3-6)**

Prerequisites: Senior standing, with at least 12 hours of course work in journalism, mass communication, etc.; an overall GPA of at least 3.0; consent of instructor; open to communication majors only; not open to students who have any Y or delayed grades outstanding. Practical work with an off-campus newspaper, magazine, or other news organization, supervised by a journalism professional in consultation with a faculty member. Repeatable, but no more than six hours total credit may be earned in internship courses toward the 36-hour minimum required for the degree.

### **395 Seminar in Communication (3)**

Prerequisite: Consent of instructor. In-depth treatment of topics pertaining to current research in the department or otherwise of timely interest to students or faculty.

### **396 Internship in Radio (3-6)**

Prerequisites: Senior standing, with at least 12 hours of course work in radio, broadcasting, etc.; an overall GPA of at least 3.0; consent of instructor; open to communication majors only; not open to students who have any Y or delayed grades outstanding. Practical work at an off-campus radio station, supervised by a professional in consultation with a faculty member. Repeatable, but no more than six hours total credit may be earned in internship courses toward the 36-hour minimum required for the degree.

### **397 Internship in Television/Film (3)**

Prerequisites: Senior standing, with at least 12 hours of course work in television, film, video, etc.; an overall GPA of at least 3.0; consent of instructor; open to communication majors only; not open to students who have any Y or delayed grades outstanding. Practical work at an off-campus television, film, or video organization, supervised by a television, film, or video professional in consultation with a faculty member. Repeatable, but no more than six hours total credit may be earned in internship courses toward the 36-hour minimum required for the degree.



## Criminology and Criminal Justice

Prerequisites may be waived by consent of the department or instructor.

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 10, 75, 99, 110, 120, 130, 164, 180, 200, 210, 220, 227, 230, 240, 260, 270, 280, 290, 300, 305, 310, 315, 320, 325, 328, 330, 335, 340, 345, 350, 380, 390.

### 10 Introduction to Criminology and Criminal Justice (3)

Introduction to the basic concepts and approaches in the study of criminology and criminal justice. The major components of the criminal justice system are examined.

### 75 Crime and Punishment (3)

(Same as Sociology 75 and Interdisciplinary 75.) An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior.

### 99 The City (3)

(Same as Political Science 99, Sociology 99, and Interdisciplinary 99.) Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission.

### 110 Theories of Crime (3)

Prerequisite: Criminology and Criminal Justice 10. Introduction to major theoretical approaches to the study of crime and justice.

### 120 Criminal Law (3)

Prerequisite: Criminology and Criminal Justice 10. Analysis of substantive criminal law, evidence and judicial procedure.

### 130 Criminal Justice Policy (3)

Prerequisite: Criminology and Criminal Justice 10. Introduction to criminal justice policy making, planning, and implementation.

### 164 Criminological Theory (3)

(Same as Sociology 164.) Prerequisites: Sociology 10 and Administration of Justice 60 or consent of instructor. An introduction to explanations of criminal behavior and societal reactions to crime which bear upon the administration of justice. Includes historical and contemporary approaches.

### 180 Alcohol, Drugs, and Society (3)

(Same as Sociology 180.) Prerequisite: Sociology 10 or Psychology 3. This course examines the medical, legal, and social aspects of alcohol and drug use. Medical aspects considered include treatment approaches and the role of physicians in controlling such behavior. In the legal realm, past and present alcohol and drug laws are explored. Cultural and social influences on alcohol and drug use are discussed.

### 200 Writing in Criminology and Criminal Justice (3)

Prerequisite: English 10 or equivalent. This team-taught course exposes students to the types of writing expected of professionals in the field. Examples include report writing, abstract book reviews, essays and editorials, research reports, and formats for citation and referencing.

### 210 Research Methods in Criminology and Criminal Justice (3)

Prerequisite: Criminology and Criminal Justice 10. Examination of basic methods of research design, measurement and data collection in criminology and criminal justice.

### 220 Statistical Analysis in Criminology and Criminal Justice (3)

Prerequisites: Criminology and Criminal Justice 10, Criminology and Criminal Justice 210 and University math requirement. An introduction to techniques of quantitative data analysis. Both descriptive and inferential statistics are applied to problems in criminology and criminal justice.

### 227 Urban Law: Poverty and the Justice System (3)

(Same as Political Science 227.) Prerequisite: Criminology and Criminal Justice 170 or Political Science 11, or consent of instructor. Examination of administrative regulations and the civil law process as it affects the life of the urban, rural, and the poor.

### 230 Crime Prevention (3)

Prerequisite: Criminology and Criminal Justice 10. Examination of situational, social, and legislative approaches to the prevention of crime and delinquency. Emphasis on theories, implementation and consequences of these approaches.

### 240 Policing (3)

Prerequisite: Criminology and Criminal Justice 10. Overview of current and historical perspectives on the function of American policing. Emphasis on the management of police organizations and relationships with the community.

### 260 Corrections (3)

Prerequisite: Criminology and Criminal Justice 10. Examination of correctional philosophies and practices. Emphasis on the history of correction, the formal and informal organization of correction facilities, inmate rights, and correctional alternatives.

### 270 The Juvenile Justice System (3)

Prerequisite: Criminology and Criminal Justice 10. Examination of formal and informal responses to juvenile delinquency. Emphasis on theories of delinquency and the decision-making processes of police, court and probation officials.

### 280 Internship in Criminology and Criminal Justice (3)

Prerequisite: Junior standing. Internship under faculty supervision in criminal justice setting. May be repeated for one credit.

### 290 Directed Readings (1-6)

Prerequisite: Criminology and Criminal Justice 10 and consent of instructor. Individualized study, under regular faculty supervision, designed to meet particular educational needs of selected students.

### 300 Communities and Crime (3)

(Same as Sociology 300.) Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Analysis of the sources, consequences, and control of crime within communities. Emphasis on social and ecological theories of crime, and on population instability, family structure, and the concentration of poverty as causes of crime. Community crime prevention efforts are also addressed.

# Criminology and Criminal Justice

## 305 Comparative Criminology and Criminal Justice (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Analysis of crime and criminal justice systems in selected cultures. Emphasis on the ways in which these cultures define and respond to criminal behavior.

## 310 Computers in Criminal Justice (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Use of computers, data base systems, and software applications in research and professional practice.

## 315 Ethics in Criminology and Criminal Justice (3)

(Same as Philosophy 315.) Prerequisites: CCJ 110, 120, 130, 210, 220, or Philosophy 153, 154, 156, 230, 235, 238, or consent of instructor. Examination of major ethical issues encountered in criminology and criminal justice research and practice.

## 320 Forms of Criminal Behavior (3)

(Same as Sociology 320.) Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Examination of major types of criminal behavior including violent, property, public order, and organizational offenses. Emphasis on theories of and responses to these crimes.

## 325 Gender, Crime, and Justice (3)

(Same as Sociology 325.) Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Analysis of the role of gender in crime and in the justice system. Emphasis on gender differences in crime commission, criminal processing, and the employment of women in criminal justice agencies.

## 328 Institutions and the Control of Crime and Delinquency (3)

(Same as Sociology 328.) Prerequisites: CCJ 110, 120, 130, 210, 220, 260, or Sociology 214 or Sociology 326. Institutional responses to crime and delinquency. Theories and programs of rehabilitation and punishment. Organizational conditions affecting behavior of correctional personnel.

## 330 History of Crime and Justice (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. The analysis, development, and change in philosophies and responses to crime. Emphasis on major forms and definitions of crime, the emergence of modern policing, the birth of the prison, and the juvenile court.

## 335 Probation and Parole (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, 260, or consent of instructor. Analysis of alternatives to incarceration and postincarceration supervision. Emphasis on diversion, restitution, and community reintegration.

## 340 Race, Crime, and Justice (3)

(Same as Sociology 340.) Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Analysis of the involvement of racial minorities in crime and the criminal justice system. Emphasis on group differences in offending, processing, victimization, and employment in criminal justice agencies.

## 345 Rights of the Offender (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Analysis of the objectives of criminal law regarding the rights of persons suspected or convicted of crime. Emphasis on rights regarding the police, the court, and in correctional settings.

## 350 Victimology (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, or consent of instructor. Analysis of major perspectives on victimization. Emphasis on patterns of victimization, the role of victims in the generation of crime, and the experience of the victim in the criminal justice system.

## 380 Special Topics in Criminology and Criminal Justice (3)

Prerequisites: CCJ 110, 120, 130, 210, 220. In-depth study of a selected topic in criminology and criminal justice.

## 390 Seminar in Criminology and Criminal Justice (3)

Prerequisites: CCJ 110, 120, 130, 210, 220, and senior standing. In this capstone course, students demonstrate the ability to work independently, integrating theory and research in criminology and criminal justice in a major paper supervised by the instructor.

## 400 Proseminar: Criminology and Criminal Justice (3)

A critical examination of theoretical concepts and policy initiatives in criminology and criminal justice. Course will include analysis of the way in which programs have been implemented and the extent to which they have been successful.

## 402 Correctional Theory and Practice (3)

Prerequisite: Graduate standing or consent of instructor. The study of institutional and community corrections. Historical and contemporary justifications, including rehabilitation, deterrence, retribution, and incapacitation.

## 403 Urban Police Function (3)

Prerequisite: Graduate standing or consent of instructor. Historical, economic, social, and political analysis of the police function. Emphasis on the problems of urban policing.

## 404 The Adjudication Process (3)

Prerequisite: Graduate standing or consent of instructor. Analysis of the judicial search for truth. The course considers the complex functions of the police, prosecuting and defense attorneys in the justice process, and the role of appellate review.

## 405 Juvenile Justice (3)

Prerequisite: Graduate standing or consent of instructor. Review of juvenile justice theory, law, and practice from current and historical perspectives.

## Criminology and Criminal Justice

### **410 Criminal Justice**

#### **Organization (3)**

Prerequisite: Graduate standing or consent of instructor. An analysis of criminal justice as a system of complex organizations. Topics include theories of organizations and behavior, organizational environments, and factors which explain their development and change.

### **464 Seminar in Criminological Theories (3)**

(Same as Sociology 464.) Prerequisite: Criminology and Criminal Justice 400 or Sociology 400 or permission of instructor. Theories of criminality are examined, with an emphasis on explanations of criminal behavior and societal responses. Theories discussed include: structural strain, differential association, subcultural deviance, differential opportunity, labeling, and social control.

### **475 Introduction to Evaluation Research Methods (3)**

(Same as Psychology 475, Sociology 475, and Public Policy Administration 475.) Prerequisites: At least one course in Research Design and Statistics at the graduate level. A comparative study of research strategies with regard to data sources, data collection, and modes of analysis that are appropriate for program evaluation research. Attention is given to observational, survey, and quasi-experimental methodologies.

### **480 Seminar in Criminology and Criminal (3)**

This course will focus on a particular topic. An in-depth examination of that topic will follow. Sample topics include: drugs and the criminal justice system, the future of imprisonment, plea-bargaining, minorities and criminology and criminal justice.

### **485 Directed Readings (1-6)**

Prerequisite: Consent of instructor. Directed reading and research, under faculty supervision, designed to meet particular educational needs of selected students.

### **490 Thesis Research (1-6)**

Prerequisites: Graduate standing and consent of instructor.

### **495 Field Placement (3)**

Prerequisite: Graduate standing or consent of instructor. Supervised placements with criminal justice agencies. Designed primarily for students with limited field experience.

### **499 Independent Study and Research (3)**

Prerequisite: Graduate standing or consent of instructor. Directed study or research in criminology and criminal justice.

# Economics

Courses in this section are grouped as follows: Economics; Geography; and Home Economics.

Prerequisites may be waived by consent of the department.

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 40, 51, 52, 210, 216, 217, 219, 220, 230, 231, 238, 240, 250, 251, 253, 256, 260, 261, 263, 265, 266, 270, 302, 304, 305, 306, 317, 320, 331, 350, 351, 355, 357, 364, 365, 366, 368, 380. GEOGRAPHY: 101, 102, 211.

## Economics

### 40 Introduction to the American Economy (3)

Introduction to economic analysis and problems through an examination of the development and operations of the American economy; study of its evolution, institutions, and principal problems. Economics 40 does not substitute for Economics 51 or Economics 52. Students who have already completed Economics 51 or Economics 52 may not take Economics 40 for credit.

### 51 Principles of Microeconomics (3)

Prerequisite: Mathematics 30. Introduction to the determinants of household demand, production and cost, and market prices. Applies the principles of individual decision-making behavior to understanding goods, services, and resource markets.

### 52 Principles of Macroeconomics (3)

Prerequisite: Economics 51. Introduction to the determination of levels of and changes in aggregate income, output, employment, and prices. Applies economic principles of choice to the formulation and achievement of public policies that affect national employment, income distribution, and economic growth.

### 210 Selected Topics in Economics (3)

Prerequisites: Economics 51 and Economics 52. Analysis of a selected economic topic. The topic selected will vary from semester to semester. This course may be taken for credit more than once as long as the topic discussed in each semester is different.

### 216 Public Expenditures (3)

Prerequisite: Economics 51. Analysis of public goods and externalities, the impact of property rights on allocation, models of collective choice, elements of benefit cost analysis, and the theory of bureaucracy.

### 217 Public Finance: Revenues (3)

Prerequisite: Economics 51. Analysis of the economic role of government, subsidies and taxes in the federal system, criteria for tax evaluation, the nature of tax legislation, private decision making under differing tax institutions, and government borrowing.

### 219 Law and Economics (3)

Prerequisite: Economics 51. Analysis of the economic role of property rights and contracts in the private for-profit and not-for-profit sectors of the economy. Considers economic incentives to form organizations as one alternative and to form contracts as another. Considers the economic efficiency of the common law and judicial systems in use in the United States.

### 220 Money, Banking, and Monetary Theory (3)

Prerequisites: Economics 51 and Economics 52. Factors influencing bank reserves and the money supply. Ability of the Federal Reserve System and the Treasury to control these factors. Introduction to monetary theory; integration of monetary phenomena with national income theory. Analysis of current policy issues.

### 230 International Economic Analysis (3)

Prerequisite: Economics 40, or Economics 51, or Economics 52. Elementary trade and payments analysis; balance of payments, international economic problems; concentration on fundamentals of analysis and problems.

### 231 International Finance (3)

Prerequisite: Economics 40, or Economics 51, or Economics 52. Introduction to international monetary systems; foreign exchange markets; financing of international transactions; the international position of the dollar.

### 238 Comparative Economic Systems (3)

Prerequisite: Economics 40, or Economics 51, or Economics 52. Comparative study of economic organization, growth, and welfare in different national economies, such as the United States, the Soviet Union, and France.

### 240 Economic Development (3)

Prerequisites: Economics 51 and Economics 52. Survey of economic growth as applied to developed and underdeveloped countries. Analysis of development policies with emphasis on case studies. Case studies may include the United States, Western Europe, or Latin America.

### 250 Intermediate Economic Theory: Macroeconomics (3)

Prerequisites: Economics 51, Economics 52, and Economics 220. Study of national income, expenditure, and the forces determining the level of economic activity. Special emphasis on the theory of income determination and its application to public policy.

### 251 Intermediate Economic Theory: Microeconomics (3)

Prerequisites: Economics 51 and Economics 52. Analysis of prices in terms of equilibrium of the business firm and consumer demand in markets of varying degrees of competition.

### 253 Managerial Economics (3)

Prerequisite: Economics 51; Mathematics 80 or Mathematics 101 recommended. Application of microeconomic theory to the decision-making process in the business firm. Discussion of cost behavior, price and output determination under various competitive conditions, as well as factors affecting wages, interest, and profits.

### 256 The Consumer and the Economy (3)

Prerequisite: Economics 40 or Economics 51. Examination of issues in consumer choice and personal financial management in today's economy. Analysis of methods of increasing consumer efficiency and the role of government in consumer protection.

## Economics

### 260 Labor Economics (3)

Prerequisite: Economics 40, or Economics 51, or Economics 52. Forms of labor organization, state and federal labor legislation, and policies of labor unions. Emphasis on an application of economic theory to the relations of labor and business.

### 261 The Economics of Poverty and Income Maintenance (3)

Prerequisite: Economics 51 or permission of instructor. Considers the problems of defining and measuring poverty, as well as competing views of its causes. Examines the incentive effects of government transfer programs for the family's economic decisions, with emphasis on labor market behavior. Topics will include unemployment insurance, AFDC, food stamps, and negative income tax schemes.

### 263 Adjustments of Labor Disputes (3)

Prerequisite: Economics 51. The principles of conflict resolution, including government techniques such as mediation, fact finding, arbitration, injunction, and seizure. Application of these techniques under the Taft-Hartley Act and Railway Labor Act. Case studies of industries including coal, oil, railroads, steel, and aerospace. A detailed examination of the operations of the labor market under noncompetitive conditions.

### 265 Economic Statistics (3)

Prerequisites: Mathematics 30, Economics 51, and Economics 52. Introduction to economic data sources, data interpretation and statistical inference as used in economic analysis. Emphasizes the testing of economic hypotheses and the development and estimation of economic models. Introduces the use of statistical software used in economics.

### 266 Industrial Organization (3)

Prerequisite: Economics 51. A theoretical and empirical analysis of the actions of firms under alternative forms of market organization. The role of economics of scale, product differentiation, mergers, and advertising in affecting industry structure, and the impact of the resulting industry structure on pricing, output, promotion, and technology decisions of firms.

### 270 Urban and Regional Economics (3)

Prerequisites: Economics 51 and Economics 52. A survey of factors affecting the location of economic activity, industrial diversity, determinants of urban growth, the role of urban public economy, and the management of the urban environment.

### 302 Planning Processes in the Urban Economy (3)

Prerequisites: Economics 51 and junior standing. Economic techniques and criteria used in planning and evaluating programs and projects for the urban economy, including costing, cost-benefit and cost-effectiveness, and information control systems. Special attention will be given to St. Louis area studies for schools, transportation, public facilities, economic development, and social services delivery.

### 304 Survey Research Practicum (3)

(Same as Political Science 304 and Sociology 304.) Prerequisites: Junior standing and consent of instructor. The execution of a sample survey, including establishing study objectives, sampling, questionnaire construction, interviewing, coding, data analysis, and presentation of results.

### 305 Macroeconomics for the School Curriculum (1-3)

Prerequisite: Junior standing. Analysis of forces affecting the national economy, with emphasis on income determination, employment, money and banking, and international trade and finance. Special reference to topics included in elementary and secondary school social science curricula. Economics 305 may not be used by economics majors to meet degree requirements.

### 306 Microeconomics for the School Curriculum (1-3)

Prerequisite: Junior standing. Analysis of market forces, with emphasis on business firms, households, and productive-factor markets, price determination, and resource allocation. Special reference to topics included in elementary and secondary school social science curricula. Economics 306 may not be used by economics majors to meet degree requirements.

### 310 Economic Issues for the School Curriculum (1-3)

Prerequisites: Junior standing and consent of instructor. An analysis of selected economic issues appropriate to instruction in secondary and elementary schools. May be taken more than once for credit, provided the topic of the course is different each time. May not normally be used by economics majors to meet degree requirements.

### 317 Public Finance: State and Local (3)

Prerequisites: Economics 51 and Economics 52 and junior standing. A study of expenditure, taxation, and financial administration of state and local governments, with emphasis on problems of current interest. Special attention given to research methods, as well as financial relations between various levels of government.

### 320 Financial Markets and Institutions (3)

Prerequisite: Economics 220. Demand, supply, and flow of funds in the macrofinancial system, including money, capital, futures, and foreign exchange markets. Examines types and historical development of domestic and international financial intermediaries operating within these markets, decision-making within individual intermediaries, their regulatory environment, and how their portfolio decisions affect flows in the financial system.

### 331 International Economic Analysis: Finance (3)

Prerequisite: Economics 231 or Economics 250. Provides advanced study of the foreign sector in the theory and methods of international macroeconomics; income determination and trade balance; devaluation; international linkages; global monetary theory.

### 350 Special Readings (1-6)

Prerequisites: Consent of instructor; grade point of 3.0 or higher in economics. Unscheduled, independent directed readings on topics mutually acceptable to student and instructor. Maximum credit limited to six hours.



# Economics

## 351 Quantitative Methods for Economics and Business Analysis (3)

Prerequisites: Mathematics 30, Economics 51, Economics 52, or Business 410. (Concurrent enrollment in Business 410 is acceptable.) Economics 251 is recommended. An introduction to fundamental mathematical tools and their application to economic models and business analysis. Students who have completed Mathematics 175 or equivalent may not take Economics 351 for credit.

## 355 Business and Government (3)

Prerequisite: Economics 51. Relations between business firms and government at all levels. Questions of regulation, public ownership, guidelines, and competition considered.

## 357 Government Regulation and Antitrust Policy (3)

Prerequisite: Economics 51. Evaluation of the use of antitrust policy and government regulatory agencies to improve the performance of industrial markets. Course will include discussion of antitrust cases and analysis of the economic impact of deregulatory initiatives in the airline, trucking, railroad, and telecommunications industries.

## 364 Manpower Policies (3)

Prerequisite: Economics 251, or Economics 260, or Business Administration 410. Analysis of the allocation of human resources with emphasis on the economic theory of labor markets in both the short and the long run. Discussion of the operation of the labor market in specific occupations.

## 365 Introduction to Econometrics (3)

(Same as Public Policy Administration 365.) Prerequisites: Economics 51 and Economics 52 (Economics 250 and/or Economics 251 recommended) or Business Administration 410; and Economics 265 or Mathematics 31 or Mathematics 132 or Business Administration 131 or Management Science/Information Systems 481 or Public Policy Administration 401; and Mathematics 80 or Mathematics 101; or equivalents. An introduction to quantitative analysis of economic behavior. The ordinary least squares technique and

the assumptions underlying it are developed. Methods designed to detect and correct for the violations of these assumptions are examined. Special emphasis is given to the practical application of the procedures discussed through the use of computer exercises.

## 366 Applied Econometrics (3)

Prerequisite: Economics 365 or equivalent. Concepts, techniques, and advanced applications of econometrics. Emphasis on developing a critical understanding of the appropriateness and limitations of a variety of state-of-the-art techniques used to model economic or political processes. Topics will include joint tests of hypotheses, estimation of lagged effects, models of qualitative choice, simultaneous systems, and outlier diagnostics.

## 368 Analysis of Business Cycles (3)

Prerequisites: Economics 220; Economics 265 or Mathematics 31 or Mathematics 132 or Business Administration 131. This course focuses on empirical regularities that are commonly referred to as the business cycle. An examination of the variability, co-movements, and persistence of variables such as aggregate output, investment, consumption, and labor hours. Introduction of alternative theoretical explanations for business cycles, dynamic modeling, and empirical techniques commonly used to characterize business cycles.

## 380 History of Economic Thought (3)

Prerequisites: Economics 51 and Economics 52. The evolution of economic thought from the ancients through post-Keynesian theory.

## 401 Macroeconomic Analysis (3)

Prerequisites: Economics 351, Economics 251 or Business Administration 410, and Economics 250 or Business Administration 411. Aggregate economic theory, including analysis of the determinants of income, output, employment, and prices. Employment and price-level effects of consumer and investment demand, the money supply and interest rates, and government policies.

## 402 Microeconomic Analysis (3)

Prerequisites: Economics 351, Economics 251 or Business Administration 410, and Economics 250 or Business Administration 411. Survey of microeconomic comparative statics. Detailed examination of demand and supply, product, and factor markets. Partial equilibrium in competitive, imperfectly competitive, and monopolistic markets.

## 403 Seminar in Economic Research (3)

Prerequisites: Economics 220, Economics 251 or Business Administration 410, and Economics 250 or Business Administration 411. Research methods applied to economics. Develops efficiency and skill in conducting research and communicating the results with written reports and oral presentations. This course must be taken within the first year of study after completion of the prerequisites.

## 420 Monetary Theory and Policy (3)

Prerequisites: Mathematics 101, Economics 220, Economics 251 or Business Administration 410, and Economics 250 or Business Administration 411. An examination of how monetary policy has affected the economy in the past and how it can improve economic performance in the future. Topics include: the origins of money, money supply, money demand, the determinants of real and nominal interest rates, the term structure of interest rates, the impact of discretionary monetary policy on the domestic economy and foreign exchange markets, and the domestic economy and foreign exchange markets, and the relationship between monetary policy and federal government deficits.

## 421 Public Sector Microeconomics (3)

(Same as Public Policy Administration 421.) Prerequisite: Economics 251 or Business Administration 410. Survey of economics of bureaucracy, fiscal federalism, entrepreneurship in nonprofit organizations, benefit-cost analysis, tax welfare, property rights, and externalities.

## Economics

### 422 Financial Markets (3)

Prerequisites: Economics 220, Economics 251 or Business Administration 410, and Economics 250 or Business Administration 411. Demand, supply, and flow of funds in allocating credit and distributing risk in the macrofinancial system. The saving investment process, the rationale for financial markets, and the role of financial intermediaries are studied within the framework of the flow of funds accounts. Special attention is given to the operation of money, capital, futures, and foreign financial markets and the impact of public policy on the structure and performance of financial markets.

### 430 International Trade (3)

Prerequisite: Economics 251 or Business Administration 410. This course will survey recent literature and problems in international trade. It will consist of a brief but intensive study of the modern theories of international trade and the discussion of related selected topics. These topics will include tariff and non-tariff barriers to trade, the European Economic Community, trade and development, multinational enterprises, and international factor movements.

### 431 International Monetary Analysis (3)

Prerequisite: Economics 250 or Business Administration 411. Application of macroeconomic theory to the international monetary system. Topics include the balance of payments, exchange rates, international linkages, world inflation, capital flows, and the gold standard.

### 440 Business and Economic Forecasting (3)

Prerequisites: Four courses are required: Economics 351; Management Science/Information Systems 481; Economics 251 or Business Administration 410; Economics 250 or Business Administration 411. This course focuses on alternative techniques used to forecast economic time series. Applications will include the forecasting of aggregate variables such as GNP and inflation, as well as industry and firm specific variables such as output and sales. Each forecasting technique will be evaluated

in terms of its theoretical soundness and predictive track record. Students will also learn to use these techniques to differentiate among competing theoretical economic models.

### 450 Topics in Managerial Economic Analysis (3)

Prerequisites: Mathematics 101, Economics 251 or Business Administration 410. Application of economic theory and methodology to decision-making problems faced by both public and private institutions. Of primary concern is the use of basic microeconomic models and methods of analysis in demand, cost, profitability, pricing, and investment problems.

### 460 Structure and Performance of United States Industry (3)

Prerequisites: Mathematics 101, Economics 251 or Business Administration 410. An analysis of the functioning of business firms under alternative market arrangements. Topics include: the theory and measurement of monopoly power and the role of economies of scale, product differentiation, and entry conditions in affecting this power; the impact of market power on the price-setting behavior, advertising and promotional strategies, and technological innovation of firms; the role of government policy in promoting or preventing competition among firms.

### 465 Econometric Theory and Methods (3)

Prerequisites: Four courses are required: Economics 351 and Management Science/Information Systems 481; Economics 251 or Business Administration 410; Economics 250 or Business Administration 411. A rigorous review of statistical models and methods relevant to the estimation and testing of economic relationships. Emphasis on the theoretical underpinnings of techniques commonly used for single and multiple equation estimation and hypothesis testing. Topics include ordinary and generalized least squares, robust regression, and simultaneous equations estimation.

### 470 Advanced Topics in Urban Economics (3)

Prerequisites: Regular graduate student status and consent of graduate student coordinator. Concepts and problems in urban economics. Offered in alternate years.

### 480 Public Policy Issues in Human Resources (3)

Prerequisite: Economics 251 or Business Administration 410. Problems of human resources and development of human capital, including measurement of economic growth and the contribution of education and training to that growth; the nature of poverty and methods to alleviate it; health economics as a form of investment and of consumption.

### 490 Advanced Topics in Economic Analysis (3)

Prerequisite: Consent of the instructor. Study of a specific economics topic, which may vary from semester to semester. May be taken more than once if the topic is different.

## Geography

### 101 Introduction to Geography (3)

Prerequisite: Mathematics 02 or equivalent. An introduction to geography as a social science. The identification and explanation of order in the human landscape. A survey of the social, political, economic, and psychological factors which influence geographic patterns.

### 102 World Regions (3)

Prerequisite: Geography 101 recommended. Survey of the major regions of the world. Designed to give the student an awareness of the character of each of these major regions through the interrelationships of the various attributes of place.

### 210 Urban Geography (3)

Prerequisite: Sophomore standing. An in-depth examination of urban growth, the location and basis of cities, and the internal spatial structure of cities provide the main topics of consideration. In addition, contemporary urban problems including zoning, urban renewal, blight, the journey to work and shop, pollution, etc., are discussed with a spatial emphasis.

## Economics

### 211 Location Theory (3)

Prerequisites: Mathematics 80 or Mathematics 101 and Economics 51. A survey of industrial location theory, agriculture location theory, and central place theory; programming formulations of location models; spatial competition; location-allocation problems; and noneconomic approaches to locational analysis.

### 220 Social Geography (3)

Prerequisite: Sophomore standing. Topics presented in a spatial (geographic) framework include the diffusion of innovations, population (distribution, problems, and solutions), settlement patterns, migration, poverty, and urban-social problems (e.g., race and residential choice).

## Home Economics

### 83 Clothing Selection (3)

Study of line, form, space, color, and texture in selection of clothing as related to the individual. There will be wardrobe planning of men's, women's, and children's wear, as well as appropriate projects, field trips, and guest speakers.

### 130 Nutrition in Health (3)

A study of dietary nutrients essential for health, proper selection of foods to provide them, and current issues affecting them.

### 177 Community Nutrition (3)

Current issues and resources in nutrition. National nutrition policy, economic aspects of the food supply, nutrition-related roles of public agencies, selected nutrition programs, and community resources are emphasized.

### 181 History of Fashion and Costume (3)

An illustrated lecture presentation to gain insight into fashion as a kaleidoscopic portrayal of society and idiomatic style changes from ancient Egypt to the present. The course will cover the history of fashion as a definitive subject and will describe how costume reflects social, cultural, and political events of each period.

### 186 Fashion Merchandising (3)

A survey course of fashion merchandising with emphasis on retail principles, operations, and practices in the many sectors of fashion marketing. Specific application through case studies, problems, and field projects may be included.

### 330 Child Nutrition (3)

Prerequisite: Home Economics 130 or instructor's permission. A study of nutrition related to the major periods of development: fetal, infant, childhood, and adolescent.

## English

Courses in this section are grouped as follows: Composition; Language; Literature; and Special Offerings.

English 10, Composition, or its equivalent, is a general prerequisite for all English courses numbered 131 and above. This, and other specific prerequisites, may be waived by consent of the department.

The following courses fulfill the Humanities [H] breadth of study requirements: COMPOSITION: 103, 104, 105, 302, 303, 304. LANGUAGE: 220, 322. LITERATURE: 12, 13, 16, 17, 20, 70, 71, 120, 123, 124, 125, 126, 127, 128, 131, 132, 133, 134, 135, 171, 172, 225, 280, 321, 323, 324, 325, 327, 332, 337, 338, 339, 342, 345, 346, 352, 353, 364, 365, 368, 369, 371, 372, 373, 374, 375, 376, 383, 384, 385, 386. SPECIAL OFFERINGS: 250, 390. THEATRE: 23, 80, 198, 223, 261, 281, 282, 322.

## Composition

### 09 Basic Writing (3)

A review of elementary principles of writing expository prose. Special attention is given to sentence clarity, organization, the clear and orderly development of ideas, and good diction. The course does not fulfill the University requirement in communicative skills. No credit toward any degree. The course meets three hours a week.

### 10 Freshman Composition (3)

Prerequisite: Satisfactory performance on essay proficiency test or grade of C or better in English 09. Theory and practice of writing exposition. Course does not count toward the major in English.

### 11 Freshman Composition for International Students (3)

Prerequisite: Essay proficiency test or a TOFEL score of 500 or above. Theory and practice of writing expository American prose. Special attention is given to verb tenses, idioms, articles, and syntax. Does not count toward the major in English. This course substitutes for English 10 in all University requirements.

### 103 Poetry Writing (3)

Prerequisite: English 10 or equivalent. Theory and practice of poetry writing.

### 104 Short Story Writing (3)

Prerequisite: English 10 or equivalent. Theory and practice of writing the short story.

### 105 Play Writing (3)

Prerequisite: English 10 or equivalent. Theory and practice of writing plays.

### 112 Topics in Writing (3)

Prerequisite: English 10 or equivalent. This course will introduce the student to writing in specific areas. The department will announce topics and course content in the schedule. Possible topics are Argumentation, Reading and Writing About Public Affairs, Sports Reporting and Writing, and Writing About Science. A student may repeat the course once when topics are different. The course counts toward the Certificate in Writing.

### 209 Practical Criticism: Writing About Literature (3)

Prerequisites: English 10 or equivalent and junior standing or consent of the department. The course acquaints students with the techniques and terminology of literary criticism and trains them in the rudiments of writing about literature. Students compose eight to ten practical, critical essays on drama, poetry, fiction, and nonfictional prose. Explication of particular texts is emphasized. A longer critical paper incorporating secondary sources and introducing students to basic methods and resources for research is assigned. The course is required of English majors but is open to all qualified students. Course does not count toward the major in English. May not be taken on the satisfactory/unsatisfactory option.

### 210 Advanced Expository Writing (3)

Prerequisites: English 10 or equivalent and junior standing or consent of department. Development of the writer's style and critical and analytical capabilities. Course offers an introduction to research methods and fulfills the University requirement for a junior level course in communicative skills. May not be taken on the satisfactory/unsatisfactory option.

### 211 Advanced Expository Writing for International Students (3)

Prerequisite: English 11 or equivalent. This course will develop the student's style and critical-analytical abilities in

contemporary American English writing. The course will also offer an introduction to formal research and documentation methods for preparing papers in a variety of fields. Additional emphasis will be placed on improving the student's reading abilities, both in comprehension and vocabulary, through subject matter taken from arts and sciences, technical, and business fields. Course satisfies the junior-level communicative skills requirement. May not be taken on the satisfactory/unsatisfactory option.

### 212 Business Writing (3)

Prerequisites: English 10 or equivalent and junior standing or consent of department. The major elements of business writing. Writing assignments include business correspondence (inquiry, complaint, employment letters, etc.), reports (informal, travel, periodic, etc.), proposals (sales, etc.), analysis (marketing research, etc.), and writing for house organizations (company newsletters, etc.). Emphasis is placed on clarity, conciseness, organization, format, style, and tone. The course includes an introduction to research methods and documentation. All readings are selected from business material. Fulfills the University requirement for a junior-level course in communicative skills, subject to the approval of the student's major department. May not be taken on the satisfactory/unsatisfactory option.

### 213 Technical Writing (3)

Prerequisites: English 10 or equivalent and junior standing or consent of department. The major elements of industrial technical writing. Writing assignments include technical definitions, abstracts and summaries, mechanism descriptions, instructions, process analyses, technical reports and proposals. Emphasis is placed on clarity, conciseness, organization, format, style, and tone. The course includes an introduction to research methods and documentation. All readings are selected from industrial material. Fulfills the University requirement for a junior-level course in communicative skills, subject to the approval of the student's major department. May not be taken on the satisfactory/unsatisfactory option.



# English

## 214 News Writing (3)

(Same as Communication 214.)  
Prerequisite: English 10 or equivalent.  
An introduction to news writing and reporting. Course covers basic components of news, reporting principles, and news writing style and structure. Daily writing assignments include coverage of speeches, meetings and interviews, accidents, deaths, courts, sports, consumer affairs, and government. Emphasis on clarity, accuracy, and speed.

## 215 Feature Writing (3)

Prerequisite: English 10 or equivalent.  
Study of free-lance and staff-written magazine or newspaper feature articles. Emphasis on relationship between types of publication and article content, research methods, and writing style. Frequent short assignments—journal entries, interviews, library projects, article critiques, and market reports—lead to production of full-length feature articles.

## 218 Reporting (3)

Prerequisite: English 214 or equivalent.  
Theory and practice of reporting news for publication in the print media. Includes one classroom session and one field assignment weekly. Stories must be filed within deadline limits. Writing emphasis is on clarity, conciseness, and accuracy.

## 300 Writing in the Professions (3)

Prerequisite: Completion of the University's junior-level requirement in communication skills. A reading and writing course (1) to analyze and imitate the ways that writers in the arts and humanities, sciences, and business adapt their on-paper personalities, topics, organizations, and styles to achieve different aims or address different audiences; and (2) to speculate what finished texts imply about how different writers and disciplines see the world.

## 302 Writing Literary Criticism (3)

Prerequisite: English 210 or equivalent as judged by instructor. Intensive training in the writing of literary criticism, with some attention to the bibliography and to methods of research in literature. Recommended for all English majors.

## 303 Advanced Poetry Writing (3)

Prerequisite: English 210 or its equivalent as judged by instructor. Workshop in poetry writing.

## 304 Advanced Fiction Writing (3)

Prerequisite: English 210 or its equivalent as judged by instructor. Workshop in fiction writing.

## 305 Writing for Teachers (3)

(Same as SEC ED 305.) Prerequisite: English 210 or a comparable course in advanced composition. Designed for prospective as well as in-service teachers, the course includes: (1) writing—short papers to be shared in workshop groups; (2) reading—current theory and research on writing and the implications for teachers; (3) teaching—classroom activities that foster growth in writing.

## 313 Advanced Business and Technical Writing (3)

Prerequisite: English 210 or its equivalent as judged by instructor. An advanced, project-oriented course to produce substantial, multifaceted business and technical writing projects (e.g., reports, manuals, proposals) that demonstrate the ability to handle complex assignments requiring initiative, independent judgment, and good writing skills.

## 319 Editing (3)

Prerequisites: English 210 or its equivalent as judged by instructor; English 22 or English 322. Introduction to the language and processes of editing. Includes copy editing, the study of style manuals, and an overview of the production process. Counts toward requirement for the Writing Certificate.

## 320 Independent Writing Project (3)

Prerequisite: English 210 or its equivalent as judged by instructor. Course limited to students who are completing their certificates in writing. May be taken concurrently with the final course in the certificate sequence. Students work individually with the instructor to complete an extensive writing project.

## 485 Theories of Writing (3)

An analysis of major modern theories in composition.

## 486 Studies in Rhetoric (3)

Provides graduate students with a clear definition of and strong background in rhetoric. Topics may include classical rhetoric, modern rhetorical theory, rhetoric/composition.

## 487 Writing/Reading Theory (3)

The parallel evolution of reading and writing theory and pedagogy. Topics include the influence of psycholinguistics and reader-response theory and the link between reading and writing theory and instruction.

## 488 Composition Research (3)

Students analyze and conduct research in composition. Course work teaches students to evaluate methodologies and implications, and to analyze data and to design research.

## 489 Teaching College Writing (3)

Provides the opportunity for practical application of composition theory with an emphasis on improving teaching skills. Strongly recommended for graduate teaching assistants.

## 490 Gateway Writing Project (1-6)

(Same as SEC ED 436.) An intensive course in the writing process and the writing curriculum, designed for experienced teachers. Readings of current theory and research will be related to participants' experiences as writers and as teachers. Topics may vary. May be repeated for credit. No more than six hours may be applied toward the M.Ed. Counts toward the Certificate in Writing.

## 491 Studies in Composition (3)

The study of special topics in composition. Topics may include history of composition, psychology of writing, reader-response theory, etc.

## 492 Graduate Workshop in Poetry (3)

Prerequisite: Open to students in the creative writing program and to others with permission of instructor. Consists of a writing workshop in which the poetry written by the students enrolled in the course is discussed and analyzed by the instructor and members of the class. Students taking this course will be expected to compile an ongoing body of original poetry. May be repeated for maximum graduate credit of nine (9) hours.



## English

### 493 Graduate Workshop in Fiction (3)

Prerequisite: Open to students in the creative writing program and to others with permission of instructor. Consists of a writing workshop in which the fiction (short stories or chapters of a novel) written by the students enrolled in the course is discussed and analyzed by the instructor and members of the class. Students taking this course will be expected to compile an ongoing body of original fiction. May be repeated for maximum graduate credit of nine (9) hours.

### 494 Final Writing Project (3)

Prerequisite: Successful completion of 12 hours in graduate creative writing courses or permission from instructor. An independent writing tutorial taken by students after they have completed all other creative writing course work. Students will be required to write at least 60 pages of original poetry or fiction of publishable quality.

## Language

### 22 Traditional Grammar (3)

An introduction to the basic terms and concepts of traditional grammar, beginning with the parts of speech and moving to more complex structures such as participles, gerunds, and clauses. Includes introduction to conventions of formal usage. May not count toward the six hours in linguistics and grammar required for secondary certification.

### 220 Development of the English Language (3)

An historical survey of the English language with primary emphasis on the development of modern English from earlier periods of the language.

### 221 American Dialects (3)

A study of dialects in the United States, including regional and social variation, formal and informal styles, the concept of a standard dialect, and the use of dialect in literature.

### 322 Modern English Grammar (3)

A detailed study of modern English sentence structure in terms of current theories of linguistic description, with special emphasis on transformational grammar.

### 410 Modern Linguistics (3)

A study of selected topics in the structure of the English language, combining readings in current linguistics publications with original research.

## Literature

### 12 Literary Types (3)

The student is introduced to the various literary types, including poetry, drama, fiction, and the essay.

### 13 Topics in Literature (3)

Introduces the student to selected literary topics and/or genres. Each semester the department will announce topics and course content. Topics such as alienation, justice, and the absurd, and genres such as science fiction and contemporary drama are typical possibilities.

### 14 Short Subjects (1)

A course on special limited subjects in literature, language, or writing. Content will vary from semester to semester. Subject matter may include, for example, Shakespeare's sonnets, the novels of Tolkien, Wertmüller's films, or any other topics suitable for treatment in a one-hour course. Since the topics of English 14 may change each semester, the course may be repeated for credit if the topics are substantially different.

### 16 Images of Age in Literature (3)

(Same as Gerontology 16.) Reading and discussion of literature that portrays aging and old age in various settings. Emphasis is on contemporary novels, but poetry and drama such as *King Lear* are read as well. Discussion and short essays enable consideration of how literature helps in the study of aging and also how the process of aging can be a creative force within literature.

### 17 American Literary Masterpieces (3)

An introduction to major themes and works in American literature from the nineteenth century to the present. Selected works from Hawthorne, Poe, Melville, Whitman, Twain, James, Frost, Hemingway, Faulkner, O'Connor, Plath, and Bellow.

### 20 Myth (3)

The nature of myth, with some consideration of the various theories used to account for its origins. An examination of central mythic motifs, images, and characters. While some attention will be given to comparing the mythologies of different cultures, the emphasis will be on reading Classical Greek and Roman mythology.

### 70 Afro-American Literature (3)

A survey of prose, poetry, and drama by black Americans from the period of enslavement through the Negro Renaissance to the present.

### 71 Native American Literature (3)

(Same as Anthropology 71.) Surveys the literature of American Indians from its oral tradition of myth, legend, song, and oratory through its modern forms. The course satisfies the ethnic literature requirement for Missouri state certification in Secondary Education and the College of Arts and Sciences non-Euro-American study requirement.

### 120 Classical Literature in Translation (3)

The civilization of ancient Greece and Rome as reflected by their major creative writers in some of their principal works: the epics of Homer and Vergil; the plays of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence, and Seneca; the lyrics of Sappho and Catullus; the satire of Petronius; and Ovid's rendering of the classical myths.

### 123 Jewish Literature (3)

Examines the traditional Jewish literature of the Bible and later legends found in the Talmud and Midrash and also considers later phases of Jewish literature, both sacred and secular. These include medieval folklore and Hasidic tales.

### 124 Literature of the New Testament (3)

A comprehensive understanding of the New Testament, its literary background, and significance for Western civilization.

### 125 Literature of the Old Testament (3)

Prerequisite: Sophomore standing or consent of instructor. A comprehensive understanding of the Old Testament, its literary background, and significance for Western civilization.

# English

## 126 Continental Medieval Masterpieces in Translation (3)

A survey of the masterworks of the early and later Middle Ages, to include the *Divine Comedy*, *Nibelungenlied*, *Song of Roland*, *El Mio Cid*, selections from Chretien de Troyes, Boccaccio's *Decameron*, and Machiavelli's *The Prince*.

## 127 Survey of European Literature From 1650 to the Second World War (3)

Works of continental writers such as Moliere, Goethe, Dostoevsky, Ibsen, and Kafka, read in translation.

## 128 The Contemporary World in Literature (3)

Selected American, British, and Continental literature since the second World War.

## 131 English Literature I (3)

The development of English literature from the Middle Ages through the eighteenth century. Reading and analysis of representative works of selected major writers.

## 132 English Literature II (3)

The development of English literature during the nineteenth and twentieth centuries. Reading and analysis of representative works of selected major writers.

## 133 Introduction to Poetry (3)

A close study of poems, with special emphasis on the varieties of poetic forms, and the means of interpretation and evaluation. The works studied will be primarily English and American, and from at least three different centuries.

## 134 Introduction to Drama (3)

A close study of major dramatic works in various modes, to introduce the student to the forms and techniques of dramatic literature. The works studied will be primarily English and American, and from at least three different centuries.

## 135 Introduction to Fiction (3)

A close study of major prose fiction, with particular attention to the varieties of fictional forms and techniques. The works studied will be primarily English and American, and from at least three different centuries.

## 171 American Literature I (3)

Representative selections from American authors from the middle of the seventeenth century to the middle of the nineteenth century.

## 172 American Literature II (3)

Representative selections from American authors from the middle of the nineteenth century to the present. Fulfills the requirement for Missouri Teacher Certification of "a unit in literature of American *ethnic groups*" and "a unit in American literature for *adolescents*."

## 225 Themes and Forms in Literature (3)

The study of particular literary ideas, modes, and genres, and their significance. Topics announced in advance by the department. Since the topics of English 225 may change each semester, the course may be repeated for credit if the topics are substantially different.

## 280 Topics in Women and Literature (3)

An examination of the role of women in literature, either as figures in literary works or as writers. Specific topics to vary from semester to semester. Since the topics of English 280 may change each semester, the course may be repeated for credit if the topics are substantially different.

## 321 History of Literary Criticism (3)

Historical survey of the principles of literary criticism from Plato to the present.

## 323 Continental Fiction (3)

Prerequisites: Two college courses in literature. The development of the European novel in the nineteenth and twentieth centuries. Representative works of writers such as Balzac, Flaubert, Dostoevsky, Tolstoy, Kafka, and Proust, read in translation.

## 324 Chaucer (3)

Concentrates on the poetry of Geoffrey Chaucer, including the *Canterbury Tales*, early poetic works, and the *Troilus and Cressida*. All readings are in the original Middle English.

## 325 Medieval English Literature (3)

A survey of old and middle English literature from *Beowulf* to Malory's *Morte d'Arthur*, exclusive of Chaucer. All works are read in modern English translations.

## 327 Contemporary Critical Theory (3)

This course is to acquaint students with a range of critical methodologies that have gained currency since the 1960s. The kinds of criticism considered include formalist (New Critical, Russian, and Aristotelian), structuralist, post-structuralist, Marxist, reader-response, psycho-sexual, and feminist.

## 332 Elizabethan Poetry and Prose (3)

Spenser, Sidney, Wyatt, and other poets of the latter sixteenth century. The origin and development of prose fiction.

## 337 Shakespeare: Tragedies and Romances (3)

The development of Shakespeare's concept of tragedy and tragicomedy from *Titus Andronicus* to *The Tempest*. The plays will be related to the social and literary milieu of the period.

## 338 Shakespeare: Comedies and Histories (3)

Shakespeare's early work for the theatre with some attention to the sonnets and longer poems. An historical background for a study of all the plays, including discussions of Elizabethan society, the world of the stage, and Shakespeare's biography.

## 339 Tudor and Stuart Drama (3)

A survey of the dramatic writings of the period from the interludes of John Heywood to the closing of the theatres in 1642, with particular attention to the plays of Marlowe, Jonson, Webster, and Ford. Though Shakespeare will not be studied in this course, connections between his works and those of his contemporaries will be discussed.

## 342 Early Seventeenth-Century Poetry and Prose (3)

Donne, Jonson, Marvell, Bacon, and other poets and essayists of the Metaphysical, Cavalier, and Baroque schools, exclusive of Milton.

## English

### 345 Milton (3)

All the minor poems and the three longer poems with some attention to the major prose; Milton and his relation to the politics, theology, and literature of the seventeenth century.

### 346 Restoration and Eighteenth-Century Drama (3)

The principal tragedies and comedies from Dryden to Sheridan, including the plays of Congreve, Farquhar, Rowe, Gay, Fielding, and Goldsmith, among others.

### 352 Age of Dryden and Pope (3)

The beginnings of English neoclassic literature in the Restoration and its development through the first half of the eighteenth century, focusing on Dryden, Swift, and Pope.

### 353 Age of Johnson (3)

The breakdown of the neoclassic spirit and the introduction of the "new" poetry and novel. Consideration of Fielding, Johnson, Thompson, Young, Goldsmith, Sheridan, and others.

### 364 The Eighteenth-Century English Novel (3)

The origins and early development of the English novel, from Defoe to Jane Austen.

### 365 The Nineteenth-Century English Novel (3)

The later development of the English novel, from Scott to Conrad.

### 368 Early Romantic Poetry and Prose (3)

The English romantic movement with special emphasis on the early writers—Blake, Wordsworth, and Coleridge. Additional readings in selected prose writers and minor poets.

### 369 Later Romantic Poetry and Prose (3)

The English romantic movement with special emphasis on the later writers—Byron, Shelley, and Keats. Additional readings in selected prose writers and minor poets.

### 371 Prose and Poetry of the Victorian Period (3)

Critical readings of selections from Tennyson, Browning, Arnold, and others, in addition to selections from the major prose writing.

### 372 The Later Nineteenth Century (3)

Poetry, drama, and fiction of the period between 1870 and the First World War: Hardy, Hopkins, Conrad, Shaw, Wilde, Yeats, and others.

### 373 Selected Major American Writers I (3)

American literature of the nineteenth century: Emerson, Thoreau, Hawthorne, Melville, Whitman, and others.

### 374 Selected Major American Writers II (3)

American literature of the late nineteenth and early twentieth centuries: James, Twain, Stephen Crane, Dreiser, and others.

### 375 American Fiction to World War I (3)

Development of the novel and short story in America.

### 376 Modern American Fiction (3)

The novel and short story in America since World War I. There may be some attention to British and continental influences.

### 383 Modern British Fiction (3)

Critical reading and analysis of British fiction of the twentieth century. There may be some attention to American and continental influences.

### 384 Modern Poetry (3)

Critical reading and analysis of poetry of the late nineteenth and early twentieth centuries: Yeats, Eliot, Frost, Williams, and others.

### 385 Modern Drama (3)

British, American, and European drama of the last one hundred years: the well-made play, the problem play, verse drama, new definitions of tragedy, the angry theater, theater of the absurd.

### 386 Poetry Since World War II (3)

Reading and analysis of contemporary poetry.

### 400 Introduction to Graduate Study in English (3)

A course especially designed to prepare students to perform effectively in graduate classes in English. The course is concerned with basic bibliographical tools; terminology, both technical and historical; various approaches to the study of literature, such as intrinsic analysis of a literary work, the relationships of biography to literary study, and the relevance of other disciplines (psychology or philosophy, for example) to literature; the writing of interpretive and research essays. Throughout the semester a balance between criticism and research is maintained.

### 415 Literary Criticism (3)

An examination of selected theories of literature.

### 416 Feminist Critical Theory (3)

Prerequisite: Graduate status or consent of instructor. A consideration of feminist critical theory as a means of reassessing literary texts and our cultural heritage. After exploring the roots of feminist criticism, the seminar will examine Anglo-American and continental debates on theories of language, writing and representation. In providing an interdisciplinary context the course will consider studies in psychology, anthropology, history, and philosophy/theology which have influenced and enriched feminist approaches to literature.

### 420 Old English (3)

Elements of old English grammar and exercises from Anglo-Saxon literature.

### 421 Studies in Middle English Literature (3)

Special topics in English literature before 1500.

### 430 Renaissance Literature (3)

Special topics in English literature from 1500 to 1660.

### 450 Eighteenth-Century Literature (3)

Studies in Augustan poetry and prose, including drama and fiction, with emphasis on background and major figures.

## English

### 460 Studies in Poetry (3)

Study of a few selected British and American poets.

### 465 Studies in Fiction (3)

Study of a few selected British and American novelists and short story writers.

### 467 Studies in Drama (3)

Study of a few selected British and American dramatists.

### 470 Nineteenth-Century Literature (3)

Special topics in English romanticism, in Victorian life and thought, and in the development of the novel and of poetry between 1797 and 1914.

### 475 American Literature Before 1900 (3)

Selected American writers or topics from the Colonial period to 1900.

### 476 Twentieth-Century American Literature (3)

Selected American writers or topics from 1900 to the present.

### 480 Twentieth-Century British Literature (3)

Selected British and Commonwealth writers of the twentieth century.

### 495 Seminar in Special Topics (1-3)

Special topics which are not covered in other graduate-level English courses.

### 497 Independent Reading (1-3)

Directed study in areas of English for which courses are not available.

### 499 Master's Essay (3)

Preparation of a concise essay equivalent in length to a substantial article in which the student demonstrates the ability to do research, to offer perceptive criticism and evaluation, and to write clearly and effectively.

## Special Offerings

### 250 Special Studies (1-3)

Prerequisites: A course in the area of proposed work and consent of instructor. Individual work, with conferences adjusted to needs of the student. May not be used to meet specific English department distribution and language requirements. May be repeated for a maximum total of three hours credit.

### 262 The Curriculum and Methods of Teaching English (3)

(Same as SEC ED 232.) Prerequisites: SEC ED 213 and a near-major in the subject matter. A study of the scope and sequence of the English courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of English. To be taken prior to student teaching.

### 270 English Teaching Intern Seminar (1)

(Same as SEC ED 270.) Prerequisite: Concurrent enrollment in SEC ED 290. A seminar in the integration of English curricula, educational philosophy, teaching strategies, and instructional technology in the classroom setting. To be taken concurrently with Secondary Student Teaching, SEC ED 290.

### 390 Seminar (3)

Prerequisite: Consent of instructor. Intensive reading, critical discussion, and writing on topics to be announced each semester. Since the topics of English 390 may change each semester, the course may be repeated for credit if the topics are substantially different. Enrollment limited to twelve students.

## Theatre

### 21 Fundamentals of Acting (3)

(Same as Communication 21.) Oral and physical communication of a role through improvisations, exercises, and scene work. Emphasis on modern representational method with some attention given to other styles.

### 23 Production Aesthetics (3)

(Same as Communication 23.) An analysis of the visual components of dramatic presentation, including an introduction to theatrical styles and forms, technical design elements, and presentational techniques. A broad survey of theatre production.

### 60 Voice and Diction (3)

A course designed to aid the student in developing clear and distinct enunciation and in using correct pronunciation as requisite in mass media communication, public address, theatre, and oral interpretation.

### 80 Introduction to the Theatre (3)

(Same as Communication 80.) A study of theatre as an art form, emphasizing the audience's appreciation of the art of the playwright, actor, director, and designer. Study of major periods, genres, and plays from classical to modern times.

### 124 Stage Movement (3)

Training in movement techniques for the stage, including mime, stage combat, and dramatic dance forms.

### 125 Stagecraft (4)

A survey of the theory and practice of stage scenery methods. Practical experiences in construction, rigging, and stage lighting and painting techniques, as well as supervised work in all other phases of theatrical production will be emphasized. Two hours of lecture and four hours of laboratory.

### 126 Costuming for the Theatre (3)

This course covers the theory and practice of costume design and construction. It includes an overview of the history of clothing and fashion and its effect on the actor playing period drama. Lab required.

### 128 Stage Lighting (3)

Prerequisite: Theatre 23 or consent of instructor. An introduction to the theory and practice of stage lighting. The course will include a variety of established theories of stage lighting as well as practical training in lighting instrumentation and control systems.

## English

### **198 Practicum in Theatre (1-2)**

Prerequisites: Theatre 21, Theatre 23, or Theatre 80. Laboratory experience in campus theatre production from one of the following areas: acting, directing, stage management, lighting, sound design, scene construction, house management. Repeatable, but no more than four credit hours may be earned in departmental practicum courses.

### **221 Ensemble Acting(3)**

Prerequisite: Theatre 21. Laboratory-discussion course emphasizing role analysis, scene study, characterization, and ensemble acting.

### **223 Aesthetics of Theatrical Styles (3)**

Prerequisite: Theatre 23. Analysis of the development of dramatic and artistic styles as they affect the visual presentation of ideas in theatre.

### **224 Movement for Musical Theatre (3)**

Prerequisite: Theatre 124 or consent of instructor. Specialized training in movement and dance techniques for musical theatre.

### **225 Designing for the Theatre (3)**

An introduction to the theories and practices of scenic and costume design for the theatre. The course will survey the evolution of theatrical designs through different cultures, dramatic genres, and theatre architecture.

### **261 Readers Theatre (3)**

Prerequisite: Communication 160. Study of the oral interpretation of literature as a theatrical experience. Study of theory, techniques, and performance.

### **281 Theatre from the Ancient Greeks to the Restoration (3)**

Prerequisite: Theatre 80 or consent of instructor. History of theatre and drama from Classical Greek to the Restoration period.

### **282 Theatre from the Eighteenth Century to the 1990s (3)**

Prerequisite: Theatre 80 or consent of instructor. History of theatre and drama from the eighteenth century to the present.

### **321 Acting Styles (3)**

Prerequisite: Theatre 221. Studies in period acting styles, emphasizing cultural distinctions in manners, movement, and vocal practice.

### **322 Directing for the Theatre (3)**

Prerequisite: Theatre 21 or consent of instructor. A survey of the theories and practices of theatrical directing. The course will explore the director's role in the theatre from script analysis and production planning to the performance of laboratory scenes.

### **323 Theatre Management (3)**

Prerequisite: Communication 135. Comprehensive study of theatre management techniques, including season selection, budget control, box office, facility management, and promotional techniques for theatre.

### **398 Internship in Theatre (3)**

Prerequisite: Senior standing with at least 12 hours of course work in theatre. Supervised practical work at a theatre off-campus in one of the following areas: acting, directing, design stage management. Repeatable, but no more than six hours total credit may be earned in internship courses.



# History

Students enrolled in variable credit reading courses for five credit hours must complete a seminar paper.

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 3, 4, 6, 31, 32, 61, 62, 71, 72, 81, 82, 100, 101, 103, 105, 107, 110, 112, 120, 130, 144, 155, 162, 192, 204, 212, 252, 300, 301, 302, 303, 304, 305, 306, 311, 313, 314, 320, 321, 322, 327, 330a, 330b, 330c, 330d, 330e, 330f, 330g, 330h, 331a, 331b, 331c, 331e, 332a, 332b, 332c, 332d, 332e, 333a, 333b, 333c, 333d, 333e, 361, 362, 371, 372, 381, 382, 390, 393.

The following courses fulfill the non-Euro-American requirement: 61, 62, 71, 72, 81, 101, 162, 252, 361, 362, 371, 372, 381, 382.

## 3 American Civilization (3)

Evolution of the cultural tradition of the Americas from the earliest times to the mid-nineteenth century, with emphasis on the relationship of ideas and institutions to the historical background. Course fulfills the state requirement.

## 4 American Civilization (3)

Continuation of History 3 to the present. Course fulfills the state requirement. Either History 3 or History 4 may be taken separately.

## 6 Honors American Civilization (3)

A single-semester survey of American history from the seventeenth century to the present. Tailored to students in the Sophomore Honors Program. The course satisfies the state requirement.

## 31 Topics in European Civilization: Emergence of Western Europe to 1715 (3)

Lectures and discussions on the development of Western European society and tradition from approximately 1000 to 1715.

## 32 Topics in European Civilization: 1715 to the Present (3)

Lectures and discussions on the development of Western European society and tradition from 1715 to the present.

## 61 East Asian Civilization (3)

The development of Asian civilization from earliest times to the Manchu conquest.

## 62 East Asian Civilization (3)

Continuation of History 61 with emphasis on the Asian response to the Western incursion. Either History 61 or History 62 may be taken separately.

## 71 Latin American Civilization (3)

A survey of selected topics important in the development of Latin America from pre-Columbian times to the twentieth century.

## 72 Mexican Civilization (3)

This course will focus on the history and culture of Mexico from the Aztecs to the mid-twentieth century. Among the topics to be covered are: the Aztecs, Cortez and the Conquest of Mexico, colonial institutions and culture, the obtaining of political independence, disorder and dictatorship in the nineteenth century, the Mexican Revolution, contemporary Mexico.

## 81 African Civilization to 1800 (3)

Introduction to African cultural history from the emergence of early man to the abolition of the Atlantic slave trade.

## 82 African Civilization Since 1800 (3)

Survey of African initiative and response in the period spanning the loss and reassertion of independence. History 81 or History 82 may be taken separately.

## 100 Topics in History (1-3)

A seminar on special topics in history to be determined by the field and interests of the instructor.

## 101 History of Women in Comparative Cultures (3)

An introduction to the historical development of women's status in a variety of cultures and periods within the areas of Africa, Europe, the Far East, Latin America, and the Middle East. The course analyzes women's political, economic, familial, and sexual roles and the economic, demographic, ideological, and political forces which promoted change and continuity in those roles. This course meets the non-Euro-American requirement.

## 103 Sport and Society (3)

The course looks at organized sport in Western society as a form of social history. Some attention is paid to the period from early Olympic games through the end of the eighteenth century. The major part of the course deals with the role of organized team sport in postindustrial (since 1870) Great Britain and the United States. It also attempts to compare the social structure and values of the two societies.

## 105 History of the Family in the United States (3)

This course explores changes in American families during the past three centuries in terms of their size and structure; the economic and psychological needs they filled; the values, skills, and roles they imparted; and the ways in which responsibilities and power were allocated among members.

## 107 History of Missouri (3)

Lecture and readings. Seventeenth-century Spanish and French explorations and interaction with the Indians; settlement and organization of the Louisiana territory; lead mining and the fur trade; the Louisiana Purchase; the Missouri territory; the struggle for statehood and slavery; antebellum politics; banking and internal improvements; westward expansion; Civil War and reconstruction; postwar agrarian politics, industrialization; Irish, German, and southern European immigration; the Progressive reforms—political and economic changes; and twentieth-century social changes and political developments. Course satisfies the state requirement.

## 109 War and Society in the Modern World: 1415 to the Present (3)

A survey of Western military history and its effect on the social, political, and economic structures of society.

## 110 United States in Vietnam (3)

A study of American involvement in Vietnam from the OSS-Ho Chi Minh relationship during World War II to 1975 when North Vietnam won the war. Particular emphasis on the period 1961 through 1975. The impact of the war on the American homefront and on American relations with other nations.

# History

## 112 America in World Affairs (3)

An analysis of the development, formulation, and implementation of the United States foreign policy, including the role of the president, Congress, Department of State, and other agencies. Reference will be made to the interdependence of domestic and foreign problems and policies.

## 120 Black History in the United States (3)

The experience of black people in America from the period of the slave trade to the twentieth century, beginning with the areas and cultures of West Africa. The development and importance of slave trade, the institutionalization of slavery; black resistance to bondage; the role of blacks during the Civil War and reconstruction period; the rise of segregation and disfranchisement of blacks; the testing of laws; and the protest and revolutionary movements of today.

## 130 Ancient Civilization (3)

Selected topics in the history of the Ancient Near East, Greece, and Rome.

## 144 Christianity: Jesus to Martin Luther (3)

A review of the main trends of doctrinal and institutional development in the Christian church from the origins of the religion until the Protestant Reformation, stressing the Western Catholic tradition.

## 155 Slavic Civilization (3)

The historical development of the Western Slavs (Poles, Czechs, and Slovaks), the Southern Slavs (Croats, Serbs and Bulgarians), and the Eastern Slavs (Russians and Ukrainians). The course covers the history of the Slavic peoples from the beginnings to the present day. Emphasis is placed on the triumph of national consciousness (nineteenth century), independence (1918-45), and the Communist era (1945 to the present).

## 162 The Chinese Revolution: Readings in Chinese Literature (3)

An introduction to the Chinese revolution in modern times to cover its historical and social roots, the passions and the theories used by revolutionaries. Since literature both reflects and is used in the revolutionary process, systematic readings will be directed to biographies, short stories, novel selections, poems, travelogues, and essays. To be supplemented with movie films and slide studies.

## 168 Photohistory (3)

American life from 1839 to the present as recorded by the camera; the role of photography in the development of modern American culture; techniques for the interpretation of photographic documents. The course format includes lectures, discussions, and independent research.

## 192 Historiography and Historical Method (3)

Prerequisite: Consent of department. An introduction to historical sources, research methods, and interpretations. Required for all history majors. To be taken as soon as possible after the major is declared.

## 204 The History of the American Labor Movement (3)

A survey course on the history of the American labor movement from Colonial America until the present, this course will focus both on the institutional history of the American labor movement and on the social history of working people in America. Emphasis upon the development of labor-management relations, personnel work, and ethnic, racial, and sexual differences in the work force.

## 212 African-American History: From Civil Rights to Black Power (3)

Prerequisite: Consent of instructor. A seminar on the activities, ideas, movement centers, and personalities that created the Civil Rights and Black Power movements in the U.S. from the 1950s through the 1970s. Some familiarity with the broad contours of U.S. history is presupposed. Special attention will be devoted to the roles of

the African-American masses, college students, and women, and to the points of conflict cooperation, and intersection between African-America and the larger American society.

## 252 The World of Islam (3)

Prerequisite: Junior standing or consent of instructor. The development of Islam as a religion and a civilization will be traced from Arabian origins to its present position as the major religion of Africa and Asia. Special emphasis on the Islamic state, Sufi mysticism, the Shariah and the Muslim confrontation with modernization.

## 255 Curriculum and Methods of Teaching Secondary School History and Social Studies (3)

(Same as SEC ED 255.) Prerequisite: At least junior standing. A study of the scope and sequence of history and social studies courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is directed also toward learning the techniques and research tools of the scholar in the fields of history and social studies. May not count toward history hours required for history major. Must be completed prior to student teaching.

## 256 Social Studies Teaching Intern Seminar (1)

(Same as SEC ED 256.) Prerequisite: Must be enrolled concurrently in student teaching. Addresses the application of educational philosophy, social studies curriculum, teaching strategies, and instructional technology in the classroom setting. Offered concurrently with Secondary School Student Teaching, SEC ED 290.

## 300 Selected Topics in History (3)

Prerequisite: Junior standing or consent of instructor. A course on special topics in history to be determined by the field, availability of instructors, and interest of students. The course may be repeated for credit with the consent of the instructor.

# History

## **301 United States History: Colonial America to 1763 (3)**

Prerequisite: Junior standing or consent of instructor. English background of colonization; rise of distinctive New England and Southern societies; English colonial policy to the Peace of Paris.

## **302 United States History: Revolution and the New Nation, 1763 to 1815 (3)**

Prerequisite: Junior standing or consent of the instructor. The American Revolution and the creation of the new nation. The young republic and the development of the first American party system. Course fulfills the state requirement.

## **303 United States History: Nationalism and Sectionalism, 1815 to 1860 (3)**

Prerequisite: Junior standing or consent of the instructor. The Era of Good Feelings, the Age of Jackson, manifest destiny, the political and social developments of the antebellum period relating to the growth of sectionalism and the developing antislavery crusade.

## **304 United States History: 1860-1900 (3)**

Prerequisite: Junior standing or consent of the instructor. The Civil War, Reconstruction, industrial and urban expansion and their impact on American life.

## **305 United States History: 1900-1940 (3)**

Prerequisite: Junior standing or consent of the instructor. The economic, political, and social developments and crises of the mature industrial United States. The growing importance of foreign relations.

## **306 United States History: 1940 to the Present (3)**

Prerequisite: Junior standing or consent of instructor. The economic, political, and social developments and crises of postindustrial United States. The role of foreign affairs in American life.

## **311 Topics in American Constitutional History (3)**

Prerequisite: Junior standing or consent of instructor. Origins and development of the principal institutions and ideas of the American constitutional system; the role of the Constitution and the Supreme Court in the growth of the nation; important Supreme Court decisions; great American jurists and their impact upon the law; historical background to current constitutional issues. Course satisfies the state requirement.

## **313 American Military History to 1900 (3)**

Prerequisite: Junior standing or consent of instructor. A study of American military institutions from colonial times to 1900. The impact of the military upon major aspects of American life. The place of war in American history to 1900.

## **314 American Foreign and Military Affairs, 1900-Present (3)**

Prerequisite: Junior standing or consent of instructor. A survey of American foreign and military affairs since 1900, with particular emphasis on the major wars during the period and the Cold War Era. Consideration of the nation's changing place in a changing world.

## **320 History of Feminism in Western Society (3)**

Prerequisite: Junior standing or consent of the instructor. History of feminist movement and feminist thought on status of women, family, work, and sexuality in the United States, Great Britain, Western Europe, and Russia, as well as the relationship between feminist theory and the feminist movement.

## **321 History of Women in the United States (3)**

Prerequisite: Junior standing or consent of the instructor. Development of women's economic, political, and social role in the United States with special emphasis on the nineteenth and twentieth centuries; women and work; women and the family; women and reform movements; women and education; feminist theorists and activists; images of women.

## **322 Women and Work in U.S. History (3)**

Prerequisite: Junior standing or consent of instructor. This course examines the history of women's work in the U.S. from the 18th century to the present. We will look at preindustrial work patterns, the effect of the industrial revolution on women's labor, the origins and evolution of "housework," women's increased labor force participation, and sex segregation at the waged workplace. Special attention will be paid to differences between women depending on their ethnicity, race, and class.

## **327 History of the American South (3)**

Prerequisite: Junior standing or consent of the instructor. Southern society and culture and the South's relationship with the nation.

## **330a The Ancient World: Israel (3)**

Prerequisites: Junior standing and consent of instructor. Survey of Israel's history from the formation of the people to the final revolt under Simon Bar Kochba (132-135 C.E.).

## **330b The Ancient World: History of Greece to the End of the Hellenistic Period (3)**

Prerequisite: Junior standing or consent of instructor. A survey lecture course, beginning with the Aegean in the Bronze Age; Hellenic Civilization from the eighth through the fifth centuries B.C.; the Hellenistic World down to the first century B.C.

## **330c The Ancient World: Rome (3)**

Prerequisite: Junior standing or consent of instructor. Survey of Roman history from its beginnings to 565 A.D.

## **330d History of the Church: Early Christianity (3)**

Prerequisite: Junior standing or consent of the instructor. Brief introduction to Jewish, Greek, and Roman antecedents, Christian beginnings, and the emergence of Christian traditions, to the council of Nicaea (325 A.D.).

# History

## 330e History of the Church: The Middle Ages (3)

Prerequisite: Junior standing or consent of the instructor. A topical study of the Christian church in Europe as an autonomous and central institution from the sixth century through the reformation crisis. Special attention will be given to the relations between the church and the secular world, and the contributions of medieval Christianity to the development of European institutions and ideas.

## 330f Medieval England (3)

Prerequisite: Junior standing or consent of the instructor. A brief summary of the Anglo-Saxon heritage and the impact of the Norman Conquest, followed by an investigation of the institutional, social, and legal evolution of the realm of England. English development will be viewed in its European context.

## 330g Europe in Early Middle Ages (3)

Prerequisite: Junior standing or consent of the instructor. The end of the Roman Empire as a universal entity; the successor states of the Mediterranean and Northern Europe; the emergence of a Western Christendom under the Franks; the development of feudal states; the Gregorian reforms; the Crusades; the revival of education and learning in the twelfth century.

## 330h Europe in the High and Late Middle Ages (3)

Prerequisite: Junior standing or consent of the instructor. Medieval society at its political, economic, and intellectual zenith; the crisis of the later Middle Ages; the papal schism and the development of national particular churches within Catholicism; and the rise of estate institutions.

## 331a The Age of the Renaissance (3)

Prerequisite: Junior standing or consent of the instructor. The Italian and Northern Renaissance as a distinct age; political, socioeconomic, intellectual, religious, and artistic movements attending the decline of medieval society, and the transition to the early modern period.

## 331b The Age of Reformation (3)

Prerequisite: Junior standing or consent of the instructor. Religious, intellectual, political, and socioeconomic developments of the sixteenth century.

## 331c Yorkist and Tudor England (3)

Prerequisite: Junior standing or consent of instructor. The turmoil over the monarchy and consolidation of the Tudor dynasty. A study of the English Reformation and the political and economic changes of the sixteenth century.

## 331e Stuart England (3)

Prerequisite: Junior standing or consent of instructor. A study of the English revolutions, religious controversy, and the rise of parliamentary power; the social and economic changes of the century; and the role played by England in the European struggles of the period.

## 332a History of Spain (3)

Prerequisite: Junior standing or consent of the instructor. A survey of Spanish history from the fifteenth century to the present, emphasizing its period of imperial greatness and examining the effects of empire on national development.

## 332b Russian History to 1917 (3)

Prerequisite: Junior standing or consent of instructor. This course will emphasize the history of Russia from the Napoleonic Wars to the Revolution of 1917, including social and economic modernization and the development of the bureaucratic state, foreign policy and maintenance of the empire, rise and development of liberal reform and revolutionary movements, and the Revolution of 1917.

## 332c Modern France: to 1870 (3)

Prerequisite: Junior standing or consent of instructor. French history during the period in which she was the greatest power in Europe. Topics discussed include the monarchy during the "Old Regime," the Enlightenment, the French Revolution, the Napoleonic wars, nineteenth century instability and revolution, daily life and popular culture, and the economic development of France.

## 332d The Rise of the Modern British State (3)

Prerequisite: Junior standing or consent of instructor. A political, social, and economic study of Great Britain from 1714 to the present day. Particular attention will be given to the topics of revolution, reform, and the welfare state.

## 332e Europe From the French Revolution to World War I, 1789-1914 (3)

Prerequisite: Junior standing or consent of instructor. The major political, social, economic, and diplomatic developments in Europe from the origins of the French Revolution to World War I. Topics include the French Revolution, Napoleon, the Concert of Europe, the Industrial Revolution, the unification of Germany and Italy, the Bismarckian system, the growth of socialism, and the origins of World War I.

## 333a Contemporary France: Since 1870 (3)

Prerequisite: Junior standing or consent of instructor. The history of Republican France. Topics discussed include the creation of a liberal-democratic government; the scandals and crises of the Third Republic; the Dreyfus affair; the rise of imperialism, socialism, and feminism; the impact of World War I, the popular front, defeat, collaboration, and resistance during World War II; and the reestablishment of France as an important power.

## 333b Germany in the Modern Age (3)

Prerequisite: Junior standing or consent of instructor. The course deals with whether or not the Third Reich should be considered the culmination of German history. Problems of national unification, economic development, representative government, and cultural modernism will be considered.

# History

## **333c History of Russia From 1917-Present (3)**

Prerequisite: Junior standing or consent of the instructor. The nature and results of the Bolshevik revolution (October 1917). Topics include Lenin as a ruler, War Communism, and NEP; the struggle for power and the triumph of Stalin, 1924-1930; collectivization of agriculture and industrialization; Stalinist foreign policy, the Second World War, and the Cold War; and continuity and change in post-Stalinist Russia.

## **333d Europe in the Twentieth Century (3)**

Prerequisite: Junior standing or consent of the instructor. The impact of World Wars I and II and the search for equilibrium.

## **333e Contemporary Europe, 1939-Present (3)**

Prerequisite: Junior standing or consent of instructor. A survey of the main social, economic, political, military, and cultural trends since the onset of World War II.

## **361 Modern Japan: 1850 to Present (3)**

Prerequisite: Junior standing or consent of instructor. The economic, social, and political development of modern Japan.

## **362 Modern China: 1800 to Present (3)**

Prerequisite: Junior standing or consent of instructor. The economic, social, and political development of modern China.

## **371 History of Latin America: To 1808 (3)**

Prerequisite: Junior standing or consent of instructor. Latin America from the American civilizations to 1808, stressing social, political, and economic institutions in the Spanish colonies.

## **372 History of Latin America: Since 1808 (3)**

Prerequisite: Junior standing or consent of instructor. Emphasis on the attainment of political independence and social, political, and economic developments of the nineteenth and twentieth centuries in Latin America.

## **381 West Africa Since 1800 (3)**

Prerequisite: Junior standing or consent of instructor. Analysis of change in the savanna/forest societies occasioned by Islamic reform and the end of the slave trade, the imposition of colonial rule and African response, growth of nationalist protest, and postindependence development.

## **382 Crisis in Southern Africa (3)**

Prerequisite: Junior standing or consent of instructor. Historical roots of apartheid and black nationalism in South Africa and Rhodesia/Zimbabwe. Foundation of white African societies, Khoisan resistance, the Mfecane and African state formation, the mineral revolution, colonialism versus autonomy, and the current confrontation of rival ideologies.

## **390 Special Readings (1-10)**

Prerequisite: Consent of the instructor. Independent study through readings, reports, and conferences.

## **393 Senior Seminar (3)**

Prerequisites: History 192 and consent of department. Directed readings, research, and writing leading to the production of an original piece of historical scholarship. Required for all history majors.

## **405 Introduction to Historical Agencies (3)**

A survey of the varieties, purposes, and functions of historical agencies in American culture. To be team-taught by members of the department and adjunct faculty from area historical agencies.

## **410 Studies in Historical Agencies (3)**

Specialized studies in various aspects of historical agency activity, such as museology, archives and manuscripts, site interpretation, and historic preservation. Specific topics will be announced each semester; the course may be repeated for credit if the topic is not a duplication of a course taken previously.

## **415 Practicum in Historical Agencies (1-6)**

Participation as a staff worker in the practical operation of an historical agency in the St. Louis metropolitan area. Students will design their programs in consultation with the department and the staff of the participating historical agency.

## **419 Readings in East Asian History (3 or 5)**

Directed readings and writing on selected topics and areas in East Asian history.

## **430 Readings in European History to 1715 (3 or 5)**

Directed readings and writing on selected topics and areas in European history to 1715.

## **431 Readings in European History Since 1715 (3 or 5)**

Directed readings and writing on selected topics and areas in European history since 1715.

## **450 Readings in American History to 1865 (3 or 5)**

Directed readings and writing on selected topics and areas in American history to 1865.

## **451 Readings in American History Since 1865 (3 or 5)**

Directed readings and writing on selected topics and areas in American history since 1865.

## **460 Readings in Latin American History (3 or 5)**

Directed readings and writing on selected topics and areas in Latin American history.

## **470 Readings in African History (3 or 5)**

Directed readings and writing on selected topics and areas in African history.

## **490 Thesis Seminar (2-6)**

Thesis research and writing on a selected topic in history.



## Mathematics and Computer Science

Courses in this section are grouped as follows: Mathematics; Computer Science; and Probability and Statistics.

All introductory courses in the mathematical sciences, other than Mathematics 02a, require as a prerequisite a satisfactory score on the Mathematics Placement Test. The dates on which this test is administered are given in the *Schedule of Courses*. Placement into the introductory courses (other than Mathematics 02a, Mathematics 02b, and Mathematics 02c) assumes a mastery of approximately one and one-half years of high school algebra.

A minimum grade of C shall be required to meet the prerequisite requirement for any course except with permission of the department.

Prerequisites may be waived by consent of department.

The following courses fulfill the Natural Sciences and Mathematics [SM] breadth of study requirements: MATHEMATICS: 15, 30, 35, 50, 80, 101, 102, 151, 175, 180, 202, 203, 245, 250, 303, 304, 306, 310, 311, 320, 321, 323, 324, 327, 335, 340, 341, 345, 350, 355, 358, 362, 364, 366, 367, 380. COMPUTER SCIENCE: 22, 122, 125, 225, 240, 241, 272, 273, 313, 328, 332, 334, 368, 370, 371, 373, 376, 379. PROBABILITY AND STATISTICS: 31, 132, 232, 320, 321, 326, 330, 331, 333.

### Mathematics

#### 02a Fundamentals of Algebra I (2)

Concepts and algorithms of arithmetic and an introduction to elementary algebra. No credit toward any degree.

#### 02b Fundamentals of Algebra II (2)

Prerequisite: Mathematics 02a or a satisfactory score on the mathematics placement examination. Development of the basic concepts and techniques of elementary algebra. Topics covered include linear equations, system of linear equations, inequalities, operations on polynomials, and factoring. No credit toward any degree.

#### 02c Fundamentals of Algebra III (2)

Prerequisite: Mathematics 02b or a satisfactory score on the mathematics placement examination. A continuation of Mathematics 02b. Topics covered include operations on fractions, exponents, radicals, and quadratic equations. No credit toward any degree.

#### 15 Mathematics: Ideas and Structures (3)

Prerequisite: A satisfactory score on the mathematics placement examination. An introduction to the spirit of mathematics and to modern mathematical thought. Course is designed for the student who does not intend to major in mathematics or science.

#### 30 College Algebra (3)

Prerequisites: A satisfactory score on the mathematics placement examination and either three units of high school mathematics or the equivalent. Topics in algebra and probability, polynomial functions, the binomial theorem, logarithms, exponentials, and solutions to systems of equations.

#### 35 Trigonometry (2)

Prerequisite: Mathematics 30 or concurrent registration. A study of the trigonometric and inverse trigonometric functions with emphasis on trigonometric identities and equations.

#### 50 Structure of Mathematical Systems I (3)

Prerequisites: 45 hours of college credit and a satisfactory score on the mathematics placement examination. A study of mathematical systems, elementary logic, natural numbers, and sets and construction of the integers. Credit will be granted only toward the B.S. in Education degree in Early Childhood Education, Elementary Education, and Special Education.

#### 80 Analytic Geometry and Calculus I (5)

Prerequisites: Mathematics 30 and Mathematics 35 or four units of high school mathematics covering the equivalent material and a satisfactory score on the algebra-trigonometry placement examination. Introduction to analytic geometry, differential calculus, and integral calculus. Mathematics 80, Mathematics 175, and Mathematics 180 form the calculus sequence.

#### 101 Survey Calculus (4)

Prerequisite: Mathematics 30 or a satisfactory score on the mathematics placement examination. Introduction to plane analytic geometry and study of the basic techniques of differential and integral calculus with application to various areas. No credit for mathematics majors. Credit not granted for both Mathematics 80 and Mathematics 101.

#### 102 Finite Mathematics I (4)

Prerequisite: Same as for Mathematics 101. Introductory logic and set theory, partitions and counting problems, elementary probability theory, stochastic processes, Markov chains, vectors and matrices, linear programming, and game theory.

#### 132 Applied Statistics I

See Statistics 132 in Probability and Statistics section that follows.

#### 151 Structure of Mathematical Systems II (3)

Prerequisite: Mathematics 50. A continuation of Mathematics 50 to include a study of the rational and real number systems. An intuitive study of elementary geometry. Introduction to the deductive theory of geometry. Credit will be granted only toward the B.S. in Education degree in Early Childhood Education, Elementary Education, and Special Education.

#### 175 Analytic Geometry and Calculus II (5)

Prerequisite: Mathematics 80. Selected topics from plane analytic geometry and calculus.

#### 180 Analytic Geometry and Calculus III (5)

Prerequisite: Mathematics 175. Solid analytic geometry and selected topics in calculus.

#### 202 Introduction to Differential Equations (3)

Prerequisite: Mathematics 180. Topics will be chosen from linear differential equations, equations with constant coefficients, Laplace transforms, power series solutions, systems of ordinary differential equations.

# Mathematics and Computer Science

## 203 Finite Mathematics II (3)

Prerequisite: Mathematics 102. A continuation of Mathematics 102. Linear programming and game theory, application of combinatorial mathematics. A student cannot receive credit for both Mathematics 203 and Business Administration 375.

## 245 Elementary Linear Algebra (3)

Prerequisites: Mathematics 101 or Mathematics 175. An introduction to linear algebra. Topics will include complex numbers, geometric vectors in two and three dimensions and their linear transformations, the algebra of matrices, determinants, solutions of systems of equations, eigenvalues and eigenvectors.

## 250 Introduction to Modern Mathematics (3)

Prerequisite: Mathematics 180. A careful introduction to important ideas in modern mathematics. Topics will include set algebra, equivalence relations, partitions, functions, mathematical induction, cardinality, fundamental theorem of arithmetic, Cauchy sequences, and development of elementary algebraic and completeness properties of the real numbers.

## 303 Applied Mathematics I (3)

Prerequisites: Mathematics 202 and Mathematics 245. Topics chosen from Fourier series, special functions, partial differential equations, and boundary value problems.

## 304 Applied Mathematics II (3)

Prerequisite: Mathematics 303. A continuation of Mathematics 303. Topics will include systems of differential equations and applications.

## 306 Applied Differential Equations (3)

Prerequisite: Mathematics 202. Series solutions to ordinary differential equations, numerical methods, Laplace transforms, differential systems, stability, applications to physics, engineering, and biology.

## 310 Advanced Calculus I (3)

Prerequisite: Mathematics 250 or consent of the department. Limits, continuity, and differentiability of functions of one and several variables, sequences and series, and the Riemann-Stieltjes integral.

## 311 Advanced Calculus II (3)

Prerequisite: Mathematics 310. Continuation of Mathematics 310.

## 316 Functions of a Complex Variable (3)

Prerequisite: Mathematics 202 or Mathematics 250. Complex numbers and their geometrical representation, point sets, analytic functions of a complex variable, complex integration, Taylor and Laurent series, residue theorem, conformal mapping

## 320 Mathematical Statistics I (3)

See Statistics 320 in Probability and Statistics section that follows.

## 321 Mathematical Statistics II (3)

See Statistics 321 in Probability and Statistics section that follows.

## 323 Numerical Analysis I (3)

Prerequisites: Mathematics 202, Mathematics 245, and ability to program in an upper-level language such as FORTRAN. Solutions of equations, interpolation and approximation, numerical differentiation and integration, and numerical solution of initial value problems in ordinary differential equations. Selected algorithms will be programmed for solution on computers.

## 324 Numerical Analysis II (3)

Prerequisite: Mathematics 323 or consent of instructor. Topics chosen from: the numerical solution of systems of linear equations; the eigenvalue/eigenvector problem; numerical solution of Partial Differential Equations (PDE); numerical solution of stiff Ordinary Differential Equations (ODE); boundary value problems; sparse matrix methods; approximation theory; optimization theory; digital filters; integral equations.

## 327 The Calculus of Variations (3)

Prerequisites: Mathematics 202 and Mathematics 310. Methods for optimizing functionals and their application. The Euler-Lagrange condition. Hamilton's principle, two dimensional variational problems, and isoperimetric problems. Approximate methods for the solution of variational problems.

## 335 Theory of Numbers (3)

Prerequisite: Mathematics 250 or consent of department. Properties of integers, multiplicative functions, congruences, primitive roots, and quadratic residues.

## 340 Introduction to Abstract Algebra I (3)

Prerequisite: Mathematics 250 or consent of the department. Introduction to groups, rings, and fields, with emphasis on groups and rings.

## 341 Introduction to Abstract Algebra II (3)

Continuation of Mathematics 340 with emphasis on fields.

## 345 Linear Algebra (3)

Prerequisites: Mathematics 245 and Mathematics 250. Topics selected from vector spaces, bases, linear transformations, matrices, canonical forms, eigenvalues, hermitian and unitary matrices, inner product spaces, and quadratic forms.

## 350 Special Readings (1-10)

Prerequisites: Mathematics 250 and consent of instructor.

## 355 Discrete Mathematics (3)

Prerequisite: Mathematics 250. General counting methods including the use of binomial coefficients, and generating functions, difference equations, graph theory, and properties of trees. Possible additional topics selected from proof of computer program properties, finite-state machines, grammars, and first-order logic.

## 358 Mathematical Logic (3)

Prerequisite: Mathematics 250 or Philosophy 260 or consent of the department. A study of the logic of mathematics by the axiomatic method, with a development of the propositional calculus and restricted predicate calculus emphasizing its application to the foundations of mathematics.

## 362 Projective Geometry (3)

Prerequisites: Mathematics 245 and Mathematics 250. Analytic approach to the study of projective spaces. Theorems of Desargues, Pascal, and Brianchon. Projective properties of conics.

## 364 Introduction to Differential Geometry (3)

Prerequisite: Mathematics 250. Geometry of curves and surfaces in Euclidean three-space. Calculus on a surface. Intrinsic geometry of surfaces.

## Mathematics and Computer Science

### 366 Foundations of Geometry (3)

Prerequisite: Mathematics 250 or consent of department. A development of portions of Euclidean geometry from a selected set of axioms, including a discussion of consistency, independence, categoricity, and completeness of the axioms.

### 367 Introduction to Non-Euclidean Geometry (3)

Prerequisite: Mathematics 250 or consent of the department. A summary of the history of the non-Euclidean geometries and a study of hyperbolic plane geometry.

### 380 Introduction to Topology (3)

Prerequisite: Mathematics 250 or consent of the department. A study of topological spaces, including the concepts of limit, continuity, connectedness, compactness, etc. Special emphasis placed on, and examples taken from, the space of real numbers.

### 401 Theory of Ordinary Differential Equations (3)

Prerequisite: Mathematics 310. A theoretical treatment of ordinary differential equations including the existence and uniqueness of solutions of differential equations and systems of differential equations. The course treats such topics as systems of linear differential equations, eigenvalue problems, autonomous systems, and boundary value problems.

### 402 Applied Mathematics I (3)

Fourier series and integrals, Laplace transforms, boundary value problems, matrices, integral equations, Sturm-Liouville systems.

### 403 Topics in Applied Mathematics (3)

Prerequisite: Consent of instructor. The course will cover various advanced topics in applied mathematics, and can be taken more than once for credit. Examples of such topics are: Fast transforms, digital filters, etc.

### 404 Topics in Computation (3)

Prerequisite: Consent of instructor. The course will cover various advanced topics in computation and can be taken more than once for credit. Examples of such topics are: computer graphics, computer architecture, theories of language, analysis of operating systems, numerical geometry and computer aided design, etc.

### 410 Theory of Functions of a Real Variable I (3)

Prerequisite: Mathematics 310; Mathematics 311 is strongly recommended. The real number system, properties of functions of one or more real variables, mapping theorems. Introduction to measure and integration theory.

### 411 Theory of Functions of a Real Variable II (3)

A continuation of Mathematics 410.

### 416 Functions of a Complex Variable I (3)

Prerequisites: Mathematics 310 and Mathematics 316. Complex numbers, topology of the complex plane, analytic functions, conformal mappings, Taylor series, Laurent series, complex integration, residues, analytic continuation, representation of analytic functions, elliptic functions, normal families, Riemann theorem, majorization.

### 417 Functions of a Complex Variable II (3)

Prerequisite: Mathematics 416. A continuation of Mathematics 416. Meromorphic functions, Dirichlet series, Riemann surfaces.

### 418 Topics in Analysis (3)

Prerequisite: Consent of instructor. Topics selected from the areas of Fourier analysis, harmonic analysis, Hilbert spaces, Banach algebras, special functions, generalized functions, partial differential equations. May be taken more than once for credit with consent of department.

### 420 Probability Theory I (3)

Prerequisite: Mathematics 410 (may be taken concurrently). Combinatorial analysis, random walks, stochastic independence, random variables, laws of large numbers, generating functions, and branching processes.

### 421 Probability Theory II (3)

Prerequisite: Mathematics 420. A continuation of Mathematics 420: characteristic functions, limit theorems, Brownian motion, and diffusion processes.

### 423 Topics in Numerical Analysis (3)

Prerequisite: Consent of instructor. The course will cover various advanced topics in numerical analysis and can be taken more than once for credit. Examples of such topics are: A.D.I. Techniques for solving p.d.e., finite element techniques, the algebraic eigenvalue problem, the software, etc.

### 430 Partial Differential Equations I (3)

Prerequisite: Mathematics 310. Classification of partial differential equations; Cauchy, Dirichlet, and Neumann problems; the fundamental solution; existence theorems of potential theory; eigenvalue problems; and Tricomi's problem.

### 431 Partial Differential Equations II (3)

Prerequisite: Mathematics 430. A continuation of Mathematics 430: differential operators and partial differential equations on manifolds.

### 439 Topics in Number Theory (3)

Prerequisites: Mathematics 335 and consent of instructor. Topics selected from elementary, algebraic, analytic, and other branches of number theory. Examples of topics include the distribution of primes, the Riemann Zeta function, averages of arithmetic functions, the theory of partitions, ideal theory, and representations of integers by quadratic forms.

### 442 Algebra I (3)

Prerequisite: Mathematics 340. Basic fundamentals of the theory of groups, rings and fields.

### 443 Algebra II (3)

A continuation of Mathematics 442.

### 448 Topics in Algebra (3)

Prerequisites: Mathematics 340, Mathematics 341, and consent of department. Topics selected from the theory of groups, rings, fields, algebras, and other algebraic systems. May be taken more than once for credit with consent of department.

# Mathematics and Computer Science

## 450 Directed Readings (1-6)

Prerequisite: Consent of instructor. Independent readings at an advanced level.

## 452 Topics in Advanced Mathematics for the Teacher (3)

Prerequisite: Consent of instructor. This course will look at various topics in algebra, analysis, and geometry that will deepen a teacher's understanding of the mathematics of the precollegiate curriculum. It can be taken more than once for credit.

## 456 Automata Theory and Formal Languages (3)

Prerequisite: Mathematics 340 or Mathematics 355 or consent of instructor. Models of computation: Finite state machines, deterministic and nondeterministic pushdown automata and Turing machines. Undecidability. Finite systems formal languages and the Chomsky hierarchy of grammar types.

## 458 Introduction to Mathematical Semantics (3)

Prerequisite: Mathematics 355 or Mathematics 340 or consent of instructor. An introduction to the theory of denotational semantics and its algebraic techniques for characterizing the denotation of a program, and checking against program specifications. Applications.

## 460 Optimization and Variation (3)

Prerequisites: Mathematics 310 and Mathematics 345. Topics from classical optimization, linear programming, calculus of variations, and other techniques of optimization.

## 470 Functional Analysis I (3)

Prerequisites: Mathematics 410 and Mathematics 411. Algebraic and topological tools applied to problems in analysis. The topics chosen will usually include topological vector spaces, metric spaces, Banach spaces, Hilbert spaces, and Banach algebras.

## 471 Functional Analysis II (3)

Prerequisite: Mathematics 470. A continuation of Mathematics 470: spectral theory, distribution and test functions, unbounded operators.

## 480 Topology I (3)

Prerequisite: Mathematics 310. Topological spaces, compactness, connectedness, mapping theorems, product spaces, function spaces, metric spaces.

## 481 Topology II (3)

Prerequisite: Mathematics 480. A continuation of Mathematics 480: introduction to algebraic topology, fundamental group, homology.

## 490 Master's Thesis (1-6)

Prerequisite: Consent of instructor. Thesis work under the supervision of a faculty member. The course is designed for those students intending to present a thesis as part of their M.A. program. Students who do not write a thesis cannot apply Mathematics 490 to a degree.

# Computer Science

## 22 Introduction to Computing (3)

Prerequisite: Mathematics 30 or equivalent. Fundamental concepts of computer systems and introduction to the applications of computers. The programming language BASIC. Credit will not be granted for both Business Administration 103 and Computer Science 22.

## 122 Computers and Programming (3)

Prerequisite: Mathematics 80 or Mathematics 101, or a grade of at least B in Mathematics 30. An overview of a computer system is presented. Structured design techniques are considered and applied to the development of computer programs. Aspects of the FORTRAN language will be studied including basic data types, subroutines and functions, arrays, and files. Credit not granted for both Business Administration 104 and Computer Science 122.

## 125 Introduction to Computer Science (3)

Prerequisite: Mathematics 80 or Mathematics 101, or a grade of at least B in Mathematics 30. An overview of a computer system is presented. Structured design techniques are considered and applied to the development of computer programs. Aspects of a high level language such as Pascal will be studied, including elementary and advanced data types and subprograms. Various features of the UNIX operating system will also be discussed.

## 225 Data Structures and Problem Solving (3)

Prerequisite: Computer Science 125. A continuation of Computer Science 125. Advanced programming techniques including recursion, divide-and-conquer, and backtracking will be considered. A discussion of dynamic data structures such as lists, binary trees, stacks, queues, and symbol tables will be presented. An introduction to modular programming, program specification and verification, and analysis of algorithms will be given.

## 240 Computer Hardware and Small Computer Systems I (3)

Prerequisite: Computer Science 225. Computer Science 240 and Computer Science 241 present an introduction to the design and operation of small computer systems. This course will emphasize logic circuit design, both combinatorial and sequential. Also, basic assembly language programming will be considered.

## 241 Computer Hardware and Small Computer Systems II (3)

Prerequisite: Computer Science 240. A continuation of Computer Science 240. This course will emphasize specific architectures and application programming.

## 272 Programming Languages Laboratory (1-3)

Prerequisites: Computer Science 225 or consent of instructor. Computer programming in a specified language. The credit will vary but will usually be 3 hours. The language taught may be a procedural language, such as Ada, a functional language, such as ML, or a mathematical programming language, such as Mathematica. This course may be repeated for up to six hours credit if a different language is studied each time.

## 273 The C Programming Language (3)

Prerequisite: Computer Science 240. The C language is introduced together with the associated tools which make up the UNIX C programming environment. The course is project-oriented and a portion of the practical work will involve UNIX systems programming.



## Mathematics and Computer Science

### 313 Analysis of Algorithms (3)

Prerequisites: Mathematics 132, Mathematics 245, Mathematics 250 and Computer Science 225. This course addresses the design and mathematical analysis of fundamental algorithms in computer science and provides an introduction to the theory of NP completeness. Algorithms studied may involve search, sorting, data compression, string manipulation, graph traversal and decomposition, and algebraic and numeric manipulation.

### 328 Programming Languages and Compiling Techniques (3)

Prerequisites: Computer Science 240, Mathematics 245, and Mathematics 250. Concepts of programming languages will be considered, together with a practical introduction to compilers as defining constraints on the semantic content of such languages. Compiler generator tools, such as lex and yacc, will be presented.

### 332 Artificial Intelligence (3)

Prerequisites: Computer Science 225, Statistics 132, Mathematics 245 and Mathematics 250. An overview of AI applications will be presented. An AI programming language, such as Prolog or Lisp, will be introduced. Fundamental AI problem solving techniques will be applied to heuristic search and game playing. An introduction to knowledge representation and expert systems will be given. Topics such as theorem proving, neural networks, and natural language processing may also be studied.

### 334 Topics in Artificial Intelligence (3)

Prerequisite: Computer Science 332 or consent of the instructor. Selected areas of AI will be considered in some depth. Topics may include robotics, computer vision, natural language processing, machine learning, neural networks, and knowledge based systems. The concept of object oriented programming may also be discussed.

### 368 Computer Graphics (3)

Prerequisites: Computer Science 225 and Mathematics 245. The basic architecture of various types of graphics systems is presented. The course will then present a detailed description of the basic algorithms for 2-dimensional and 3-dimensional graphics systems. Algorithms for shading, hidden line removal, and rendering in the 3-D systems will be examined. The course will involve significant project work.

### 370 Software Design and Development (3)

Prerequisites: Computer Science 225, Mathematics 245, and Mathematics 250. Software design techniques including stepwise refinement, segmentation, top-down design, and iterative enhancement. Organization and management of software development teams. Documentation of integrated software projects. Organization, management, and development of a large scale software project by students working in teams.

### 371 Database Design and Implementation (3)

Prerequisites: Computer Science 225, Statistics 132, Mathematics 245, and Mathematics 250. The course presents the foundations, concepts, and principles of data base design. Various models of data representation will be considered, including the hierarchical and relational models. The course will also consider some of the implementation issues for data base systems.

### 373 Computer Networks and Communications (3)

Prerequisite: Computer Science 241 and Statistics 132. Communication systems will be considered in the context of the ISO standard for systems interconnection. Various types of networks will be studied including wide area networks, local area networks, and fiber optic networks.

### 376 Operating Systems (3)

Prerequisites: Computer Science 240, Statistics 132, and Mathematics 245. The structure of a generic operating system will be studied. The various components, including the interface with the underlying hardware, will be considered in detail. UNIX is considered as a case study throughout the course. Some practical work, using the UNIX operating system, will be required.

### 379 Topics in Computer Science (3)

Prerequisite: Consent of instructor. A seminar on social topics in computer science to be determined by recent developments in the field and the interests of the instructor. May be repeated for credit provided different topics are studied.

## Probability and Statistics

### 31 Elementary Statistical Methods (3)

Prerequisite: Mathematics 30. An introduction to the basic tools and elementary methods of statistics, such as testing of hypotheses, analysis of variance, method of least squares, and time series. Does not satisfy the School of Business Administration requirement ordinarily met by Business Administration 131. A student may not receive credit for both Statistics 31 and Business Administration 131.

### 132 Applied Statistics I (3)

Prerequisite: A grade of C or better in Mathematics 80 or Mathematics 101. An introduction to the basic tools and elementary methods of statistics, such as least squares estimation, analysis of variance, regression, and testing of hypotheses. The use of the statistical package, SAS, for operation on statistical data. A student cannot receive credit for more than one of Business Administration 131, Statistics 31, and Statistics 132.



## Mathematics and Computer Science

### **232 Applied Statistics II (3)**

Prerequisite: Statistics 31, or Statistics 132, or equivalent. Topics to be chosen from: fitting distributions to data, goodness of fit, parametric and non-parametric correlations and partial correlation, and nonparametric statistics. Sampling, design of experiments, categorical data, and regression. Emphasis on practical applications.

### **320 Mathematical Statistics I (3)**

(Same as Mathematics 320.) Prerequisites: Statistics 132 and Mathematics 180. Introduction to theory of probability and statistics using concepts and methods of calculus.

### **321 Mathematical Statistics II (3)**

(Same as Mathematics 321.) Prerequisite: Statistics 320. Continuation of Statistics 320. Continuous sample spaces, stochastic processes, statistical inference, and statistical models.

### **326 Introduction to Stochastic Processes (3)**

Prerequisite: Statistics 320. Markov chains, martingales, stationary distributions of a Markov chain, recurrent states, branching, birth and death, queuing chains, jump processes, second order processes, continuity and differentiation of second order processes, white noise, and stochastic differential equations.

### **330 Multivariate Analysis (3)**

Prerequisites: Mathematics 245 and Statistics 320, or consent of instructor. Multivariate normal distribution and related distributions such as the Wishart distribution. Statistical inference for the multivariate normal distribution. Multiple regression, canonical correlations, multivariate analysis of variance, classification problems, and discriminant analysis.

### **331 Analysis of Variance and Design of Experiments (3)**

Prerequisites: A year of calculus, some matrix theory, and an intermediate course in statistics. Theory of general linear hypotheses, important special cases of analysis of variance, theory of least square estimation, interval estimation. One-way, two-way, and higher-way layouts, completely randomized design, randomized complete blocks. Latin square design, factorial, incomplete block and fractional replications, lattice design, optimum design.

### **333 Nonparametric Methods in Statistics (3)**

Prerequisite: Statistics 320 or consent of instructor. Emphasis on statistical tests which are distribution-free; one-sample and two-sample location and detection of shifts, point estimators, and confidence intervals; relative dispersion, K-sample tests, detection of independence, and regression.

## Modern Foreign Languages and Literatures

Prerequisites may be waived by consent of the department.

The following courses fulfill the Humanities [H] breadth of study requirements:

FRENCH: 110, 150, 180, 211, 280, 281, 331, 341, 342, 353, 354, 362, 365, 371, 375, 390.

GERMAN: 110, 150, 180, 201, 202, 210, 315, 320, 345, 397, 398, 399.

SPANISH: 110, 111, 150, 180, 210, 211, 280, 281, 310, 315, 320, 321, 325, 330, 331, 335, 340, 345, 351, 360, 399.

### Chinese

Courses in Chinese are available at Washington University for UM-St. Louis students. Consult the modern foreign languages department for details and obtain the necessary forms from the registrar's office.

#### 101 First Level Modern Chinese I (5)

#### 102 First Level Modern Chinese II (5)

Plus **one** more course above 102.

**Note** Course 101 at Washington University is equivalent to Course 001 at UM-St. Louis.

### French

#### 1 French I (5)

Emphasis will be placed upon the speaking and understanding of French and upon the acquisition of the fundamentals of grammar and syntax. One-hour language laboratory per week required.

#### 2 French II (5)

Prerequisite: French 1 or equivalent. Emphasis will be placed upon the speaking and understanding of French and upon the acquisition of the fundamentals of grammar and syntax. One-hour language laboratory per week required.

#### 101 Intermediate French (3)

Prerequisite: French 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections.

#### 110 Modern French Literature in Translation (3)

Prerequisite: Sophomore standing. Reading and discussion of selected works in French literature from the modern period, in English translation. No credit toward major in French.

#### 111 Quebecois Language and Culture (3)

Prerequisites: French 101 or equivalent and permission of instructor. A study and discussion of the French-Canadian cultural evolution, language, and contemporary identity, followed by a one-week stay in the province of Quebec. Special fees: travel to Quebec, food, and lodging.

#### 115 Intensive French:

##### 115a Grammar (5)

##### 115b Conversation (5)

##### 115c Readings (5)

Prerequisites: Aptitude test and permission of department. French 115a, French 115b, and French 115c must be taken concurrently. An intensive study of French in one semester which assumes no previous knowledge of French. French 115a, French 115b, and French 115c are equivalent to French 1, French 2, and French 101.

#### 125 Introduction to French/English Translation Techniques (3)

Prerequisite: French 101 or equivalent, or permission of instructor. Practical training in translating from English into French and French into English using a variety of technical, scientific, literary, and commercial texts.

#### 150 European Literature in Translation: Special Topics (3)

Major figures, works, or movements in the literature of Europe and their relevance to our own age. Topic is announced in advance by the department. Does not count toward major in French.

#### 160 French Phonetics (3)

Prerequisite: French 101 or consent of instructor. An analytic and practical study of French pronunciation. Emphasis is placed upon the articulation and practice of contemporary French sounds.

#### 171 French Conversation and Pronunciation (3)

Prerequisite: French 101 or equivalent. Emphasis will be placed upon the development of oral skills in French and upon the problems of French pronunciation.

#### 172 French Composition (3)

Prerequisite: French 101 or equivalent. Designed to develop writing skills in French.

#### 180 Readings in French (3)

Prerequisite: French 101 or equivalent. Development of language skills through reading and discussion of literary texts.

#### 190 Special Readings in French (1-3)

Prerequisites: French 101 and consent of the department. Independent study on mutually acceptable topics through readings, reports, and conferences.

#### 200 Advanced Grammar (3)

Prerequisite: French 171, French 172 or equivalent. Problems in grammatical analysis.

#### 205 Commercial French (3)

Prerequisite: French 171 or French 172. Introduction to French business language with emphasis on technical vocabulary and correct French usage in business affairs.

#### 211 Contemporary French Civilization (3)

Prerequisite: French 171, French 172 or equivalent. The culture and civilization of contemporary France from World War I to the present. All readings and class work in French.

#### 264 Curriculum and Methods of Teaching Foreign Languages (3)

(Same as SEC ED 274.) Prerequisites: SEC ED 213 and passing the departmental language skills test. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign languages. To be taken prior to student teaching.

## Modern Foreign Languages and Literatures

### 271 Intermediate French Conversation (3)

Prerequisites: French 160 and French 171 or consent of department. Emphasis will be placed upon the further development of oral skills in French.

### 280 French Literature I: Middle Ages to Eighteenth Century (3)

Prerequisite: French 180 or equivalent. Designed to acquaint the student with the development of French literature from the Middle Ages to the eighteenth century. Critical reading of representative texts.

### 281 French Literature II: Nineteenth and Twentieth Centuries (3)

Prerequisite: French 180 or equivalent. Designed to acquaint the student with the development of French literature from the nineteenth century to the present. Critical reading of representative texts.

### 290 Special Readings (1-3)

Prerequisite: Consent of department. Independent study through readings, reports, and conferences.

### 300 Syntax and Stylistics (3)

Prerequisite: French 200 or equivalent. Advanced theoretical and practical study of modern French syntax. Analysis of French prose style.

### 320 Advanced Oral Composition (3)

Prerequisite: French 171 or equivalent. Emphasis will be placed upon the development and refinement of skills in spoken French.

### 331 Medieval and Renaissance Literature (3)

Prerequisite: French 280 or French 281. A study of the development of French literature from the Middle Ages to the end of the sixteenth century. Texts for reading and discussion will include medieval romances, lyric poetry, and works of humanist philosophy.

### 341 Seventeenth-Century French Theatre and Poetry (3)

Prerequisite: French 280 or French 281. Critical reading and analysis of French Classical Age theatre and poetry, including works by Corneille, Moliere, Racine, and La Fontaine.

### 342 Seventeenth-Century French Prose (3)

Prerequisite: French 280 or French 281. A study of moralists and social commentators in the age of Louis XIV, with critical reading and analysis of texts by Pascal, La Rochefoucauld, and others.

### 353 Eighteenth-Century French Literature (3)

Prerequisite: French 280 or French 281. The philosophic movement. Selected readings of the eighteenth century, including Montesquieu, Voltaire, Diderot, and Rousseau.

### 354 Eighteenth-Century French Theatre and Novel (3)

Prerequisite: French 280 or French 281. Critical reading and discussion of representative novels and plays of the eighteenth century.

### 362 Nineteenth-Century French Novel (3)

Prerequisite: French 280 or French 281. Critical reading of selected works by the major novelists of the period. Discussion of realism and naturalism.

### 365 Modern French Poetry (3)

Prerequisite: French 280 or French 281. A study of French poetry in the nineteenth and twentieth centuries through critical readings of selected works by major poets.

### 371 Twentieth-Century French Novel (3)

Prerequisite: French 280 or French 281. A study of selected works by the principal novelists of the modern period.

### 375 Modern French Theatre (3)

Prerequisite: French 280 or French 281. A study of French drama in the nineteenth and twentieth centuries through critical study of selected works by major dramatists.

### 390 Special Readings (1-3)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences.

### 399 French Seminar (3)

Prerequisite: French 280 or French 281. Specialized topic in French literature. Subject to be announced by instructor in charge of seminar.

### 400 Contemporary French Thought (3)

Prerequisite: B.A. or permission of instructor. Analyses and discussion of contemporary cultural French issues through a representative sample of journals and pamphlets. In French.

## German

### 1 German I (5)

Emphasis will be placed upon the speaking and understanding of German and upon the acquisition of the fundamentals of grammar and syntax. One-hour language laboratory per week required.

### 2 German II (5)

Prerequisite: German 1 or equivalent. Emphasis will be placed upon the speaking and understanding of German and upon the acquisition of the fundamentals of grammar and syntax. One-hour language laboratory per week required.

### 50 German for Reading Knowledge (3)

This course presumes no prior knowledge of German and is designed to provide the student with a basic recognition knowledge of vocabulary, structure, and syntax. German for Reading Knowledge does not fulfill the language requirement nor does it count toward a major or minor in German.

### 100 Scientific German (3)

Prerequisite: German 2 or equivalent. Reading of selected German texts in the natural and social sciences. Designed primarily for majors in these areas. This course is the equivalent of German 101. German 101 and German 100 may not both be taken for credit.

### 101 Intermediate German (3)

Prerequisite: German 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections.

### 110 Masterpieces of German Literature in Translation (3)

Prerequisite: Sophomore standing. Representative readings in German literature from the beginning to the present. Emphasis to be placed upon German literature in the general context of European culture. No credit toward major in German.

# Modern Foreign Languages and Literatures

## 115 Intensive German:

### 115a Conversation (5)

### 115b Grammar (5)

### 115c Readings (5)

Prerequisites: Aptitude test and permission of department. An intensive study of German in one semester which assumes no previous knowledge of German. German 115a, German 115b, and German 115c are equivalent to German 1, German 2, and German 101.

## 150 European Literature in Translation: Special Topics (3)

Major figures, works, or movements in the literature of Europe and their relevance to our own age. Topic announced in advance by the department. Does not count toward major in German.

## 171 German Conversation and Pronunciation (3)

Prerequisite: German 101 or equivalent. Emphasis will be placed upon the development of oral skills, German pronunciation, and intonation.

## 172 German Composition (3)

Prerequisite: German 101 or equivalent. Designed to develop writing skills in German.

## 180 Readings in German (3)

Prerequisite: German 101 or equivalent. Further development of language skills through readings and discussions of literary texts. May be taken concurrently with German 171 or German 172.

## 190 Special Readings (1-3)

Prerequisites: German 101 and consent of department. Independent study on mutually acceptable topics through readings, reports, and conferences.

## 201 Masterpieces of German Literature (3)

Prerequisite: Two years of college German or equivalent. Introduction to German literature. Readings and critical analysis of selected works of German literature.

## 202 The German *Novelle* and Drama (3)

Prerequisite: German 201 or equivalent. Reading and critical analysis of selected German *Novellen* and dramas.

## 208 Intermediate Composition and Conversation (3)

Prerequisite: German 171, German 172, or equivalent. Emphasis on speaking and writing German.

## 210 German Culture and Civilization (3)

Prerequisite: German 180 or equivalent. A survey of the development of German culture and civilization. All reading and class work in German.

## 264 Curriculum and Methods of Teaching Foreign Languages (3)

(Same as SEC ED 274.) Prerequisites: SEC ED 213 and passing the departmental language skills test. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign languages. To be taken prior to student teaching.

## 290 Special Readings: German (1-3)

Prerequisite: Consent of department. Independent study through readings, reports, and conferences.

## 308 Advanced Composition and Conversation (3)

Prerequisite: German 208 or equivalent. Continuation of German 208. Designed to develop accuracy and fluency of expression in German.

## 315 German Classicism and Romanticism (3)

Prerequisites: German 201 and one other 200-level course in German. Representative writers from the classical and romantic periods of German literature, including works by Lessing, Goethe, Kleist, and E.T.A. Hoffmann.

## 320 German Realism and Naturalism (3)

Prerequisites: German 201 and one other 200-level course in German. Representative writers of realism and naturalism in German literature, including works of Grillparzer, Hebbel, Stifter, Keller, and Hauptmann.

## 345 Modern German Literature (3)

Prerequisites: German 201 and one other 200-level course in German. Representative works from modern German literature.

## 390 Special Readings (1-3)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences.

## 397 Survey of German Literature Part I (3)

Prerequisite: German 201 or German 202. Special emphasis on the summary and synthesis of trends and characteristics of major periods in German literature, considered in the general context of European culture.

## 398 Survey of German Literature Part II (3)

Prerequisite: German 201 or German 202. Special emphasis on the summary and synthesis of trends and characteristics of major periods in German literature, considered in the general context of European culture.

## 399 German Seminar (3)

Prerequisite: German 201 or German 202. Specialized topic in German literature.

# Greek

## 1 Ancient Greek 1 (5)

Study of grammar, syntax, and vocabulary, accompanied by readings of simple prose selections.

## 2 Ancient Greek 2 (5)

Prerequisite: Ancient Greek 1 or equivalent. The study of vocabulary, grammar, and syntax is continued from Greek 1. Readings and discussion from selected classical authors.

## 101 Ancient Greek 101 (3)

Prerequisite: Ancient Greek 2 or equivalent. Review and continued study of Greek grammar and syntax. Readings and discussions of selected classical authors such as Homer and Plato.

## 190 Special Readings (1-3)

Prerequisites: Greek 101 and consent of department. Independent study through readings, reports, and conferences.

# Modern Foreign Languages and Literatures

## Hebrew

Courses in Hebrew are available at Washington University for UM-St. Louis students. Consult the modern foreign languages department for details and obtain the necessary forms from the registrar's office.

### 101 Elementary Hebrew (3)

### 102 Elementary Hebrew (3)

Plus **two** courses above 102.

**Note** Course 101 at Washington University is equivalent to Course 001 at UM-St. Louis.

## Italian

### 1 Italian I (5)

Fundamentals of Italian grammar, pronunciation, and diction for students with no previous acquaintance with the language. One-hour laboratory per week required.

### 2 Italian II (5)

Prerequisite: Italian 1 or equivalent. Continuation of grammar and conversation with introductory readings centering on Italian contributions to art, literature, and music. One-hour laboratory per week required.

### 101 Intermediate Italian (3)

Prerequisite: Italian 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections.

### 190 Special Readings (1-3)

Prerequisite: Italian 101 or equivalent. Readings on literary topics mutually acceptable to student and instructor.

## Japanese

Courses in Japanese are available at Washington University for UM-St. Louis students. Consult the modern foreign languages department for details and obtain the necessary forms from the registrar's office.

### 103 First Level Modern Japanese I (5)

### 104 First Level Modern Japanese II (5)

Plus **one** course above 104 level.

**Note** Course 103 at Washington University is equivalent to Course 001 at UM-St. Louis.

## Latin

### 1 Latin 1 (5)

A study of Latin grammar, syntax, and vocabulary, accompanied by reading selections from literary texts.

### 2 Latin 2 (5)

Prerequisite: Latin 1 or equivalent. The study of vocabulary, grammar, and syntax is continued from Latin 1. Readings and discussion from selected classical authors.

### 101 Latin 101 (3)

Prerequisite: Latin 2 or equivalent. Review and continued study of Latin grammar and syntax. Readings and discussions from selected authors such as Caesar and Vergil.

### 190 Special Readings (1-3)

Prerequisites: Latin 101 and consent of department. Independent study through readings, reports, and conferences.

## Portuguese

Courses in Portuguese are available at Saint Louis University for UM-St. Louis students. Consult the modern foreign languages department for details and obtain the necessary forms from the registrar's office.

### 5 Elementary Portuguese (4)

### 6 Intermediate Portuguese (4)

Plus **one** more course above 6.

**Note** Course 5 at Saint Louis University is equivalent to Course 001 at UM-St. Louis.

## Russian

### 1 Russian I (5)

Emphasis will be placed upon the speaking and understanding of Russian and upon the acquisition of the fundamentals of grammar and syntax. Five hours of class and one-hour language laboratory per week required.

### 2 Russian II (5)

Prerequisite: Russian 1 or equivalent. Emphasis will be placed upon the speaking and understanding of Russian and upon the acquisition of the fundamentals of grammar and syntax. Five hours of class and one-hour language laboratory per week required.

### 100 Scientific Russian (3)

Prerequisite: Russian 2 or equivalent. Introduction to reading of selected Russian texts in the natural and social sciences. Designed primarily for majors in these areas. This course is the equivalent of Russian 101. Russian 101 and Russian 100 may not both be taken for credit.

### 101 Intermediate Russian (3)

Prerequisite: Russian 2 or equivalent. Further presentation of the structure of Russian; development of oral and aural skills; elementary composition; readings of simplified texts.

### 190 Special Readings (1-3)

Prerequisite: Russian 101 or equivalent. Readings on literary topics mutually acceptable to student and instructor.

## Spanish

### 1 Spanish I (5)

Emphasis will be placed upon the speaking and understanding of Spanish and upon the acquisition of the fundamentals of grammar and syntax. One-hour language laboratory per week required.

### 2 Spanish II (5)

Prerequisite: Spanish 1 or equivalent. Emphasis will be placed upon the speaking and understanding of Spanish and upon the acquisition of the fundamentals of grammar and syntax. One-hour language laboratory per week required.



## Modern Foreign Languages and Literatures

### 101 Intermediate Spanish (3)

Prerequisite: Spanish 2 or equivalent. Grammar review and cultivation of language skills through the study of selected modern works.

### 105 Commercial Spanish (3)

Prerequisite: Spanish 2 or equivalent. Grammar review and cultivation of language skills with emphasis on technical vocabulary and correct Spanish usage in business affairs. Designed for business majors, economics majors, or anyone interested in the commercial application of Spanish. This course is the equivalent of Spanish 101; both may not be taken for credit.

### 110 Spanish Literature in Translation (3)

Prerequisite: Sophomore standing. Lectures on the literature and culture of Spain from the Middle Ages to the contemporary period. Reading and discussion of works of representative Spanish writers: Cervantes, Calderon, Galdos, Unamuno, Garcia Lorca, Buero Vallejo, and others. No credit toward major in Spanish.

### 111 Spanish-American Literature in Translation (3)

Prerequisite: Sophomore standing. Lectures on the literature and culture of Spanish America. Reading and discussion of works of representative poets, novelists, and essayists of the contemporary period. No credit toward major in Spanish.

### 115 Intensive Spanish:

#### 115a Grammar (5)

#### 115b Conversation (5)

#### 115c Readings (5)

Prerequisites: Aptitude test and permission of department. Spanish 115a, Spanish 115b, and Spanish 115c must be taken concurrently. An intensive study of Spanish in one semester which assumes no previous knowledge of Spanish. Spanish 115a, Spanish 115b, and Spanish 115c are equivalent to Spanish 1, Spanish 2, and Spanish 101.

### 150 European Literature in Translation: Special Topics (3)

Major figures, works, or movements in the literature of Europe and their relevance to our own age. Topic is announced in advance by the department. Does not count toward major in Spanish.

### 171 Spanish Conversation and Pronunciation (3)

Prerequisite: Spanish 101 or equivalent. Emphasis will be placed upon the development of oral skills in Spanish and upon the problems of Spanish pronunciation and intonation.

### 172 Spanish Composition (3)

Prerequisite: Spanish 101 or equivalent. Emphasis in developing the capacity and the ability to write in Spanish.

### 180 Readings in Spanish (3)

Prerequisite: Spanish 101 or equivalent. Development of language skills through reading and discussion of a variety of texts.

### 190 Special Readings (1-3)

Prerequisites: Spanish 101 and consent of department. Independent study through readings, reports, and conferences.

### 200 Syntax of the Spanish Language (3)

Prerequisite: Spanish 171, Spanish 172, or equivalent. Study of the syntactical and morphological characteristics of the Spanish language. Designed primarily for students majoring in Spanish. May be taken concurrently with any 200-level course.

### 210 Hispanic Culture and Civilization: Spain (3)

Prerequisite: Spanish 171, Spanish 172, or equivalent. The development of Spanish peninsular civilization from its Roman beginnings to the present.

### 211 Hispanic Culture and Civilization: Spanish America (3)

Prerequisite: Spanish 171, Spanish 172, or equivalent. The development of the cultures and civilization of the Spanish-speaking nations of the Western hemisphere.

### 264 Curriculum and Methods of Teaching Foreign Languages (3)

(Same as SEC ED 274). Prerequisites: SEC ED 213 and passing the departmental language skills test. A study of the scope and sequence of the foreign language courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the

scholar in the field of foreign languages. To be taken prior to student teaching.

### 271 Advanced Spanish Conversation (3)

Prerequisite: Spanish 171 or consent of department. Emphasis will be placed upon the further development of oral skills in Spanish.

### 280 Introduction to Hispanic Literature: Spain (3)

Prerequisite: Spanish 171, Spanish 172, or equivalent. Study of selected texts of Spanish writers from the Middle Ages to the present and the historical, cultural, and political factors which influence their writing. Required of Spanish majors.

### 281 Introduction to Hispanic Literature: Spanish America (3)

Prerequisite: Spanish 171, Spanish 172, or equivalent. Study of selected texts of Spanish-American writers from the colonial period to the present and the historical, cultural, and political factors which influenced their writings. Required of all Spanish majors.

### 290 Special Readings: Spanish (1-3)

Prerequisite: Consent of department. Independent study through readings, reports, and conferences.

### 310 Spanish Literature From 1898 to 1939 (3)

Prerequisite: Spanish 280. A study of cultural and literary characteristics of the period. Emphasis on leading novelists, poets, essayists, and dramatists.

### 315 Spanish Literature From 1939 to the Present (3)

Prerequisite: Spanish 280. A study of cultural and literary development since the Spanish Civil War. Emphasis on leading novelists and dramatists.

### 320 Realism and Naturalism in the Nineteenth-Century Spanish Novel (3)

Prerequisite: Spanish 280. A study of the culture and literature of Spain in the nineteenth century with emphasis on the leading novelists of the epoch (Galdos, Clarin, Pardo-Bazan, Blasco-Ibanez).

## Modern Foreign Languages and Literatures

### 321 Poetry and Drama of the Nineteenth Century (3)

Prerequisite: Spanish 280. A study of the culture and literature of Spain in the nineteenth century with emphasis on the leading poets (Espronceda, Becquer) and playwrights (Zorrilla, Duque de Rivas).

### 325 Poetry and Drama of the Golden Age (3)

Prerequisite: Spanish 280. Selected readings from the drama of Lope de Vega, Tirso de Molina, Ruiz de Alarcón, and Calderón de la Barca, and from the poetry of Garcilaso, Fray Luis de León, San Juan de la Cruz, Gongora, Lope de Vega, and Quevedo.

### 330 Cervantes (3)

Prerequisite: Spanish 280. A study of *Don Quixote* in relation with the author's life and with the cultural background of the Spanish Golden Age. Independent readings on other works of Cervantes.

### 331 Picaresque and Satirical Prose (1550-1650) (3)

Prerequisite: Spanish 280. A study of Renaissance and Baroque prose in its social context. All readings and discussions in Spanish.

### 335 Masterpieces of Spanish Medieval and Renaissance Literature (3)

Prerequisite: Spanish 280. Designed to acquaint students with the cultural background of medieval and Renaissance Spanish traditions. Critical reading and discussion of representative works of these periods: *Poema del Cid*, *El Conde Lucanor*, *Libro de Buen Amor*, *El Romancero*, *La Celestina*, the Picaresque novel, and *Don Quixote*.

### 340 Spanish-American Literature of the Nineteenth Century (3)

Prerequisite: Spanish 281. A study of the culture and literature of Spanish America in the nineteenth century with emphasis on the leading novelists and essayists of the epoch.

### 341 Modernismo (3)

Prerequisite: Spanish 281. The genesis, development, and influence of this literary movement in Spanish-American letters with emphasis on Modernista poetry and prose.

### 345 Spanish-American Literature of the Twentieth Century (3)

Prerequisite: Spanish 281. A study of the leading Spanish American poets, essayists, and novelists of this period as interpreters of contemporary man's dilemma and the "pathos" and "ethos" of their culture.

### 351 Spanish-American Fiction in the Twentieth Century (3)

Prerequisite: Spanish 281. The role of prose fiction in Spanish American literary and cultural history from World War I to the present.

### 360 Spanish American Poetry From Modernismo to the Present (3)

Prerequisite: Spanish 281. A study of poetry and its role in the literary and cultural history of Spanish-American society from Modernismo to the present.

### 390 Special Readings (1-3)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences.

### 399 Seminar on Hispanic Literature (3)

Required of major students in the senior year. Subject to be announced every year by the instructor in charge of the seminar.

### 400 Spanish as Spoken Today (3)

Prerequisite: B.A. or permission of instructor. Contemporary Spanish, including emphasis on standard and colloquial speech: slang, proverbs, and the mass media. Some attention will be given to the influence of English on twentieth-century spoken Spanish. Study of samples; oral practice.

## Music

Prerequisites may be waived by consent of the department.

The following courses fulfill the Humanities [H] breadth of study requirements: 1, 2, 6, 7, 9, 10, 19, 30A, 31A, 32, 101, 102, 103, 105, 108, 130A, 131A, 177, 192, 321, 322, 323, 324, 325, 326.

## Applied Music

### 43A-T Secondary Applied Music (1)

Prerequisites: By audition and consent of department. Individual instruction in performance and literature of the designated instrument. May be repeated for credit. Not applicable to the applied music requirement for music major or music minor degrees.

### 44, 45, 144, 145, 244, 245, 344, 345, 346, 347 Applied Music (1-2)

Registration by audition and consent of department. Each Applied Music course is a prerequisite for the subsequent course in the sequence. Courses are offered in the following areas: a, bassoon; b, clarinet; c, classical guitar; d, euphonium; e, flute; f, French horn; g, harp; h, oboe; i, organ; j, percussion; k, piano; l, saxophone; m, trombone; n, trumpet; o, tuba; p, violin; q, viola; r, violoncello; s, string bass; t, voice.

### 431 Advanced Chamber Ensemble (0)

Prerequisite: Graduate standing in music. Study and performance of traditional and nontraditional chamber literature.

### 444 Applied Music I (1-2)

Prerequisite: 300-level applied music or consent of the department. Private instruction in orchestral instruments, organ, guitar, piano, and voice.

### 445 Applied Music II (1-2)

Prerequisite: Music 444. Private instruction in orchestral instruments, organ, guitar, piano, and voice.

### 446 Applied Music III (1-2)

Prerequisite: Music 445. Private instruction in orchestral instruments, organ, guitar, piano, and voice.

### 447 Applied Music IV (1-2)

Prerequisite: Music 446. Private instruction in orchestral instruments, organ, guitar, piano, and voice.

## Ensemble Performance

### 14, 15 Piano Proficiency (2)

Prerequisite: Permission of department. Group instruction for music majors who do not meet beginning keyboard requirements.

### 20 Jazz Improvisation Laboratory (1)

Prerequisite: Consent of instructor. The study and application of the theoretical, technical, and performance aspects of jazz improvisation. May be repeated for credit.

### 40 University Chorus (1)

Prerequisite: Consent of instructor. Preparation and performance of choral literature.

### 41 The University Singers (1)

Prerequisite: Consent of instructor. The study and performance of music for vocal chamber ensemble.

### 50 University Orchestra (1)

Prerequisite: Consent of instructor. Study, preparation, and performance of orchestral repertoire.

### 52 University Band (1)

Prerequisite: Consent of instructor. Study, preparation, and performance of music for the wind ensemble and band.

### 53 University Wind Ensemble (1)

Prerequisite: Consent of instructor. The study, preparation, and performance of music for wind ensemble and chamber band.

### 54 Chamber Ensemble (1)

Prerequisite: Consent of instructor. Study, preparation, and performance of music for small ensembles: a, brass; b, jazz combo; c, percussion; d, strings; e, voice; f, woodwinds; g, accompanying.

### 55 Jazz Ensemble (1)

Prerequisite: Consent of instructor. Study, preparation, and performance of jazz music for big band.

### 56 Opera Workshop (1)

Prerequisite: Consent of instructor. Instruction in movement, basic stage techniques, technical theater, repertory and performance techniques and preparation. May be repeated for credit.

### 60 Collegium Musicum (1)

Prerequisite: Consent of instructor. Performance of music for chamber ensemble with particular emphasis on the Renaissance and Baroque periods.

### 116, 118, 119, 120 Intermediate Piano Proficiency (1)

Prerequisite: Music 15 or permission of department. Continuation of piano proficiency study.

### 117 Jazz Keyboard Harmony (1)

Prerequisite: Applied Music 116 or consent of department. Group keyboard instruction in the application of chordal structures and harmonic functions commonly used in mainstream jazz performance.

### 125 Singer's Diction: French and Italian (1)

Prerequisite: Music 44 or Music 124. A study of French and Italian pronunciation.

### 126 Singer's Diction: Latin and German (1)

Prerequisite: Music 44 or Music 124. A study of Latin and German pronunciation.

### 153 Accompanying I (1)

Prerequisite: Consent of department. Accompanying and ensemble practices, including rehearsal techniques, for keyboard majors. Public performance of works studied is required.

### 154 Accompanying II (1)

Prerequisite: Consent of department. A continuation of Music 153.

### 155 Accompanying III (1)

Prerequisite: Consent of department. A continuation of Music 154.

### 356 Advanced Opera Workshop (1)

Prerequisite: Consent of instructor. Instruction in movement, stage technique, technical theater, repertory, and performance based on advanced vocal skills. May be repeated for credit.

# Music

## Music Education

### 25A High Brass Instrument Techniques (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching trumpet and horn classes in the school setting.

### 25B Low Brass Instrument Techniques (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching trombone, euphonium, and tuba classes in the school setting.

### 26A Single Reed Instrument Techniques (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching clarinet and saxophone classes in the school setting.

### 26B Double Reed and Flute Instrument Techniques (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching oboe, bassoon, and flute classes in the school setting.

### 27A High String Instrument Techniques (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching violin and viola in the school setting.

### 27B Low String Instrument Techniques (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching cello and bass classes in the school setting.

### 28A Percussion Instrument Techniques I (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching snare drum, tom-tom, bass drum, cymbals, and drum set in the school setting.

### 28B Percussion Instrument Techniques II (1)

Prerequisite: Consent of department. The objective of this course is to familiarize students with materials and techniques for teaching timpani, mallet instruments, and miscellaneous percussion instruments in the school setting.

### 177 An Introduction to Music for the Elementary School Teacher (3)

An introduction to the elements of music and the expressive nature of music. Includes application of fundamentals to appropriate literature and activities for use with children in a classroom setting. This course will not apply toward requirements for a music major.

### 257 Curriculum and Methods of Teaching Elementary School Music (3)

(Same as ELE ED 277.) Prerequisites: Music 131 and ED FND 111. For the music education major. A study of the elementary school music curriculum emphasizing the objectives, methods of teaching and staffing music classes, and analysis of instructional materials and resources.

### 267 Philosophic and Practical Foundations of the Secondary Music Education Curriculum (1)

(Same as SEC ED 275.) Prerequisites: Music 131, Music 257/ELE ED 277, and ED FND 111. Concurrent registration in Music 268/SEC ED 276 and Music 270/SEC ED 278 or Music 271/SEC ED 279. For the music education major. A study of the secondary school music program: curricular objectives, philosophy, and general administrative procedures common to all secondary music classes.

### 268 Curriculum and Methods of Teaching Instrumental Music I (2)

(Same as SEC ED 276.) Prerequisites: Music 131, Music 145, Music 151, Music 161, ED FND 111, two of the following: Music 25, Music 26, Music 27, Music 28. Concurrent registration in Music 257/ELE ED 277. A study of the teaching techniques, materials, curriculum, and organization of the beginning instrumental music education program. Topics include student recruitment the elementary band/orchestra, small group instruction, jazz ensemble, and marching band.

### 269 Curriculum and Methods of Teaching Middle School/Junior High School General Music (2)

(Same as SEC ED 277.) Prerequisites: Music 131, Music 257/ELE ED 277, and ED FND 111. Concurrent registration in Music 267/SEC ED 275 and Music 271/SEC ED 279. For the music education major. A study of the middle school/junior high school general music program emphasizing a conceptually based curriculum: objectives, methodologies, materials, innovations, classroom organization, and management.

### 270 Curriculum and Methods of Teaching Instrumental Music II (2)

(Same as SEC ED 278.) Prerequisites: Music 131, Music 152a, Music 162, Music 257/ELE ED 277, Music 268/SEC ED 276, ED FND 111, three of the following: Music 25, Music 26, Music 27, Music 28. Concurrent registration in Music 267/SEC ED 275. A continuation of Music 268/SEC ED 276. Topics include large group rehearsal techniques, program development, administrative procedures, and evaluation.

### 271 Curriculum and Methods of Teaching Secondary Choral Music (2)

(Same as SEC ED 279.) Prerequisites: Music 131, Music 257/ELE ED 277, and ED FND 111. Concurrent registration in Music 267/SEC ED 275 and Music 269/SEC ED 277. For the music education major. A study of the secondary choral music program: curriculum, methods, teaching techniques, organization, and administrative procedures for choral performance classes.

### 300 Advanced Techniques in Music Education (1-2)

Prerequisite: A 200-level music education course or permission of the department. Intensive study for advanced music education students and music teachers, emphasizing specialized techniques and innovative concepts. Topics to be announced. May be repeated for credit.

### 301 Marching Band Techniques (2)

Techniques for organizing and training school marching bands. Content will include planning and charting shows, rehearsal problems, corps and traditional styles, and auxiliary units.

# Music

## 375 Microcomputer Applications in Music Education (2)

(Same as EDUC 375.) Prerequisites: Music 257 or Music 267, and EDUC 301 or consent of instructor. An examination of the potential of microcomputers in the music education field. Experiences with available hardware and software suitable for applications that include inventory, budget, music library cataloging, digital music synthesis, and computer-assisted instruction at all levels.

## 376 Microcomputer-Assisted Instruction Curriculum Development in Music (2)

(Same as EDUC 376.) Prerequisites: Music 375/EDUC 375 and a working knowledge of BASIC or PILOT, or consent of instructor. Design and development of Computer-Assisted Instruction (CAI) lessons in music. Commercial courseware and various CAI models will serve as the basis for creating original programs that can be used effectively to implement objectives of the music curriculum for a specific school or school district. The design, refinement, and production of a major CAI program for use in an elementary, secondary or postsecondary setting is required.

## 377 Advanced Microcomputer Applications in Music (2)

(Same as EDUC 377.) Prerequisite: Music Education 375 or consent of the instructor. The study of complex microcomputer applications including music synthesis, MIDI, music-oriented graphics, voice and pitch recognition, administrative applications and computer-assisted instruction.

## 407 Techniques and Literature for the Jazz Ensemble (2)

Prerequisite: Graduate standing in music. An examination of jazz music education. Includes methods, materials, improvisational techniques, and administration.

## 413 Teaching Music Theory in the High School (2)

Prerequisite: Graduate standing in music. A study of the course content and pedagogical techniques for high school music theory courses.

## 451 Advanced Instrumental Methods (2)

Prerequisite: Graduate standing in music. Development of objectives for instrumental programs and methods of achieving those objectives. Comprehensive musicianship through instrumental performance, analysis of instrumental literature, instrumental philosophies and methodologies, rehearsal organization, and recent research in instrumental music education will be discussed.

## 452 Instrumental Music Administration (2)

Prerequisite: Graduate standing in music. Study of the organizational problems of the instrumental program; library management; budgeting; awards and incentive systems; selection, care, and handling of uniforms and equipment; instrumental balance; seating plans; and operation of festivals and contests.

## 461 Advanced Choral Methods (2)

Prerequisite: Graduate standing in music. Development of objectives for choral programs and methods of achieving those objectives. Comprehensive musicianship through choral performance, analysis of choral literature, the changing voice, choral philosophies and methodologies, rehearsal organization, and recent research in choral music education will be discussed.

## 465 Music Theater in the School (2)

Prerequisite: Graduate standing in music. Techniques appropriate for school musical productions. Aspects of production and planning, including makeup, staging, lighting, and costuming.

## 471 General Music: A Model for Multifaceted Musical Learning (2)

Prerequisite: Graduate standing in music. An exploration of the general music class as a learning laboratory model designed to actively engage the learner in a series of comprehensive music learning experiences. Emphasizes techniques and materials that will motivate the "nonperformance-oriented" student.

## 472 Electronic Music Techniques for Teachers (2)

Prerequisite: Graduate standing in music. Basic electronic music instruments, their operation and use as teaching tools. Materials and techniques suitable for use with students in both elementary and secondary school settings will be presented.

## 473 Individualizing Music Instruction (2)

Prerequisite: Graduate standing in music. The development of learning strategies, materials, and evaluation techniques suitable for better accommodating the varying interests, abilities, and learning styles of individual students in music classes.

## 481 Foundations of Music Education (2)

Prerequisite: Graduate standing in music. A study of the historical, philosophical, and psychological foundations of music education. Includes principles necessary for development, implementation, and evaluation of the total school music program.

## 482 School Music Administration and Supervision (2)

Prerequisite: Graduate standing in music. Theory and practice of administration and supervision of school music programs.

## 483 Contemporary Music Education (2)

Prerequisite: Graduate standing in music. A study of recent trends and issues in music education.

## 484 Problems of Urban Music Education (2)

Prerequisite: Graduate standing in music. An analysis of current practices, problems, trends, and research involved in developing strategies for the improvement of music programs in inner-city schools.

## 491 Music Education Research (2)

Prerequisite: Graduate standing in music. Applications of various approaches in defining and analyzing research problems in music education. Historical, experimental, descriptive, and philosophical research will be included.



# Music

## 492 Psychology of Music (2)

Prerequisite: Graduate standing in music. A study of the effects of music on behavior. Tuning and temperament, psychoacoustics, measurement of musical behavior, aesthetic response to music, and functional music.

## Music History and Literature

### 1 Introduction to Music (3)

An historically-oriented study of art music, its styles, and forms from the Baroque period to the present day. This course will not apply toward requirements for a music major.

### 2 Introduction to Symphonic Music (3)

Orchestral music from the Baroque period to the present time; concerto grosso and suite; program music; the symphony. This course will not apply toward requirements for a music major. This course is also offered for independent study through the UM-St. Louis Video Program.

### 6 America's Black Musical Heritage (3)

This course will survey Black American musical heritage, including: Black music and its roots; Black music of the nineteenth-century American society; Black musical forms after 1900; and American Black composers of the twentieth century who wrote in the European tradition. This course will not apply toward requirements for a music major or minor.

### 7 Introduction to Jazz (3)

A survey course which examines the musical, historical, and social aspects of the subject. This course will not count toward requirements for a music major.

### 9 Non-Western Music I (3)

The music of Oceania; folk and classical music and dance of East Asia, Tibet and Southeast Asia; the influence of Buddhism, Islam, and Western acculturation on the functions of music in these societies. This course fulfills the non-Euro-American requirement.

### 10 Non-Western Music II (3)

Music of the African continent, West Asia, and South Asia; a survey of the tribal, folk, and classical music and performing arts of these cultures. This course fulfills the non-Euro-American requirement.

### 101 History of Western Music I (3)

Prerequisite: Music 30 or consent of department. A general survey of the history of Western music. Includes the evolution and development of styles, forms, and their social setting.

### 102 History of Western Music II (3)

Prerequisite: Music 30 or consent of department. A continuation of Music 101.

### 103 Music in Religion (3)

Prerequisite: Sophomore standing or departmental consent. A survey of the role of music in the religious traditions of the East and West from earliest times to the present. The types of music in the various religious traditions and the effects of this music in society are examined.

### 105 Music as Propaganda (3)

A study of music as a tool of individuals or government and other authorities to teach, to persuade, to beguile a society in various periods and places of world history. Topics include Beethoven and the rise of democracy, nationalism in nineteenth-century Europe, music in Eastern and Western religions, official art in Marxist-socialist states, and protest songs of the Sixties.

### 108 Women in Music (3)

This course surveys the role of women in the development of music from antiquity to the present day. The course will explore the lives and contributions of women composers, performers, and conductors.

### 202 Music History Review (3)

Prerequisite: Consent of department. A review of the history of Western music. Includes a survey of styles in major periods of Western music. The credit may not be used to satisfy requirements for a music degree.

### 321 Music of the Middle Ages (3)

Prerequisite: Music 101 or consent of department. A study of music and musical thought from the beginning of Christianity to 1450. Gregorian chant, polyphonic music, the Ars Antiqua, and the Ars Nova.

### 322 Music of the Renaissance (3)

Prerequisite: Music 101 or consent of department. A study of the theoretical and practical impact of humanism on music, musicians, and musical thought from 1450 to 1600. Sacred and secular music; the rise of an instrumental idiom.

### 323 Music of the Baroque (3)

Prerequisite: Music 101 or consent of department. A detailed study of music from 1600 to 1750. The rise of the new style, national styles in the seventeenth century, and the culmination of the Baroque period.

### 324 Music of the Classic Period (3)

Prerequisite: Music 102 or consent of department. A study of the growth of classical style; galant and expressive styles; Mozart, Haydn, and Beethoven.

### 325 Music of the Romantic Period (3)

Prerequisite: Music 102 or consent of department. Composers, forms, and styles in nineteenth-century music. The literary and social background of musical romanticism.

### 326 Music of the Twentieth Century (3)

Prerequisite: Music 102 or consent of department. A detailed study of trends in modern music and of influential composers; impressionism, serial composition, electronic music, and other recent techniques.

### 401 Studies in Style and Performance Practices (2)

Prerequisite: Graduate standing in music. Selected styles, forms, and composers from the various periods in the history of Western art music. Three or more periods or subperiods will be explored to reveal the continuity and contrast in music from the Middle Ages to the twentieth century.

# Music

## Music Theory and Composition

### 3 Basic Musicianship (2)

Prerequisite: Music theory placement examination. An introduction to concepts and notational conventions essential to musical performance. Topics include pitch and time organization, and their appearance on the musical staff. No credit toward any degree.

### 19 Fundamentals of Music (3)

This course provides basic music vocabulary: scales, intervals, and chords, and systematic instruction in the melodic, rhythmic, and harmonic aspects of music. This course will not apply toward requirements for a music major.

### 30A Theory of Music I (3)

Prerequisite: Consent of the department. The basic materials of music and their use in analyzing and writing music. Concurrent registration in Music 30B is required for music majors and minors.

### 30B Aural Training I (1)

Prerequisite: Consent of the department. Systematic instruction in ear training and sight singing. Includes diatonic melodic and rhythmic dictation, chord quality recognition, sight singing of diatonic melodies, and the reading of units and divisions of units in simple and compound meters.

### 31A Theory of Music II (3)

Prerequisites: Music 30A and Music 30B or consent of department. The study of seventh chords, secondary dominants, and modulation; composition in small forms. Concurrent registration in Music 31B is required for music majors and minors.

### 31B Aural Training II (3)

Prerequisites: Music 30A and Music 30B or consent of department. The systematic instruction in ear training and sight singing begun in Music 30B is continued. Includes further diatonic melodic and rhythmic dictation, primary chord progressions, sight singing of diatonic melodies, and the reading of unit subdivisions in simple and compound meters.

### 32 Theory of Jazz (3)

Prerequisite: Music 31 or consent of department. This is a survey analysis of the tonal organization of mainstream jazz music as documented by standard performance practice. Scale formation chordal structure and harmonic function will be examined.

### 71 Sight Singing I (1)

Rhythmic and tonal sight singing, based on Kodaly methodology. Recommended for music education majors. Will not substitute for music theory sequence.

### 72 Sight Singing II (1)

Prerequisite: Music 71. A continuation of Music 71.

### 130A Theory of Music III (3)

Prerequisites: Music 31A and Music 31B or consent of department. Study of chromaticism in eighteenth and nineteenth centuries; composition in simple part forms. Concurrent registration in Music 130B is required for music majors and minors.

### 130B Aural Training III (1)

Prerequisites: Music 31A and Music 31B or consent of department. Systematic instruction in ear training and sight singing of Music 31B is continued. Chromatic melodic dictation, rhythmic dictation continues, secondary and altered chords in progressions are introduced. Sight singing of chromatic, modulating, and modal melodies, and the reading of syncopated rhythmic patterns are included.

### 131A Theory of Music IV (3)

Prerequisites: Music 130A and Music 130B or consent of department. Study of late nineteenth- and early twentieth-century tonal harmony; analysis of large forms; composition in large forms. Concurrent enrollment in 131B is required for all music majors and minors.

### 131B Aural Training IV (1)

Prerequisites: Music 130A and Music 130B or consent of department. Systematic instruction in sight singing and advanced aural perceptions. Includes drill in recognition of formal events and key relationships, sight singing of twentieth-century melodies, and rhythmic drills in borrowed divisions and changing meters.

### 141 Orchestration (2)

Prerequisite: Music 131 or concurrent enrollment. Study of the instruments of the orchestra; scoring for various instrumental ensembles and orchestra.

### 201 Music Theory Review (3)

Prerequisite: Music 131 or consent of department. A review of techniques employed in the analysis and composition of tonal music. The credit may not be used to satisfy requirements for a music degree.

### 203 Ear Training and Sight Singing Review (1)

Rhythmic and tonal sight singing based on Kodaly methodology; melodic and harmonic ear training. Does not substitute for music theory sequence. The credit may not be used to satisfy the requirements for a music degree.

### 311 Analysis of 20th Century Technique (2)

Prerequisite: Music 131 or consent of department. Study of compositional devices in tonal and atonal music of the twentieth century.

### 312 Tonal Counterpoint (2)

Prerequisite: Music 131 or consent of department. Study of tonal counterpoint with emphasis on the eighteenth-century style. Composition in two and three parts.

### 330 Seminar in Composition (2)

Prerequisite: Music 311 or consent of instructor. The study of composition in theory and practice.

### 411 Scoring and Arranging (2)

Prerequisite: Graduate standing in music. Experience in scoring and arranging music for a variety of ensembles.

### 412 Advanced Composition Techniques (2)

Prerequisite: Graduate standing in music. Analysis and evaluation of student works with an emphasis on the further development of style and compositional technique.

# Music

## Pedagogy

### 123 Intermediate Vocal Techniques (1)

Prerequisite: Permission of department. Instruction for non-voice majors in the choral option of the music education curriculum.

### 124 Intermediate Vocal Techniques (1)

Prerequisite: Permission of department. Instruction for non-voice majors in the choral option of the music education curriculum.

### 156 Piano Pedagogy (2)

Prerequisite: Equivalent of Music 45k or permission of instructor. A study of methods, repertoire, and technical problems pertaining to private studio teaching for all levels of performance ability.

### 221 Pedagogy of Jazz Improvisation (1)

Prerequisites: Music 131 and permission of instructor. Study of the techniques, systems, and instructional materials used in teaching jazz improvisation.

### 474 Techniques of Group Keyboard Instruction (2)

Prerequisite: Graduate standing in music. A study of techniques, materials, and equipment appropriate for group keyboard instruction.

## Practicum

### 151 Conducting I (2)

Prerequisite: Music 130. Concurrent registration in Music 161 required. Techniques and problems in conducting.

### 152a Conducting II—Instrumental (2)

Prerequisite: Music 151. Concurrent registration in Music 162 required. Advanced study of instrumental conducting and rehearsal techniques, score reading, and interpretation.

### 152b Conducting II—Choral (2)

Prerequisite: Music 151. Concurrent registration in Music 162 required. Advanced study of choral conducting and rehearsal techniques, score reading, and interpretation.

### 161 Elementary School Materials: Conducting Laboratory (1)

Prerequisite: Music 130. Active conducting experience while analyzing and evaluating selected instructional and concert materials for elementary grades.

### 162 Junior-Senior High School Materials Laboratory (1)

Prerequisite: Music 131. Analysis and evaluation of selected instructional and concert materials for junior and senior high school performance groups.

### 192 Senior Research (2)

Prerequisite: Consent of department. Required of all senior music majors. Directed readings and research in an area mutually acceptable to the student and instructor.

### 292 Internship (1-3)

Prerequisites: Senior standing in bachelor of music business emphasis program and permission of the instructor. Supervised experience in the area of the student's career objective, such as music or instrument merchandising, arts management, mass communication, publishing, manufacturing or other, as available. May be repeated once for credit in different area.

### 402 Choral Literature (2)

Prerequisite: Graduate standing in music. Study of choral literature appropriate for ensembles from elementary to senior high school. Criteria for evaluating choral literature will be developed, and pedagogical implications of choral music as a means of developing comprehensive musician-ship will be discussed.

### 403 Brass Literature (2)

Prerequisite: Graduate standing in music. Study of brass literature appropriate for soloists and ensembles from elementary to senior high school. Criteria for evaluating the literature will be developed, and related technical problems will be studied.

### 404 Woodwind Literature (2)

Prerequisite: Graduate standing in music. Study of woodwind literature appropriate for soloists and ensembles from elementary to senior high school. Criteria for evaluating the literature will be developed, and related technical problems will be studied.

### 405 Percussion Literature (2)

Prerequisite: Graduate standing in music. Study of percussion literature appropriate for soloists and ensembles from elementary to senior high school. Criteria for evaluating the literature will be developed, and related technical problems will be studied.

### 406 String Literature (2)

Prerequisite: Graduate standing in music. Study of string literature appropriate for soloists and ensembles from elementary to senior high school. Criteria for evaluating the literature will be developed, and related technical problems will be studied.

### 421 Advanced Conducting (2)

Prerequisite: Graduate standing in music. Conducting techniques, score reading, and interpretation of choral, orchestral, and band literature.

# Philosophy

Prerequisites may be waived by consent of the department.

The following courses fulfill the Humanities [H] breadth of study requirements: 10, 11, 30, 50, 60, 74, 85, 90, 101, 102, 103, 104, 105, 107, 120, 150, 151, 153, 154, 156, 160, 165, 185, 201, 202, 205, 206, 207, 208, 210, 215, 230, 235, 238, 240, 245, 250, 260, 265, 269\*, 270, 272, 274, 276, 278, 280, 282, 287, 290, 291, 310, 315, 350, 369, 370, 374, 378, 380, 382, 385, 387.

\*Course may fulfill the [H] or Social Sciences [SS] breadth of study requirement.

## 10 Western Philosophy I: Antiquity to the Renaissance (3)

Lectures and discussions tracing the development of Western philosophy from its beginnings among the pre-Socratics through the Middle Ages and Renaissance. Philosophical ideas will be examined in the cultural and historical context: the Greek city-state, the rise of Christianity, etc.

## 11 Western Philosophy II: Descartes to the Present (3)

Lectures and discussions on the development of Western philosophy from Descartes (1596-1650) to the present. Philosophical ideas will be examined with an eye to their historical and cultural setting: the rise of modern science, the industrial revolution, the rise of capitalism, etc.

## 30 Approaches to Ethics (3)

A study and discussion of representative topics in moral philosophy such as moral skepticism, moral objectivity, theories of obligation and value, evaluation of social institutions, and the relation between morality and science. Traditional and contemporary writers will be considered.

## 50 Major Questions in Philosophy (3)

A study and discussion of representative topics in philosophy such as free will and determinism, concepts of mind and body, the basis of value judgments, knowledge and belief, and the possibility of constructing a world view.

## 60 Logic and Language (3)

An introduction to the language and logical structure of arguments, the principles of sound reasoning, and application of these principles in a variety of contexts.

## 74 Philosophy and Literature (3)

Critical reading and discussion of selected literary works in terms of the philosophical problems they present.

## 85 Philosophy of Religion (3)

A philosophical investigation of such problems as the nature of religious faith and experience, the relation of faith and reason, alternative concepts of deity, and the problem of evil.

## 90 Freshman Seminar (3)

Prerequisites: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students.

## 101 Ancient Philosophy (3)

Freshmen admitted by consent of department. The principal philosophical doctrines of the ancient world, with special emphasis on the philosophies of Plato and Aristotle. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course.

## 102 Medieval Philosophy (3)

A critical study of the important philosophies of the period from Augustine to the Renaissance. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course.

## 103 Early Modern Philosophy (3)

Principal figures in the development of rationalism, empiricism and skepticism in early modern Europe, from Descartes through Hume. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course.

## 104 Kant and Nineteenth-Century Philosophy (3)

A study of Kant and such major nineteenth-century figures as Hegel and Nietzsche, Mill and Peirce. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course.

## 105 Twentieth-Century Philosophy (3)

Representative topics in contemporary philosophy, with readings selected from pragmatism, logical positivism, linguistic analysis, and existentialism. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course.

## 107 American Philosophy (3)

Prerequisite: Six hours of philosophy or consent of instructor. A study of selected American philosophers.

## 120 Asian Philosophy (3)

Critical study of selected philosophical classics of India and China. Fulfills the non-Euro-American study requirement.

## 150 Philosophy and Current Issues (3)

A careful examination of such current social controversies as women's liberation, the ethics of abortion, public accountability of holders of high offices, and the subtler forms of racism and other prejudices. Although there is no formal prerequisite, it is recommended that students have taken, or be concurrently enrolled in, at least one other philosophy course.

## 151 Sexual Ethics (3)

A critical review of what philosophers, both classical and contemporary, have said about sexual experience and its place in our lives. Included will be such topics as sexual desire, sexual perversion, love and commitment, marriage and adultery. Larger questions might include the role of sexual experience in the good life, issues of sexual privacy, and the morality of laws which regulate sexual activity.

## 153 Philosophy and Feminism (3)

A critical survey of what various philosophers have said about issues of concern to the women's movement. Included will be accounts, both traditional and modern, of such topics as differences between the sexes, sexism in language, oppression, preferential treatment and affirmative action, abortion and rape, and the differences between sexism and racism.

# Philosophy

## 154 Business Ethics (3)

A critical survey from the perspective of moral theory of businesses and business practices. Topics vary but usually include some of the following: whether the sole moral obligation of businesses is to make money; whether certain standard business practices, e.g., the creation of wants through advertising, are moral; whether businesses ought to be compelled, e.g., to protect the environment or participate in affirmative action programs.

## 156 Medical Ethics (3)

An examination of ethical issues in medical practice and research and in public policies affecting health care. Topics include: abortion, euthanasia, medical experimentation, informed consent, and the right to health care.

## 160 Formal Logic (3)

An introductory study of logical truth and deductive inference, with emphasis on the development and mastery of a formal system.

## 165 Inductive Logic (3)

An examination of the techniques for evaluating inferences which do not fit deductive frameworks. Examples will be drawn from at least the physical sciences, medicine, ethics, law, and everyday life.

## 185 Topics in Philosophy of Religion (3)

Prerequisite: Philosophy 85 or Philosophy 50 or permission of instructor. A careful examination of a selected topic in philosophy of religion or of philosophical issues arising in a selected religion. The topic or religion to be considered will be announced prior to registration. This course may be repeated for credit on approval by the department.

## 201 Plato (3)

Prerequisite: Six hours of philosophy or consent of instructor. A study of selected Platonic dialogues.

## 202 Aristotle (3)

Prerequisite: Six hours of philosophy or consent of instructor. A selective study of Aristotle's major works.

## 205 The Rationalists (3)

Prerequisite: Six hours of philosophy or consent of instructor. An examination of the philosophies of such major figures as Descartes, Spinoza, and Leibniz.

## 206 The British Empiricists (3)

Prerequisite: Six hours of philosophy or consent of instructor. An examination of the philosophies of such major figures as Locke, Berkeley, and Hume.

## 207 Kant (3)

Prerequisite: Six hours of philosophy or consent of instructor. A systematic study of the Critique of Pure Reason.

## 208 Hegel (3)

Prerequisite: Six hours of philosophy or consent of instructor. A critical study of the writings and influence of Hegel.

## 210 Significant Figures in Philosophy (3)

Prerequisite: Six hours of philosophy or consent of instructor. A critical study of the work of an important philosopher. The philosopher to be considered will be announced prior to registration. This course may be repeated for credit on approval by the department.

## 215 Existentialism and Phenomenology (3)

A study of some major representatives of these schools from Kierkegaard to the present.

## 230 Social and Political Philosophy (3)

An analysis of some fundamental concepts and assumptions involved in the theory and practice of social and political organization.

## 235 Classical Ethical Theories (3)

Significant contributions to moral philosophy from Plato and Aristotle to Bentham and Mill.

## 238 Recent Ethical Theory (3)

Prerequisite: Six hours of philosophy or consent of instructor. A study of major contributions to twentieth-century ethics, including works by such writers as Moore, Dewey, Ross, Stevenson, Hare, and Rawls.

## 240 Theories of Knowledge (3)

Prerequisite: Six hours of philosophy or consent of instructor. An examination of concepts and problems involved in the characterization of knowledge. Specific topics will vary, but will usually include knowledge, belief, skepticism, evidence, certainty, perception, truth, and necessity.

## 245 Metaphysics (3)

Prerequisite: Six hours of philosophy or consent of instructor. An examination of selected metaphysical topics such as substance, universals, causality, necessity, space and time, free will, being, and identity.

## 250 Special Topics in Philosophy (3)

Prerequisite: Six hours of philosophy or consent of instructor. A critical study of classical and/or contemporary contributions to a selected topic in philosophy. The topic to be considered will be announced prior to registration. This course may be repeated for credit on approval by the department.

## 260 Advanced Formal Logic (3)

Prerequisite: Philosophy 160 or consent of instructor. Rigorous study of major developments in contemporary logic. Emphasis is given to theoretical problems and some attention is devoted to philosophical issues arising from logic.

## 265 Logical Explorations (3)

Prerequisite: Philosophy 160. A variable content course in which techniques of modern logic are used to explore one or more of the following topics: modal logic, the logic of decision and action, value theory and decision analysis, induction and inductive logic, the logic of knowledge and belief, system construction, and contemporary logical theory. The topic will be announced prior to registration. This course may be repeated for credit on approval by the department.



# Philosophy

## 269 The Marxist Heritage (3)

(Same as Political Science 269 and Interdisciplinary 269.) Study of Marx and leading Marxists. Designed to evaluate their influence on recent political, economic, and social thought and institutions.

## 270 Philosophy of Language (3)

A study of the nature and structure of language and its relationship to selected philosophical problems. Included will be such topics as ordinary language philosophy, significant developments in twentieth-century linguistics, prospects for semantic theory, and a discussion of traditional problems of meaning, reference, and synonymy.

## 272 Philosophical Issues in Education (3)

A critical study and discussion of selected topics in education, including the distinctive features of education as an activity and achievement, concepts of teaching and learning, relations between education and values, and the functions of a university.

## 274 Philosophy of Art (3)

(Same as Art 274.) A study of issues concerning the definition of art, meaning and truth in the arts, aesthetic experience, and criticism.

## 276 Philosophy of History (3)

Discussion and analysis of some philosophical problems raised by historical inquiry, such as subjectivity, relativism, the role of value judgments, and the nature of historical explanation.

## 278 Philosophy and Psychology (3)

Prerequisite: Three hours of philosophy or consent of instructor. An examination of the philosophical foundations of psychology, as well as traditional problems in the philosophy of mind. Topics might include behaviorism; Freudian theory; pleasure and pain; desire, emotion and action; and memory and consciousness.

## 280 Philosophy of Science (3)

An examination of logical and methodological problems related to the sciences, including the structure of scientific explanations, laws and theories; methods of concept formation; and confirmation and the problem of induction.

## 282 Philosophy of Social Science (3)

A detailed analysis of issues raised by the social sciences, including the logical characterization of explanations, predictions, laws, and theories; types of reductionism; objectivity and values; and the empirical basis of the social sciences.

## 287 Philosophy of Law (3)

An examination of typical problems raised by law, including the basis of legal obligations and rights, relations between law and morality, the logic of legal reasoning, and the justification for punishment.

## 290 Philosophical Issues in Other Disciplines (3)

Prerequisite: Consent of instructor. An examination of selected philosophical issues in a discipline other than philosophy. One or more such disciplines as history, political science, psychology, sociology, biology, physics, or mathematics will be chosen, and philosophical issues selected and announced prior to registration, usually in consultation with the other department concerned. This course is normally taught as a seminar and attempts to serve advanced students in other departments with or without previous background in philosophy.

## 291 Senior Thesis (3-9)

Prerequisite: Consent of department. Directed individual research. May be repeated, but no more than nine hours may be credited toward a degree. Required of students earning departmental honors.

## 310 Contemporary Philosophers (3)

Prerequisite: Nine hours of philosophy, graduate standing, or consent of instructor. Examination of the work of an important twentieth-century philosopher or philosophical movement. The philosopher or movement to be studied will be announced prior to registration. This course may be repeated for credit on approval by the department.

## 315 Ethics in Criminology and Criminal Justice (3)

(Same as Criminology and Criminal Justice 315.) Prerequisites: CCJ 110, 120, 130, 210, 220, Philosophy 153, 154, 155, 230, 235, 238, or consent of instructor. Examination of major ethical issues encountered in criminology and criminal justice research and practice.

## 350 Special Readings (1-3)

Prerequisite: Written consent of instructor. Independent study through readings, reports, and conferences.

## 369 Topics in Political Philosophy (3)

Prerequisite: Nine hours of philosophy, graduate standing, or consent of instructor. Critical examination of philosophical theories of democracy, individual autonomy, political community, social justice, and other selected issues in political philosophy.

## 370 Topics in Philosophy of Language (3)

Prerequisite: Philosophy 270, graduate standing, or consent of instructor. Intensive examination of selected problems encountered in developing philosophical accounts of truth, reference, propositional attitudes, and related concepts.

## 374 Seminar in Aesthetics (3)

Prerequisite: Philosophy 274, graduate standing, or consent of instructor. Selected topics, such as vision and representation, musical aesthetics, and recent theorists (e.g., Goodman, Dickie, Danto, Margolis). This course may be repeated for credit on approval by the department.

# Philosophy

## **378 Seminar in Philosophy and Psychology (3)**

Prerequisite: Philosophy 278, graduate standing, or consent of instructor. An examination of selected topics at the interface of philosophical and psychological research. This course may be repeated for credit on approval by the department.

## **380 Seminar in Philosophy of Science (3)**

Prerequisite: Philosophy 280, graduate standing, or consent of instructor. Intensive study of selected problems in philosophy of science. This course may be repeated for credit on approval by the department.

## **382 Seminar in Philosophy of Social Science (3)**

Prerequisite: Philosophy 282, graduate standing, or consent of instructor. An intensive examination of selected topics such as the nature of explanation in social science and the postmodernism debate (e.g., Habermas, Foucault, Clifford). This course may be repeated for credit on approval by the department.

## **385 Seminar in Philosophical Theology (3)**

Prerequisite: Philosophy 185, nine hours of philosophy, or consent of instructor. An intensive study of problems arising out of traditional and contemporary philosophical theology.

## **387 Seminar in Philosophy of Law (3)**

Prerequisite: Philosophy 287, graduate standing, or consent of instructor. An intensive study of recent philosophical debate about such issues as the authority of law, legal equality and justice, legal responsibility, self-determination and privacy, and legal punishment.

## **485 Seminar in the Humanities (3)**

A study of selected topics using works of more than one discipline in the humanities.

# Physics and Astronomy

Prerequisites may be waived by consent of the department.

Courses in this section are grouped as follows: Astronomy; Atmospheric Science; Engineering; Geology; and Physics.

The following courses fulfill the Natural Sciences and Mathematics [SM] breadth of study requirements:

ASTRONOMY: 1, 11, 12, 22, 50, 51, 121, 301, 322.

ATMOSPHERIC SCIENCE: 1.

ENGINEERING: 10, 30, 124, 125, 126, 144, 145, 146, 147, 201, 202.

GEOLOGY: 1, 2, 53, 201, 290. PHYSICS: 1, 10, 11, 12, 50, 111, 112, 113, 170, 171, 172, 173, 200, 201, 202, 221, 223, 281, 282, 289, 301, 311, 312, 323, 325, 331, 335, 341, 343, 344, 351, 353, 354, 356, 365, 370, 381, 390.

## Astronomy

### 1 Cosmic Evolution/Introductory Astronomy (4)

Planets: A brief survey of their motions and properties. Stars: Observations, including stellar spectra and colors; stellar evolution, and star clusters. Galaxies: Structure and content of the Milky Way Galaxy, its relationship to other galaxies. Cosmology: The origin and evolution of the universe. Three lectures and two multimedia laboratories.

### 11 Planets and Life in the Universe (3)

Man's concept of the solar system from Stonehenge to Einstein; geology and meteorology of the planets of our solar system, with particular attention to results from the space program; exobiology—study of the possibilities of life on other worlds and the best method of communicating with it. Three lecture hours per week.

### 12 The Violent Universe and the New Astronomy (3)

Prerequisite: Astronomy 1 or consent of instructor. A nontechnical course focusing on recent results which larger telescopes and the space program have made available. Pulsars, x-ray stars, and black holes; radio astronomy, our galaxy, and interstellar molecules; exploding galaxies and quasars; origin of the expanding universe. Three lecture hours and one observing session per week.

### 22 Practical Astronomy (2)

Prerequisite: Astronomy 1, or Astronomy 11, or consent of instructor. Designed to acquaint students with observational astronomy: constellations, planets, stars, nebulae, and galaxies. Students will become familiar with operation of a telescope and its use in visual observation and photography. The basics of astronomical nomenclature and coordinates will also be emphasized. This course is primarily for nonscientists.

### 50 Introduction to Astronomy I (3)

Prerequisites: Mathematics 30 or Mathematics 40 and trigonometry. A survey of the history of astronomy from the ancient times to the present. The motions of the planets and stars, real and apparent, tools of the astronomer. A study of our solar system, concentrating on results of the space program.

### 51 Introduction to Astronomy II (3)

Prerequisites: Mathematics 30 or Mathematics 40 and trigonometry. A survey of astronomy and cosmology focusing on discoveries and phenomena outside of the solar system: stars, galaxies, quasars, etc.

### 121 The Search for Extraterrestrial Life (3)

Prerequisite: Astronomy 1, Astronomy 11, or consent of instructor. Are we alone? The possibility of life in the universe in addition to our own will be explored. Our discussion of the chances for extraterrestrial life will be built around the current theories of chemical, biological, and cultural evolution which have led to our own technological civilization on Earth. Strategies for communication with extraterrestrial intelligence will be discussed.

### 301 Astrophysics (3)

Prerequisite: Physics 231 or consent of instructor. A moderately technical introduction to astrophysics. Topics will include: physics of stellar interiors and atmospheres; interpretation of stellar spectra; stellar evolution; radio astronomy; and cosmology.

### 322 Observational Astronomy (4)

Prerequisites: Astronomy 50, Astronomy 51, and Mathematics 180 or consent of instructor. Tools of the astronomer: telescopes, spectroscopy, photoelectric photometry. Students will work on a number of projects which will enable them to develop expertise in obtaining, reducing, and analyzing astronomical observations. Student night observing will be an important part of the course. This course is primarily for persons who are astronomy or physics majors or who have some equivalent astronomical background.

## Atmospheric Science

### 1 Elementary Meteorology (4)

Prerequisite: High school physics or chemistry. An elementary survey of atmospheric phenomena intended to fulfill the science requirement. Topics included are temperature, pressure, and moisture distributions in the atmosphere and dynamical effects such as radiation, stability, storms, and general circulation. Applications to weather forecasting. Three hours of lecture and two hours of laboratory per week.

## Engineering

### 10 Introduction to Engineering (1)

Course consists of a series of lectures on engineering, fields of study within engineering, the engineering profession, types of work activities, and professional registration. Guest lecturers will participate.

# Physics and Astronomy

## 30 Engineering Graphics (3)

Prerequisite: Corequisite Mathematics 40 or equivalent. Lettering, drafting equipment, technique, and standards. Technical sketching, engineering curves, charts, and graphs. Multiview and pictorial drawing, space analysis of lines, planes, and solids. Basic dimensioning, sections, shop processes, and shop drawings and sketches. Engineering organization charts and flow diagrams. Design analysis and use of standard parts. Graphical mathematics, microfilming, computer drafting and reproduction processes. Creative design.

## 124 Circuits I (3)

Prerequisites: Corequisite Physics 112 and Mathematics 180. Circuit elements, signals, Kirchhoff's laws, network theorems, and mesh and nodal analysis. Transient and complete response of RL, RC, LRC circuits will also be studied.

## 125 Circuits II (3)

Prerequisites: Engineering 124, Physics 112; corequisite Mathematics 202. Analysis of steady state AC circuits, phasor notation, polyphase circuits, complex frequency and frequency response, magnetically coupled circuits, and two-part networks.

## 126 Digital Circuits (3)

Prerequisites: Engineering 124; corequisite Mathematics 202. Course consists of a study of circuits having application in digital equipment such as electronic calculators and computers. The engineering concepts of circuits for logical design, digital arithmetic, and digital systems are introduced.

## 144 Statics (3)

Prerequisites: Mathematics 175 and Physics 111. Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

## 145 Dynamics (3)

Prerequisite: Engineering 144. Basic fundamentals of particle and rigid-body dynamics; energy and momentum methods.

## 146 Strength of Materials (3)

Prerequisite: Engineering 144. Course consists of a study of force systems applied to elastic members. The concepts of stress, strain, and deflection of bodies in tension, shear, torsion, and bending are introduced.

## 147 Thermodynamics (3)

Prerequisite: Engineering 144. Course consists of a study of heat and energy, effects of heat energy on matter, and heat transfer including the laws of thermodynamics. The concepts of conduction, convection, and radiation for engineering systems are introduced.

## 201 Elementary Electronics (3)

(Same as Physics 201.) Prerequisite: Physics 112. Primarily a laboratory study of characteristics of standard circuit elements, amplifier circuits, power supplies, operational amplifiers, digital and switching circuits, servo systems, shielding and noise problems, transducers and oscilloscopes. Six hours of laboratory per week.

## 202 Elementary Electronics II (3)

(Same as Physics 202.) Prerequisite: Engineering 201. Continuation of Engineering 201. Six hours of laboratory per week.

# Geology

## 1 General Geology (4)

Earth materials and processes, including geological aspects of the resource/energy problem. Laboratory involves identification of common rocks and minerals.

## 2 Historical Geology (4)

Prerequisite: Geology 1. Study of changes in geography, climate and life through geological time; origin of continents, ocean basins, and mountains in light of continental drift. Laboratory primarily involves description and identification of fossils.

## 53 Oceanography (3)

The atmospheric and ocean circulations; the chemistry and geology of the deep sea; and their effects on the distribution of marine organisms.

## 201 Stratigraphy and Sedimentation (3)

Prerequisites: Geology 1 and Geology 2. Principles of stratigraphy, with an introduction to sedimentary processes. The major sedimentary sequences of North America will be examined, with origins interpreted from a plate tectonics perspective.

## 290 Research (1-3)

Prerequisite: Consent of instructor. Independent geology research projects arranged between student and instructor. Hours arranged.

# Physics

## 1 Foundations of Modern Physical Theory I (4)

Prerequisite: Mathematics 02 or equivalent. An introduction to some of the major ideas, principles, and basic laws directing the development of contemporary physics. The course work consists of two general lectures each week in which the material is introduced, one discussion session, and one two-hour multimedia laboratory.

## 10 Experimentation in Physics (2)

Prerequisite: Mathematics 30 and 35 (may be taken concurrently) or equivalent. A laboratory course designed to introduce the students to electrical circuits and elementary electronics. No prior knowledge of circuits or electronics will be assumed. Four hours of laboratory per week.

## 11 Basic Physics (4)

Prerequisite: Mathematics 30. A survey course specifically designed for students in health and life sciences covering such topics as classical mechanics, heat, sound, electricity, magnetism, light, and radiation. Will not fulfill the Physics 111 requirement for physics, chemistry, and engineering majors. Three hours of lecture and two hours of laboratory.

## 12 Basic Physics (4)

Prerequisite: Physics 11. Continuation of Physics 11.

# Physics and Astronomy

## 50 Introduction to Physics (4)

Prerequisite: Mathematics 30. A laboratory survey course which introduces students to the fields of mechanics, heat and thermodynamics, optics, electricity and magnetism, and modern physics at the pre-calculus level. A problem-solving course, recommended for science and engineering students who have no physics background or who desire additional preparation for Physics 111. Three hours of lecture and two hours of laboratory per week.

## 111 Physics: Mechanics and Heat (5)

Prerequisite: Mathematics 80 or Mathematics 101. Physics 1, or Chemistry 12, or equivalent is recommended. An introduction to the phenomena, concepts, and laws of mechanics and heat for physics majors and students in other departments. Three hours of lecture, one hour of discussion, and two hours of laboratory per week.

## 112 Physics: Electricity, Magnetism, and Optics (5)

Prerequisites: Physics 111, and Mathematics 101 or Mathematics 175. A phenomenological introduction to the concepts and laws of electricity and magnetism, electromagnetic waves, optics and electrical circuits for physics majors and students in other departments. Three hours of lecture, one hour of discussion, and two hours of laboratory per week.

## 113 Physics: The Structure of Matter (3)

Prerequisite: Physics 112. A phenomenological introduction to selected concepts and laws of physics as they are applied to the structure of matter. Elements of atomic, nuclear, and molecular physics will be discussed. Three hours of lecture plus one hour of discussion per week.

## 170 Physics of Music (3)

Prerequisite: Mathematics 02 or equivalent. Musical sound is the subject matter of this course: how it originates (musical instruments), how it is reproduced (stereo sound systems), how it is transmitted, and how it is perceived.

## 171 Applications of the Physics of Music (2)

Prerequisite: Mathematics 02 or equivalent. Demonstrations and experiments concerning the origination, the reproduction, the synthesis, the transmission, and the detection of musical sounds.

## 172 Light and Color (3)

Prerequisite: Mathematics 02. A study of the physical concepts as they relate to light, color, and visual phenomena. Models of light applied to reflection, refraction, diffraction, and interference. Optical devices such as the eye and the camera will be studied. Visual and color perception.

## 173 Applications of Light and Color (2)

Prerequisite: Mathematics 02. Demonstrations and experiments leading to a physical understanding of the behavior of light from source to detector, whether that of the eye or a camera. Phenomena such as reflection, refraction, diffraction, and interference will be demonstrated. Color analysis and synthesis.

## 200 Survey of Theoretical Physics (3)

Prerequisites: Physics 111 and Mathematics 180. Mathematical techniques specifically used in the study of mechanics, electricity, magnetism, and atomic physics are developed in the context of various physical problems. In particular, statics problems in electricity and magnetism are emphasized as applications of vector analysis, solutions of Laplace's equation, coordinate systems, and numerical techniques.

## 201 Elementary Electronics I (3)

(Same as Engineering 201.) Prerequisite: Physics 112. Primarily a laboratory study of characteristics of standard circuit elements, amplifier circuits, power supplies, operational amplifiers, digital and switching circuits, servo systems, shielding and noise problems, transducers, and oscilloscopes. Six hours of laboratory per week.

## 202 Elementary Electronics II (3)

(Same as Engineering 202.) Prerequisite: Physics 201. Continuation of Physics 201. Six hours of laboratory per week.

## 221 Mechanics (3)

Corequisites: Physics 200 and Mathematics 202. Advanced course covering rigid-body dynamics, damped and undamped oscillatory motion, with an introduction of Lagrange's equations and variational principles. Three hours of lecture and one hour of discussion per week.

## 223 Electricity and Magnetism (3)

Prerequisites: Physics 200 and Mathematics 202 (Mathematics 202 may be taken concurrently). Electromagnetic fields, including electrostatics, dielectric materials, solution to Laplace's equation, currents and magnetic fields, motion to charged particles, and introduction to electromagnetic waves. Three hours of lecture and one hour of discussion per week.

## 231 Introduction to Modern Physics I (3)

Prerequisite: Mathematics 202 (may be taken concurrently). Physics 111, Physics 112, and Physics 200 strongly recommended. Photons and the wave nature of particles; wave mechanics, Schrodinger equation, and applications to single systems; atomic physics and spectroscopy; molecular physics; nuclear models and reactions; the physics of solids; elementary particles; relativity. Three hours of lecture and one hour of discussion section per week.

## 232 Introduction to Modern Physics II (3)

Prerequisite: Physics 231. Continuation of Physics 231.

## 280 The Curriculum and Methods of Teaching Physical Sciences (3)

(Same as SEC ED 240.) Prerequisites: SEC ED 213 and a near-major in the subject matter. A study of the scope and sequence of the physical science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science. To be taken concurrently with student teaching.



# Physics and Astronomy

## 281 Directed Readings in Physics (1-10)

Prerequisite: Consent of instructor. A study of the literature of physics. A paper is required on an approved topic. Hours arranged.

## 282 History of Physics (3)

Prerequisite: Physics 1 or Astronomy 1. A study of the historical evolution of physics. Three hours of lecture per week.

## 283 Chemistry/Physics Teaching Intern Seminar (1)

(Same as Chemistry 283.) Prerequisite: Chemistry 280 or Physics 280. A seminar to accompany student teaching covering integration of physical science curricula and methods into the classroom setting. To be taken concurrently with Secondary Student Teaching, SEC ED 290.

## 289 Seminar (1)

Presentation of selected papers by students and faculty members at weekly meetings. May be taken twice for credit.

## 301 Introduction to Mathematical Physics (3)

Prerequisites: Sixteen hours of physics. A course covering mathematical techniques as applied to the equations of theoretical physics, calculus of variations, Green's functions; linear vector spaces, and integral equations. Three hours of lecture and one hour of discussion per week.

## 311 Advanced Physics Laboratory I (2)

Prerequisites: Physics 201, Physics 221, Physics 231, and Mathematics 122. Physics majors are introduced to the experimental techniques used in research. A student will choose and do several special problems during the semester. Six hours of laboratory per week.

## 312 Advanced Physics Laboratory II (2)

Prerequisites: Physics 201, Physics 221, Physics 231, and Mathematics 122. Continuation of Physics 311. Six hours of laboratory per week.

## 323 Modern Optics (3)

Prerequisite: Physics 223. A study of modern optics including diffraction theory, polarization, light propagation in solids, quantum optics, and coherence. Three hours of lecture and one discussion per week.

## 325 Linear Analysis of Physical Systems (3)

Prerequisites: Physics 201 and Mathematics 202. Signals and systems, Fourier and Laplace analysis, transform methods, amplitude phase and delay, transfer functions and filters. Three hours of lecture and one hour of discussion per week.

## 331 Introduction to Quantum Mechanics (3)

Prerequisites: Physics 200 and Physics 231. Photons and the wave nature of particles; wave mechanics, Schrodinger equation, and applications to single systems, atomic physics and spectroscopy; molecular physics, nuclear models and reactions, the physics of solids; elementary particles, relativity. Three hours of lecture and one discussion section per week.

## 333 Reflection Seismology (3)

Prerequisites: Physics 200 and Mathematics 202. An introduction to the theory and application of seismic reflection methods. The course will emphasize mathematical methods in elastic wave analysis.

## 335 Atomic and Nuclear Physics (3)

Prerequisite: Physics 331. Application of Schrodinger's equation to hydrogen-like atoms; atomic structure and spectra; nuclear masses, energy levels; alpha, beta, and gamma radiation, nuclear reactions, and models of the nucleus. Three hours of lecture and one hour of discussion per week.

## 341 Thermal and Statistical Physics (3)

Prerequisites: Mathematics 180 and Physics 231. Introduction to statistical mechanics, laws of thermodynamics, kinetic theory. Three hours of lecture and one hour of discussion per week.

## 343 Selected Topics in Physics I (3)

Prerequisites: Physics 221, 223, 225, 231, 341, and Mathematics 316 (Mathematics 316 may be taken concurrently). Topics include special phenomena such as scattering of waves, thermal motion in gases, atmospheric disturbances treated by methods of advanced mechanics, electromagnetism, and quantum mechanics. Three hours of lecture and one hour of discussion per week.

## 344 Selected Topics in Physics II (3)

Prerequisite: Physics 343. Continuation of Physics 343. Three hours of lecture and one hour of discussion per week.

## 350 Computational Physics (3)

Prerequisites: Mathematics 122, plus Physics 221, Physics 223, and Physics 231. Computer analysis in physics; solutions of eigenvalue problems; coupled differential equations; and writing of FORTRAN programs.

## 351 Elementary Solid State Physics (3)

Prerequisite: Physics 331. Theoretical and experimental aspects of solid state physics, including one-dimensional band theory of solids; electron emission from metals and semiconductors; electrical and thermal conductivity of solids. Three hours of lecture and one hour of discussion per week.

## 353 Physics of Fluids (3)

Prerequisites: Physics 221, Physics 223, and Physics 341, or consent of instructor. Topics from the theory of gases, liquids, or plasmas. Dynamical properties of one of these forms of matter will be developed with contemporary applications stressed.

## 354 Atmospheric Physics (3)

Prerequisite: Physics 341. Topics from dynamic and physical meteorology including the ionosphere. Application of thermodynamics, optics, radiation, and mechanics to atmospheric phenomena.

## 356 Quantum Optics (3)

Prerequisites: Physics 200 and Physics 231, and Mathematics 202. Review of atomic theory and spectroscopy. Selected applications to modern optical phenomena such as optical pumping, lasers, masers, Mossbauer effect, and holography.

# Physics and Astronomy

## 365 Introduction to Plasma Physics (3)

Prerequisites: Physics 223 and Physics 341. A study of the nonlinear collective interactions of ions, electrons, and neutral molecules with each other and with electric and magnetic fields. Topics include plasma confinement and stability, electrical discharges and ionization, kinetic theory of plasma transport, plasma waves and radiation, and controlled fusion. Solutions of the Boltzmann, Fokker-Planck, and Vlasov equations are discussed and methods of advanced electromagnetism and statistical physics are utilized. Three hours of lecture and one hour of discussion per week.

## 370 Relativity (3)

Prerequisites: Physics 221, Physics 223, and Physics 231. An introduction to Einstein's general theory of relativity. Topics will include special relativity in the formalism of Minkowski's four dimensional space-time, Principle of Equivalence, Riemannian geometry and tensor analysis, Einstein Field Equation and cosmology. Three hours of lecture and one hour of discussion per week.

## 381 Directed Readings in Physics (1-10)

Prerequisite: Consent of instructor. A study of special topics in physics for senior undergraduates or graduate students.

## 390 Research (1-10)

Prerequisite: Consent of department. Independent research projects arranged between student and instructor. Hours arranged.

## 395 Principles of Mathematical Physics (4)

Boundary value problems; Green's function techniques; and introduction to group theory with emphasis on representations of Lie Algebras.

## 400 Special Problems (1-5)

Prerequisites: Must have a faculty mentor and approval of the department chair. A study of special topics in physics for graduate students.

## 401 Special Topics (1-4)

Prerequisite: Consent of instructor. This course is designed to give the department an opportunity to test a new course.

## 404 Experimental Research Techniques (3)

Prerequisite: Graduate standing. Experiments in various fields of physics designed to stress techniques and experimental approach.

## 405 Theoretical Physics I (3)

Prerequisites: Physics 221 and Physics 223 or equivalent. Newton's laws applied to simple systems, central force problem, variational principles. Lagrangian and Hamiltonian formulations, electrostatics. Maxwell field operations, wave propagation.

## 406 Theoretical Physics II (3)

Prerequisites: Physics 231, Physics 341, or equivalent, and Physics 405. Schrodinger equation and wave mechanical treatment of simple systems: perturbation theory; identical particles and spin. Laws of thermodynamics, canonical systems; thermodynamic potentials and Maxwell equations, open systems, and chemical potential. Clausius-Clapeyron equation.

## 407 Modern Physics (3)

Prerequisite: Physics 331. A study of some of the more important concepts of modern physics.

## 409 Theoretical Mechanics I (3)

Prerequisite: Physics 221. Classical mechanics, methods of Newton, Lagrange, and Hamilton, applied to motion of particles and rigid bodies, elasticity, and hydrodynamics.

## 410 Seminar (variable hours)

Prerequisite: Approval of department chair. Discussion of current topics.

## 411 Electrodynamics I (3)

Prerequisite: Physics 223. A rigorous development of the fundamentals of electromagnetic fields and waves. Electrostatics, magnetostatics, Maxwell's equations, Green's functions, boundary value problems, multipoles, and conservation laws.

## 413 Statistical Mechanics (3)

Prerequisites: Physics 331 and Physics 341. A study of statistical ensembles; Maxwell-Boltzmann, Fermi-Dirac, and Einstein-Bose distribution laws, application to some simple physical systems.

## 415 Theoretical Mechanics II (3)

Prerequisite: Physics 409. Transformation theory of mechanics, Lagrange and Poisson brackets, Hamilton-Jacobi theory, introduction to the classical theory of fields.

## 417 Advanced Statistical Mechanics (3)

Prerequisite: Physics 413. A continuation of Physics 413. Further applications as to such topics as the imperfect gas, condensation and the critical region, magnetism, liquid state, and transport phenomena.

## 423 Electrodynamics II (3)

Prerequisite: Physics 411. A continuation of Physics 411. Applications of time-dependent Maxwell's equations to such topics as plasmas, wave guides, cavities, radiation: fields of simple systems and multipoles. Relativity: covariant formulation of Maxwell's equations and conservation laws, fields of uniformly moving and accelerated charges.

## 425 Plasma Physics (3)

Prerequisites: Physics 341 and Physics 411. Fundamentals of kinetic theory, fluid equations, MHD equations, and applications; wave propagation, shielding effect, diffusion stability, and charged particle trajectories.

## 435 Cloud Physics (3)

Prerequisites: Physics 223 and Physics 341. A study of cloud microphysics and dynamics, atmospheric condensation and freezing nuclei, phase, precipitation mechanisms, aerosol scavenging, role of electrification, current dynamical models, and review of diagnostic techniques.

## 455 Theoretical Nuclear Physics (3)

Prerequisite: Physics 461. A study of the basic properties of nuclei, nuclear scattering and forces, nuclear reactions, and models.

## 461 Quantum Mechanics I (3)

Prerequisite: Physics 331. A study of the Schrodinger wave equation, operators and matrices, perturbation theory, collision, and scattering problems.

## Physics and Astronomy

### 463 Quantum Mechanics II (3)

Prerequisite: Physics 461. Continuation of Physics 461 to include such topics as Pauli spin-operator theory, classification of atomic states, introduction to field quantization. Dirac electron theory.

### 465 Quantum Mechanics III (3)

Prerequisites: Physics 461 and Physics 463. Topics chosen from such fields as: relativistic quantum mechanics, potential scattering, formal collision theory, group theoretical methods in quantum mechanics, electrodynamics.

### 467 Quantum Statistical Mechanics (3)

Prerequisites: Physics 413 and Physics 463. Techniques for calculation of the partition function with examples drawn from interacting Fermi gas, interacting Bose gas, superconductors, and similar sources.

### 471 Atomic and Molecular Structure (3)

Prerequisite: Physics 461. Applications of quantum mechanics to the structure of atoms and molecules; perturbation and variational calculations, self-consistent fields, multiplets, angular momenta, Thomas-Fermi model, diatomic molecules, spectral intensities.

### 473 Atomic Collision Theory (3)

Prerequisite: Physics 471 or Physics 463. Basic quantum mechanical concepts involved in atomic scattering theory. Topics include: elastic and inelastic collisions of electrons and ions with neutral atoms and molecules; collisions between heavy particles; curve crossing; photo-processes; and Coulomb wave functions.

### 475 Molecular Spectroscopy (3)

Prerequisite: Physics 461. Introduction to classical and quantum treatment of the vibrational and rotational structure and spectra of diatomic, linear triatomic, and simple polyatomic molecules: vibrational-rotational interactions, point group symmetry in simple infrared spectra analysis, calculations of vibrational frequencies, and normal coordinates of polyatomic atoms.

### 481 Physics of the Solid State (3)

Prerequisite: Physics 461. Crystal symmetry, point and space groups, lattice vibrations, phonons, one-electron model, Hartree-Fock approximation, elementary energy band theory, transport properties, the Boltzmann equation, introduction to superconductivity, semiconductors, and magnetism.

### 483 Selected Topics of the Solid State (3)

Prerequisite: Physics 481. Introduction to many-body perturbation theory, the use of Feynman diagrams. Green's functions, treatment of the electron-electron, phonon-phonon, and electron-phonon interactions, theory of magnetism, and theory of superconductivity.

### 485 Advanced Quantum Mechanics (3)

Prerequisite: Physics 465. Selected topics such as many-body problems field theory, S matrix theory and symmetries.

### 490 Research (variable hours)

Prerequisites: Must have a faculty mentor and approval of the department chair. Investigations of an advanced nature leading to the preparation of a thesis or dissertation.

### 493 Oral Examination

After completion of all other program requirements, oral examinations for on campus students may be processed during the first two weeks of an academic session or at any appropriate time for off-campus students upon enrollment in Physics 493 and payment of an oral examination fee. All other students must enroll for credit commensurate with uses made of facilities and/or faculties. In no case shall this be for less than three semester hours for resident students.

### 495 Continuous Registration

Doctoral candidates who have completed all requirements for the degree except the dissertation, and are away from the campus, must continue to enroll for at least one hour of credit each registration period until the degree is completed. Failure to do so may invalidate the candidacy. Billing will be automatic as will registration upon payment.

## Political Science

Courses in this section are grouped as follows: Ungrouped Courses; Public Law; American Politics; Public Policy and Administration; Comparative Politics; Theory and Methodology; International Relations; and Graduate Courses.

The following courses fulfill the Social Sciences [SS] breadth of study requirements: UNGROUPED COURSES: 11, 12, 60, 90, 99, 190, 295, 296, 390, 395. PUBLIC LAW: 20, 129, 225, 227, 228, 320, 321, 327, 329. AMERICAN POLITICS: 130, 135, 230, 231, 232, 233, 234, 235, 318, 331, 332, 333. PUBLIC POLICY AND ADMINISTRATION: 140, 240, 241, 242, 245, 246, 247, 308, 340, 342, 343, 344, 346, 349. COMPARATIVE POLITICS: 155, 251, 252, 253, 254, 256, 351, 359. THEORY AND METHODOLOGY: 101, 102, 160, 165, 205, 261, 262, 265, 269\*, 304, 368. INTERNATIONAL RELATIONS: 80, 180, 280, 282, 284, 285, 288, 289, 381, 385, 386, 388.

\*Course may fulfill the Humanities [H] or Social Sciences [SS] breadth of study requirement.

### Ungrouped Courses

#### 11 Introduction to American Politics (3)

Introduction to basic concepts of government and politics with special reference to the United States, but including comparative material from other systems. Course fulfills the state requirement.

#### 12 Introduction to Comparative Politics (3)

An introduction to basic political structures and processes with an emphasis on foreign political systems and comparative political analysis. The course will deal with democratic and nondemocratic political systems in developed and underdeveloped nations.

#### 60 Civilization and Politics (3)

An examination of the role of politics in human life, of the ways in which individuals have organized themselves, and the goals they have pursued in a variety of historical circumstances.

#### 90 Freshman Seminar (3)

Prerequisites: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students.

#### 99 The City (3)

(Same as Ciminology and Criminal Justice 99, Sociology 99, and Interdisciplinary 99.) An interdisciplinary course. Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission.

#### 190 Studies in Political Science (3)

Selected topics in political science.

#### 295 Public Affairs Internship (1-6)

Prerequisites: Junior standing and consent of instructor. Independent study involving work with an appropriate public or private agency. A maximum of six credit hours may be earned. No more than nine credits may be earned from the combination of Political Science 295 and Political Science 296.

#### 296 State Legislative Internship (1-6)

Prerequisites: Junior standing and consent of instructor. Intensive internship with the Missouri State Legislature. Each student will receive an assignment working directly with a member of the legislature. A regular seminar will also be conducted for students enrolled in this course. No more than nine credits can be earned from the combination of Political Science 295 and Political Science 296.

#### 390 Special Readings (1-10)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. May be repeated.

#### 395 Senior Seminar in Political Science (3)

Prerequisites: Senior standing and consent of instructor. This course will deal with basic questions and themes central to the discipline of political science. Students will consider such concerns as: the nature of power in society, the relationship between authority and legitimacy, the meaning of citizenship, and the definition of justice. A course project will consist of a critique of selected literature. Required for all political science majors in their last year of course work.

### Group I: Public Law

#### 20 Foundations of Law: An Introduction to Legal Studies (3)

As a broad liberal arts approach to the study of law, this course is designed to familiarize students with legal ideas, legal reasoning, and legal processes. It also provides comparative and historical perspectives on law that will help explain legal diversity and legal change. Finally, it offers opportunities to explore some of the persistent issues in law and legal theory: for example, issues about the sources of law, the responsibilities of the legal profession, or the relative merits of the adversary system.

#### 129 Women and the Law (3)

Legal position of women in the United States, emphasizing constitutional law, criminal law, domestic relations, and fair employment practice laws.

#### 225 Jurisprudence (3)

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Development of law and legal systems; comparison of methods and procedure in making and enforcing law in Roman and common law systems; consideration of fundamental legal concepts; contributions and influence of schools of legal thought in relation to law and government.

#### 227 Urban Law: Poverty and the Justice System (3)

Prerequisite: Political Science 11, or Administration of Justice 70, or equivalent, or consent of instructor. Examination of administrative regulations and the civil law process as it affects the life of urban residents.

## Political Science

### **228 The Federal Judicial System: Politics, Process, and Behavior (3)**

Prerequisite: Political Science 11, or Political Science 20, or consent of instructor. The study of the federal courts as a political system. Analysis of organization, procedures, and norms of the Supreme Court and lower federal courts. Consideration of judicial recruitment, attitudes, and decision making as well as the impacts and limitations of judicial policy making.

### **320 Constitutional Law (3)**

Prerequisite: Political Science 11, or Political Science 20, or consent of instructor. Study of leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court. Course fulfills the state requirement.

### **321 Civil Liberties (3)**

Prerequisite: Political Science 11, or Political Science 20, or Political Science 320, or consent of instructor. Civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, loyalty, and rights of defendants. Course fulfills the state requirement.

### **327 Urban Judicial Systems (3)**

Prerequisite: Political Science 11 or consent of instructor. The study of the nature and function of local judicial systems. Consideration of key participants (legislators, prosecutors, defense counsel, judges) and processes (bail procedures, prosecutorial decision-making, adjudication, and sentencing behavior).

### **329 Studies in Public Law (3)**

Prerequisite: Political Science 11, or Political Science 20, or consent of instructor. Selected topics in public law. May be repeated.

## Group II: American Politics

### **130 State Politics (3)**

Prerequisite: Political Science 11 or consent of instructor. An examination of contemporary state politics in the United States; social, economic, and political determinants of policies; federal-state-local relations; elections, interest groups, and participation; executive, legislative, and judicial institutions and policies, and their impact. Course fulfills the state requirement.

### **135 Introduction to Urban Politics (3)**

Prerequisite: Political Science 11 or consent of instructor. Examination of structure and process of politics in the urban community, with emphasis on their relationships to community power structures. Course fulfills the state requirement.

### **230 The American Presidency (3)**

Prerequisite: Political Science 11 or consent of instructor. Study of the constitutional, political, legislative, and administrative roles played by the American chief executive in the development of public policy. Course fulfills the state requirement.

### **231 Congressional Politics (3)**

Prerequisite: Political Science 11 or consent of instructor. An examination of the Congress of the United States, its history and evolution, its contemporary politics, and its role in the national policy-making process. Topics include candidate recruitment, campaigns and elections, representation, committees, legislative leadership, roles and norms, voting alignments, lobbyists and interest groups, oversight of administration, and House-Senate comparisons. The role of Congress in foreign policy, economic policy, and social-welfare policy will be examined. Course satisfies the state requirement.

### **232 African Americans and the Political System (3)**

Prerequisite: Political Science 11 or consent of instructor. Examination of the status of blacks in the context of the

American political system. The course will focus on a number of issues, including: attitudes of various publics toward racial concerns; nature of problems in specific policy areas (e.g., unemployment, school desegregation, housing, poverty); representation of blacks in governmental institutions and the private sector; and the role of black political leadership and civil rights groups in the political process. Course fulfills the state requirement.

### **233 Introduction to Political Behavior (3)**

Prerequisite: Political Science 11 or consent of instructor. An introduction to political behavior employing perspectives from both political psychology and political sociology. Subjects include political socialization, the character of public opinion, citizen participation, group dynamics, the social determination of reality, and the underlying bases of leadership and authority. Course fulfills the state requirement.

### **234 Politics and the Media (3)**

Prerequisite: Political Science 11 or consent of instructor. An analysis of the role the media play in shaping American political life. The first part of the course examines the organizational structures, the economic and psychic incentives, and the social and professional norms that define how television and newspapers report news about public affairs. The second part then considers the nature of a mass-communications society by looking at how reality is defined, the susceptibility of mass publics to persuasion and propaganda, the peculiar form of media election campaigns, and the manner in which the media link changes the basic character of a citizenry.

### **235 Political Parties and Elections (3)**

Prerequisite: Political Science 11 or consent of instructor. An examination of the part played by parties and elections in American politics. Topics include the historical development of the party system, the organization and management of political parties and campaigns, contemporary changes in the nature of electoral politics, and the effects of elections on public policy. Course fulfills the state requirement.



## Political Science

### 318 Social Choice in Political-Economic Systems (3)

Prerequisites: Two courses in Economics, Political Science, or Sociology. A study of the mechanisms of social choice from the standpoint of individuals and institutions maximizing their objectives. This area draws on work done by sociologists, political scientists, and economists.

### 331 Legislative Processes (3)

Prerequisite: Political Science 11 or consent of instructor; Political Science 102 is strongly recommended. Congressional elections, constituent relations, policy making and leadership; relations between Congress and administrative and executive agencies, the committee system, seniority, and procedure. Congress as an element in the party system. Course fulfills the state requirement.

### 332 Studies in American Politics (3)

Prerequisite: Political Science 11 or consent of instructor. Selected topics in American politics. May be repeated.

### 333 Mock Constitutional Convention (3)

Prerequisite: Political Science 11 or consent of instructor. An active exercise in political imagination. Students make proposals and bargain with each other to write a constitution for the United States in the 21st century. Students are encouraged to develop new views of what is a desirable society and to gain a richer appreciation of how practical politics are conducted. The course is designed for majors and nonmajors who enjoy political discussion and have a genuine interest in political life. Course fulfills the state requirement.

## Group III: Public Policy and Administration

### 140 Public Administration (3)

Prerequisite: Political Science 11 or consent of instructor. Survey of public administration, with reference to organization, financial administration, personnel management, and judicial control of the administrative process. Course fulfills the state requirement.

### 240 Bureaucratic Politics (3)

Prerequisite: Political Science 11 or consent of instructor. Examination of the policy-making process within public organizations and the forces influencing the making of bureaucratic policy. Study of the role of the bureaucracy as one of several "actors" in the larger policy process. Course fulfills the state requirement.

### 241 Politics of Business Regulation (3)

Prerequisite: Political Science 11 or consent of instructor. This course will examine the role of governmental decision-making processes in regulatory policy, including congressional politics, presidential initiatives, administrative rulemaking, and societywide constraints. The impact of government regulation and alternative means for accomplishing regulatory goals (e.g., mandatory standards or incentive systems) will also be considered. Bureaucratic incentives and the role of the courts will be emphasized. Selected areas of regulation which may be covered include: equal employment policies, occupational health and safety policies, environmental policies, employment policies, and urban policies.

### 242 Introduction to Public Policy (3)

Prerequisite: Political Science 11 or consent of instructor. Study of differing approaches to understanding the public policy process. Course surveys the application of social science to public issues and problems.

### 245 Urban Administration (3)

Prerequisite: Political Science 11 or consent of instructor. Study of administrative machinery and practices of metropolitan government, how metropolitan areas organize themselves to provide services, how urban policies are made and implemented, how budgeting and personnel recruitment processes operate, and how these relate to urban policies. Course fulfills the state requirement.

### 246 The Politics of Poverty and Welfare (3)

Prerequisite: Political Science 11 or consent of instructor. An examination of the structure of income inequality in the U.S. and public policies designed to redistribute wealth and to treat poverty. The history of welfare programs, the growth of the welfare state, and attempts to cut social spending are closely examined.

### 247 Women, Power, and Public Policy (3)

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. This course explores differences in the political roles assigned to women in both advanced industrial and underdeveloped states as a function of economic development and cultural factors. It focuses on the differences between policies made for women and policies made by women, assesses the importance of "empowerment" in redefining women's social-political rights, and compares the nature of "gender gaps" that exist in Europe and the U.S.

### 308 Program Evaluation (3)

Prerequisites: Political Science 11, or Political Science 140, and one of the following: Political Science 102, Business Administration 131, Sociology 220, Criminology and Criminal Justice 220, or consent of instructor. Study of techniques and applications for evaluating the impact of public programs.

### 340 Organizational Politics (3)

Prerequisite: Political Science 11, or Political Science 140, or consent of instructor. Examination of public sector organizations and the range of factors affecting their operation. Specific areas of attention will include theories of organization structure and management, decision theory, organizational/environment interactions, interorganizational relations, and theories of organizational change and development.

## Political Science

### 342 Public Personnel Management (3)

Prerequisite: Political Science 11, or Political Science 140, or consent of instructor. A study of personnel practices in the public sector, including recruitment, job development, labor relations, and administration of equal employment/affirmative action programs.

### 343 Studies in Policy Formation (3)

Prerequisite: Consent of instructor. Selected topics in policy formation. May be repeated.

### 344 Public Budgeting (3)

Prerequisite: Political Science 11 or consent of instructor. Examination of the techniques used in the public sector for preparing and administering financial controls.

### 346 Urban Planning and Politics (3)

Prerequisite: Political Science 11, or Political Science 140, or consent of instructor. Examination of the political processes of urban areas as they relate to the planning of services and facilities. Course fulfills the state requirement.

### 349 Studies in Public Administration (3)

Prerequisite: Political Science 11, or Political Science 140, or consent of instructor. Selected topics in public administration. May be repeated.

## Group IV: Comparative Politics

### 155 Asian Comparative Politics (3)

Study of the political systems of Asia including China, Japan, India, and Southeast Asia. Course fulfills the non-Euro-American requirement.

### 251 Comparative Politics of Europe (3)

Prerequisite: Political Science 12 or consent of instructor. Introduction to the major political systems of Europe. The course will emphasize political culture, political parties, interest groups, and political behavior. It will also focus on political institutions and policy making. While individual countries will be examined separately, the course will also emphasize comparison between systems.

### 252 The Politics of Modernization (3)

Prerequisite: Political Science 12 or consent of instructor. Analysis of the dimensions and problems of modernization and the role of political systems, with primary emphasis on African nations. Course fulfills the non-Euro-American requirement.

### 253 Political Systems of South America (3)

Prerequisite: Political Science 12 or consent of instructor. The political systems, international problems, and socio-economic-cultural environments of the governmental processes of South America. Course fulfills the non-Euro-American requirement.

### 254 Political Systems of Mexico, Central America, and the Caribbean (3)

Prerequisite: Political Science 12 or consent of instructor. The political systems, international problems, and socio-economic-cultural environments of the governmental processes in Mexico, Central America, and the Caribbean. Course fulfills the non-Euro-American requirement.

### 256 The Soviet Political System (3)

Prerequisite: Political Science 12 or consent of instructor. Examination of government and politics in the Soviet Union dealing with such themes as the role of the party; recruitment and socialization of elites; the role of ideology and interest groups; the formulation of policy; and bureaucratization of social, economic, and cultural life.

### 351 Comparative Public Policy and Administration (3)

Prerequisite: Political Science 12 or consent of instructor. A comparative study of the characteristics of public administrators, their institutions and environments in Western democratic, developing nations, and communist political systems.

### 359 Studies in Comparative Politics (3)

Prerequisite: Political Science 12 or consent of instructor. Selected topics in comparative politics. May be repeated.

## Group V: Theory and Methodology

### 101 Theory and Policy (3)

A critical examination of the use of social science theory in public policy-making. A current issue (such as housing, national defense, environmental protection, or income security) will be used to demonstrate the requirements for adequate theory.

### 102 Research Methods in Political Science (3)

Prerequisite: Political Science 11 or Political Science 12. Methods of testing causal statements about politics, including research design and data measurement, collection, and analysis.

### 160 Contemporary Political Ideologies (3)

An introduction to the major political ideologies of the world today. Emphasis on communism, democracy, and nationalism.

### 165 American Political Thought (3)

History of political thought in the United States from colonial times to the present.

### 205 Introduction to Models in the Social Sciences (3)

(Same as Anthropology 205, Sociology 205, and Interdisciplinary 205.) Prerequisite: Sociology 10, or Anthropology 11, or Political Science 11, or consent of instructor. The course will focus on explaining social and cultural behavior. Elementary models of decision making, exchange, and adaptation will be covered. Computer processing of data to test empirical hypotheses will be introduced.

### 261 Ancient and Medieval Political Thought (3)

Study of political thought from Plato to Machiavelli.

### 262 Modern Political Thought (3)

Study of political thought from Machiavelli to the present.

### 265 Recent Political Thought (3)

Study of current questions in political thought.

## Political Science

### **269 The Marxist Heritage (3)**

(Same as Philosophy 269 and Interdisciplinary 269.) Study of Marx and leading Marxists. Designed to evaluate their influence on recent political, economic, and social thought and institutions.

### **304 Survey Research Practicum (3)**

(Same as Economics 304 and Sociology 304.) Prerequisites: Junior standing and consent of the instructor. The execution of a sample survey, including establishing study objectives, sampling, questionnaire construction, interviewing, coding, data analysis, and presentation of results.

### **368 Studies in Political Theory (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Selected topics in political theory. May be repeated.

## Group VI: International Relations

### **80 Global Issues (3)**

A freshman- and sophomore-level course designed to introduce students to a range of global concerns, including population, hunger, trade, energy, and the environment. The worldwide implications of these and other problems will be considered, as well as their effects on local communities such as St. Louis.

### **180 World Politics (3)**

Analysis of politics among nations, including such topics as: nationalism, power, imperialism and colonialism, revolution and war, arms control and disarmament, and peace and the regulation of conflict.

### **280 Model United Nations (3)**

Prerequisite: Consent of instructor. Students in this course will be members of the UM-St. Louis delegation to the Midwest Model United Nations, a "mock UN" roleplaying experience involving various universities representing UN member countries. Students are expected to develop knowledge about the UN and do research on a selected country and issue area (for example, terrorism or economic development).

### **282 United States Foreign Policy (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Examination of the factors influencing the formation and the execution of United States foreign policy and of specific contemporary foreign policies and problems.

### **284 European International Relations (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. European international relations since World War II. Emphasis upon developments from the Cold War to Detente, emphasizing such concepts as containment, Truman Doctrine, Marshall Plan, NATO, WTO, community building, force structures, and security.

### **285 International Institutions and Global Problem Solving (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Introduction to the study of international organization. The course focuses on relationships between nation-states and "nonstate" actors (global intergovernmental organizations such as the United Nations, regional organizations such as the European Economic Community, and nongovernmental organizations such as multinational corporations) in world politics and on the role of international institutions in such problem areas as economic development and stability, management of resources, and control of violence across national boundaries.

### **288 African Politics (3)**

Prerequisite: Political Science 11 or consent of instructor. An introduction to the nature of societies, governments, and international relations in Africa. The course deals with forms of governance on the continent, regional groupings of states, and persistent conflicts within and among states. Problems of economic underdevelopment, food supplies, health and population trends, and cultural change are analyzed, along with the role of outside major power intervention. Fulfills the non-Euro-American requirement.

### **289 Middle Eastern Politics (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Survey of political movements, governments, and international conflicts in the Middle East. Islam, nationalism, ideologies, and economic systems will be studied. The effects of oil and the military will also be considered. Course fulfills the non-Euro-American requirement.

### **381 Comparative Foreign Policy (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Comparisons among the foreign policies and decision-making processes of governments in various parts of the world, including the Western and Eastern blocs, and the Third World. Major issues of concern to these countries and the perspectives from which their leaders view these issues will be reviewed.

### **385 International Law (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Study of the international legal system, including the content and operation of the laws of war and peace, how law is created and enforced with regard to the oceans and other parts of the globe, and the relationship between international law and international politics.

### **386 Studies in War and Peace (3)**

Prerequisites: Junior standing and Political Science 11, or Political Science 12, or consent of instructor. Exploration, development, and testing of theories about the causes and consequences of war, peace, and conflict among nations. A broad range of literature on war and peace will be reviewed and applied to crisis situations in the international system.

### **388 Studies in International Relations (3)**

Prerequisite: Political Science 11, or Political Science 12, or consent of instructor. Selected topics in international relations. May be repeated.

# Political Science

## Graduate Courses

### 400 Analytic Perspectives in Political Science (3)

An introduction to the graduate study of political science. The course presents a number of analytic approaches to the scientific examination of a wide variety of political phenomena.

### 401 Introduction to Policy Research (3)

(Same as Public Policy Administration 401.) Procedures for testing explanations, including research design, principles of measurement, probability sampling, methods of data collection, and techniques for analyzing data.

### 402 Intermediate Techniques in Policy Research (3)

Prerequisites: Graduate standing and Political Science 401. Elementary distribution theory, statistical inference, and an introduction to multiple regression. Emphasis on practical applications.

### 403 Advanced Techniques in Policy Research (3)

Prerequisites: Graduate standing and Political Science 402. Selected topics in policy research emphasizing forecasting, modeling, and estimation.

### 405 Directed Readings in Research Methods (1-10)

Independent study through readings, reports, research projects, and conferences.

### 410 Introduction to Policy Analysis (3)

(Same as Public Policy Administration 410.) Systematic development of a critical/analytic base for dealing with public policy.

### 411 Seminar in Policy Analysis (3)

Prerequisite: Political Science 410. Evaluation and criticism of contemporary public policies in selected areas.

### 414 Topics in Public Policy Analysis (3)

Intensive analysis of a specific public policy area such as housing, budgeting, integration, planning, metropolitan reorganization. Course may be repeated.

### 419 Cases in Public Policy Analysis (3)

(Same as Public Policy Administration 419.) Intensive analysis of several public policy cases. Cases will be problem-solving exercises in areas such as personnel management, program financing, budget preparation, and planning.

### 420 Proseminar in Public Law (3)

Prerequisite: Graduate standing. Study of judicial systems and processes (judges, courts, litigants, and juries) and evaluation of legal policies (compliance, impact, and deterrence).

### 421 Seminar in Public Law (3)

Research problems and designs, models and approaches to the study of public law. May be repeated for credit when the subject matter is different.

### 422 Law, Courts, and Public Policy (3)

Prerequisite: Graduate standing. Analysis of public policies, as represented by laws, court decisions, and agency adjudication, judicial review, discrimination, affirmative action, urban planning, social welfare, intergovernmental relations, environmental law, freedom of information, and privacy concerns will be surveyed. The relationship between courts and the Constitution, courts and legislatures, and courts and the administrative process will be stressed.

### 425 Directed Readings and Research in Public Law (1-10)

Independent study through readings, reports, research projects, and conferences.

### 430 Proseminar in American Politics (3)

Study of individual and group political behavior, including socialization, participation, consensus formation, representation, and legislative and judicial behavior.

### 431 Seminar in American Politics (3)

Research problems and design in American political process and behavior. May be repeated for credit when the subject matter is different.

### 432 Intergovernmental Relations (3)

Prerequisite: Graduate standing. In the United States, nearly all domestic policy is implemented through an extremely complex intergovernmental system in which the federal government administers grants-in-aid or sets standards for states and localities that administer programs. This course will analyze this policy system by: (1) tracing the origins and evolution of American federalism; (2) analyzing the grants-in-aid system, especially the New Deal; (3) comparing the United States system with federal and unitary policy systems in other industrialized nations.

### 435 Directed Readings and Research in American Politics (1-10)

Independent study through readings, reports, research projects, and conferences.

### 440 Proseminar in Public Administration (3)

(Same as Public Policy Administration 440.) Examination of major approaches to analyzing public policies and their administration. Emphasis is on the effects of administrative organization and procedures on policy decisions and their impacts. Specific topics may include administrative accountability, intergovernmental relations, public-private interaction, implementation processes, bureaucratic expertise, the legal environment of public policy administration, and public service and merit issues.

### 441 Seminar in Public Administration (3)

Research problems and design in public administration. May be repeated for credit when the subject matter is different.

### 442 The Policy Process (3)

Prerequisite: Graduate standing. The course will require a major research project using federal documents and other primary sources of information about the United States policy process. Topics will include the sources of public policy; the policy agenda; policy design, legitimation, and implementation.



## Political Science

### **443 Health Care Policy (3)**

(Same as Public Policy Administration 443.) Prerequisite: Consent of instructor. Survey course examining current issues in health policy that face the nation. Policies are placed in a historical context to show how issues have been influenced by different political and economic conditions. Secondary consequences and limitations of current trends in health policy are explored.

### **444 Public Policy and Aging (2-3)**

(Same as Public Policy Administration 444 and Gerontology 444.) Prerequisite: Consent of instructor. Examination of federal, state, and local policies that affect the elderly. The interrelationships between age-specific and more general social policies are explored within a historical context. Pluralist, organizational, and structural approaches to aging policies are examined.

### **445 Directed Readings and Research in Public Administration (1-10)**

Independent study through readings, reports, research projects, and conferences.

### **446 Selected Topics in Health Care Policy (3)**

(Same as Public Policy Administration 446 and Sociology 446.) Prerequisite: Consent of instructor. The study of specialized issues and methods relating to health care policy. May be repeated for credit, provided the subject matter is different.

### **448 Political Economy and Public Policy (3)**

Prerequisite: Graduate standing. This course examines political economy in its contemporary manifestations as public choice and as the study of the ways in which institutional power shapes economic policies and performance. The course explores the origins and major concepts of political economy, the institutions of economic policy-making and economic policies in the U.S. It emphasizes the consequences of budget constraints, inflation, unemployment, and sectoral decline on the design and administration of public programs at all levels of government.

### **449 Human Resources in the Public Sector (3)**

(Same as Public Policy Administration 449.) Prerequisite: Public Policy Administration 460 or consent of instructor. This course presents an overview of personnel and labor relations in the public sector. The course has particular emphasis on issues which are unique to the public sector, such as the merit system, the questions of representative bureaucracy and the constraints of personnel in the nonprofit sector. The topics include personnel reforms in the federal sector, equal employment and affirmative action policies, testing, selection, hiring, comparable worth, job evaluation, and labor relations including grievance arbitration and collective bargaining.

### **450 Proseminar in Comparative Politics (3)**

Classification and typology of political systems; structural-functional analysis; political culture, ideology, affiliation and participation; decision-making processes; political roles; organization of authority.

### **451 Seminar in Comparative Politics (3)**

Research problems and design in comparative politics. May be repeated for credit when the subject matter is different.

### **455 Directed Readings and Research in Comparative Politics (1-10)**

Independent study through readings, reports, research projects, and conferences.

### **460 Proseminar in Political Theory (3)**

Study of concepts and problems in normative political theory.

### **461 Seminar in Political Theory (3)**

Research problems and design in political theory. May be repeated for credit when the subject matter is different.

### **462 Political Theory and Public Policy (3)**

This course covers the ideological and ethical context of public policy and public policy analysis. Special attention is given to the way in which different contexts produce both different public policy and different ways of understanding public policy. Questions addressed include accountability, professionalism, freedom, justice, equality, and, in general, ethical issues faced by both the policy maker and the policy analyst.

### **465 Directed Readings and Research in Political Theory (1-10)**

Independent study through readings, reports, research projects, and conferences.

### **470 Proseminar in Urban Politics (3)**

Examination of the relationships among the social, economic, and political systems of urban areas. Urban political structure, patterns of influence, political participation, and communication and political change. Special attention to problems of access to and control of urban political systems.

### **471 Seminar in Urban Politics (3)**

Research problems and design in urban and regional politics. May be repeated for credit when the subject matter is different.

### **475 Directed Readings and Research in Urban Politics (1-10)**

Independent study through readings, reports, and conferences.

### **480 Proseminar in International Relations (3)**

Examination of various approaches to the study of international politics and foreign policy, focusing on studies of conflict, decision making, international political economy, and related topics. Included are realist, idealist, and Marxist perspectives.

### **481 Seminar in International Relations (3)**

Research problems and design in international politics. May be repeated for credit when the subject matter is different.



## Political Science

### **483 Defense and Security Policy Analysis (3)**

Prerequisite: Graduate standing or permission of instructor. Students will analyze decision-making and policy consequences in defense and security affairs. Among the topics to be considered are threat perception and concepts of national security, arms procurement and trade, force utilization, arms control strategies, and the political economy of defense. Examples from a variety of regions and political systems will be utilized.

### **485 Directed Readings and Research in International Relations (1-10)**

Independent study through readings, reports, research projects, and conferences.

### **488 Studies in International Relations (1-6)**

Prerequisite: Graduate standing or permission of instructor. Selected topics in international studies. May be repeated for credit provided the topic of the course is different each time.

### **494 Thesis Research (1-10)**

Arranged.

### **495 Internship (1-6)**

(Same as Public Policy Administration 495.) Independent study involving work with an appropriate public or private agency.

# Psychology

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 3, 150, 160, 161, 162, 200, 201, 211, 212, 213, 215, 216, 219, 220, 222, 225, 230, 232, 235, 240, 245, 256, 268, 269, 270, 271, 272, 280, 295, 301, 305, 306, 310, 311, 314, 320, 340, 346, 349, 354, 355, 356, 357, 360, 361, 365, 370, 390.

The following course fulfills the Natural Science and Mathematics [SM] breadth of study requirements: 140.

## **09 Seminar in Career Choice and Life Planning (1)**

This course covers the major theories regarding career selection and provides information and skill training necessary for making career decisions. NO CREDIT TOWARD ANY DEGREE.

## **3 General Psychology (3)**

A broad introductory survey of the general principles of human behavior.

## **140 Female Sexuality (3)**

(Same as Biology 140.) Prerequisites: Psychology 3; Biology 1, or Biology 11 or 12. This course will present a biological-psychological orientation toward the study of female sexuality. Topics include: sexual anatomy, hormonal influences on sexual behavior, psychosexual development, sexual attraction and relationships, sexual response and dysfunction, menstruation, pregnancy, menopause, reproductive health issues, and social issues in sexuality.

## **150 The Psychology of Individual Differences (3)**

Prerequisite: Psychology 3. Analysis of major dimensions of individual differences in behavior and the roles of genetic, constitutional, and experiential factors in the development of psychological differences. While emphasis is placed on human behavior, relevant information from infrahuman species will be considered.

## **160 Social Psychology (3)**

(Same as Sociology 160.) Prerequisite: Psychology 3 or Sociology 10. Study of interaction between individuals and their social environment. Examination of basic principles, concepts, and methods.

## **161 Helping Relationships (3)**

Prerequisites: Psychology 3 and consent of instructor. Exploration of the basic elements contributing to effective helping skills. Course assignments include keeping a journal, writing papers, and a final exam. Readings, discussion, and guided experiences will be used to instill active listening and communication skills. Ethics of helping relationships will be emphasized.

## **162 Applied Skills (3)**

Prerequisites: Psychology 161 and consent of instructor. Builds upon Psychology 161. Provides advanced readings and supervised experiences in helping relationships. Course assignments include readings, discussion, preparation of tapes for supervision, and a term paper. Designed for students interested in learning more about the psychological functioning of themselves and others. The course is also focused on increasing awareness of the dynamics of helping relationships.

## **200 Drugs and Behavior (3)**

Prerequisites: Psychology 3 and three other hours in psychology or biology. The course is designed to provide an introduction to the relationship between drugs and behavior. The emphasis will be on psychoactive drugs, alcohol, nicotine, as well as drug-like substances produced naturally in the body.

## **201 Psychological Statistics (4)**

Prerequisites: Psychology 3 and Mathematics 30, or equivalents. (With laboratory.) Statistical methods in psychological measurement and analysis of psychological data. Frequency distribution analysis, sampling, test of significance, and correlation methods.

## **211 Physiological Psychology (3)**

Prerequisites: Psychology 3 or equivalent and Biology 1. A survey of the major areas of physiological psychology with an emphasis on their historical development.

## **212 Principles of Learning (3)**

Prerequisite: Psychology 3. A consideration of critical findings in learning.

## **213 Principles of Perception (3)**

Prerequisite: Psychology 3. Sensory and perceptual processes in human experience and behavior.

## **215 The Social Behavior of Animals (3)**

Prerequisites: Two semesters of psychology and/or biology. An introduction to the social organization of a variety of different animal forms. The emphasis will be on nonhuman primates and other mammals through the social behavior of species of insects, fish, and birds. Aggression, sexual behavior, affiliation, maternal reactions, and the ontogeny of behavior are the primary areas to be studied. The orientation will be from both an ethologist's and animal psychologist's perspective.

## **216 Personality Theory (3)**

Prerequisite: Nine hours of psychology. Structural and dynamic aspects of the human personality considered in the context of selected theoretical systems.

## **219 Research Methods (3)**

(With laboratory.) Prerequisite: Psychology 201. Research methods and analysis techniques used in psychological inquiry. Special emphasis placed on the logic of research design. Includes laboratory study of, and analysis of, selected methods.

## **220 Psychology of Male-Female Relationships (3)**

Prerequisites: Junior standing and Psychology 3. The course is an introduction to the biological and social influences on the interactions of males and females. The findings of biopsychologists and social psychologists from both laboratory and field settings will be reviewed. Topics will include the emotions of love and jealousy, separation, physical attraction, sex roles, and hormonal animal social groups.

## **222 Group Processes in Organizations (3)**

Prerequisite: Psychology 3 or Business Administration 210. Topics include theory, research, and practice in coordination, conflict, and decision making in groups and organizations, as well as the role of influence, power, and leadership effectiveness in understanding interpersonal and group relations.

# Psychology

## 225 Behavior Modification (3)

Prerequisite: Nine hours of psychology or consent of instructor. Methods, applications, and ethics of the use of behavior theory (primarily Skinner's operant conditioning) to the control of human behavior in a variety of settings including mental institutions, grade schools, universities, individual treatment, and communal living.

## 230 Psychology of Women (3)

Prerequisite: Psychology 3. Evaluation of psychological theories and research regarding physiological, cognitive, and personality sex differences, female problems in adjustment, and clinical interventions for women.

## 232 Psychology of Victims (3)

Prerequisite: Psychology 3. A review of the effects of crime, violence, natural disasters, and other traumas on psychological functioning. Prevention and therapy techniques will also be discussed.

## 235 Community Psychology (3)

Prerequisite: Psychology 3. The analysis of psychological problems in terms of the social and situational forces that produce them. Community psychology analyzes the situational problems in living. Epidemiology of mental illness; group, family, and crisis intervention; mental health-care delivery; program evaluation and demonstration project research; role of psychologist as consultant and change agent; and utilization of nonprofessional manpower.

## 240 Play: Psychological and Anthropological Perspectives (3)

(Same as Anthropology 240.) Prerequisite: Psychology 3 or Anthropology 11, or consent of instructor. This course will examine play from psychological and anthropological perspectives in an effort to provide an understanding of the importance of play for humans. The questions which will be the focus of the course include: why people play; the adaptive benefits derived from play; the cultural functions of play; and how play is expressed in different cultures.

## 245 Abnormal Psychology (3)

Prerequisite: Psychology 3. Introduction to major symptom complexes, theories of etiology, and treatment of behavior disorders.

## 256 Environmental Psychology (3)

Prerequisite: Psychology 160 or Sociology 160. Analysis of environmental influences on behavior and man's influence, in turn, on the environment. Topics will include a consideration of both individual processes relating to the environment (such as the perception, evaluation, and adaption to the environment) and social processes relating to the environment (such as privacy, territoriality, and crowding).

## 268 Human Growth and Behavior (3)

Prerequisite: Psychology 3. A survey of development over the life span, with an emphasis on the developmental tasks and hazards of each period.

## 269 Infancy (3)

Prerequisite: Psychology 3. Principles of infant development. Discussion of bonding; infant capacities and state; perceptual and motor development; environmental and child-rearing factors influencing the rate of development in infants.

## 270 Child Psychology (3)

Prerequisite: Psychology 3. Principles of biological, behavioral, and personality development from conception to puberty.

## 271 Adolescent Psychology (3)

Prerequisite: Psychology 3. Principles of biological, behavioral, and personality development from puberty to maturity.

## 272 Adult Development and Aging (3)

(Same as Gerontology 272.) Prerequisite: Psychology 3. Personality, social, and physiological development from the onset of early adulthood through maturity and old age.

## 280 The Psychology of Death and Dying (3)

(Same as Gerontology 280.) Prerequisite: Psychology 3. This course will address the psychological aspects of death and dying for both adults and children. The psychological reactions of terminally ill patients and their families will also be examined, and therapeutic interventions will be discussed.

## 295 Selected Projects in Field Placement (3)

Prerequisites: Junior standing, fifteen hours of psychology, and departmental approval. Selected options in field work placement experiences in various local agencies with training and supervision by faculty. May be repeated once for credit.

## 301 Advanced Statistics and Experimental Design (3)

Prerequisites: Twelve hours of psychology, including Psychology 201. Statistical methods which are particularly useful in psychological research and the design of experiments appropriate to these methods.

## 305 Cognitive Development (3)

Prerequisites: Junior standing and Psychology 270, or consent of instructor. Data and theory concerned with development of perceptual, language, and symbolic abilities in infants and young children, including discussion of deprivation and enrichment of cognitive development.

## 306 Social Development (3)

Prerequisites: Junior standing and Psychology 270, or consent of instructor. Data and theory concerned with development of social behavior in infants and young children. Discussion will include the formation and interruption of attachment, the effects of social isolation, sex-role development, identification, and development of moral judgments in children.

## 310 Motivation Theory (3)

Prerequisites: Junior standing and twelve hours of psychology, or consent of instructor. Survey of current theoretical material in the area of motivation.

## 311 Psychology of Nonverbal Behavior (3)

Prerequisite: Psychology 160 or Sociology 160. Psychological perspective on the role of nonverbal behavior in social settings. Primary concerns of the course will include an analysis of (a) functions of nonverbal behavior (e.g., communication, intimacy exchange, control), (b) factors influencing nonverbal expression (e.g., culture, personality, relationships), and (c) various theoretical views on nonverbal behavior and communication. Applications to various problems and settings in everyday life will also be pursued.

# Psychology

## 314 Physiological Psychology (3)

(With laboratory.) Prerequisites: Psychology 219, Biology 1, and Biology 3, or consent of instructor. The biological and physiological correlates of behavior. Special emphasis placed on the neural and endocrine systems.

## 318 Industrial and Organizational Psychology (3)

(Same as Business Administration 318.) Prerequisites: Psychology 201 or Business Administration 131 and Business Administration 210. This course introduces the student to psychological research and theories pertaining to human behavior in the work setting. Topics covered include: selection, performance appraisal, training, leadership, motivation, job satisfaction, and organizational design.

## 320 Personnel Assessment (3)

Prerequisite: Psychology 318 or Business Administration 309. This course will provide an in-depth study of several topics in the area of personnel psychology. Consideration will be given to issues such as assessment centers, employment interviewing, personnel appraisal, employment test validity, and legal issues relevant to personnel assessment.

## 340 Clinical Problems of Childhood (3)

Prerequisites: A total of twelve hours of psychology including Psychology 3 and Psychology 270. This course will address the clinical disorders and difficulties of children and the treatment of these disorders. Topics that will be addressed include autism, childhood schizophrenia, behavior disorders, drug abuse, enuresis, encopresis, and childhood co-compulsive and phobic reactions. Treatments designed for specific use with children, including behavioral, drug, and community mental health approaches will be addressed.

## 346 Introduction to Clinical Psychology (3)

Prerequisites: Nine hours of psychology, including Psychology 216 or Psychology 245. A conceptual framework for research, description, and understanding of clinical phenomena. Assessment, interviewing, the clinical use of tests, and psychological approaches to treatment.

## 349 Human Learning and Memory (3)

Prerequisites: Nine hours of psychology or consent of instructor. A survey of contemporary research, theory, and facts pertaining to the acquisition, retention, and forgetting of information.

## 354 Experimental Personality and Social Psychology (3)

(With laboratory.) Prerequisite: Psychology 219. Social psychological processes, both inside and outside of the laboratory, including an emphasis on experimental methods in research.

## 355 Psychology of Perception (3)

(With laboratory.) Prerequisite: Psychology 219. Analysis of major sensory and perceptual processes.

## 356 Thinking and Cognition (3)

Prerequisites: Nine hours of psychology or consent of instructor. An introduction to modern analytical approaches to the psychology of thinking: problem solving, reasoning, categorizing, judgment, attention, and consciousness. Particular attention is paid to the mental structures and operations involved in the encoding, abstraction, representation, transformation, and retrieval of knowledge.

## 357 Psychology of Learning (3)

(With laboratory.) Prerequisite: Psychology 219. Major theoretical positions and experimental conditions of learning. Includes laboratory study of selected problems.

## 360 Attitude Structure and Change (3)

Prerequisites: Psychology 201 or equivalent, and Psychology 160 or Sociology 160. Theories of attitude structure and attitude change, measurement, and current research.

## 361 History and Systems of Psychology (3)

Prerequisites: At least fifteen hours of psychology. The course should be taken no sooner than the winter term of the junior year. Historical antecedents of contemporary psychology, including a survey of systems and schools of psychology.

## 365 Psychological Tests and Measurements (3)

(With laboratory.) Prerequisites: Psychology 201 and Psychology 219, or consent of instructor. Survey of psychological testing and principles of test construction and evaluation. Laboratory experience in construction, administration, and interpretation of selected tests.

## 370 Human Factors in Industry (3)

Prerequisites: Nine hours of psychology. This course illustrates how experimental psychology can be applied to the work place. Topics include display-control designs, human perceptual limitations, human information processing, environmental stress, and design of the work place. The person-machine interface is the focus of this course.

## 376 Mental Health and Aging (3)

(Same as Gerontology 376.) Prerequisites: Consent of instructor plus one of the following: Psychology 272, Psychology 373, or graduate standing. A survey of recent theory and research in mental health issues for older populations. The primary focus is on major psychological disorders prevalent among the elderly and on treatment approaches for elders.

## 390 Directed Studies (1-5)

Prerequisite: Consent of instructor. Directed reading and research. May be repeated for a maximum total of ten hours.

## 392 Selected Topics in Psychology (1-3)

Prerequisites: Twelve hours of psychology and consent of instructor. A seminar of selected issues and methods in psychology. May be repeated once for credit.

## 403 Psychopathology (3)

Prerequisite: Admission to clinical psychology program or permission of instructor. A critical examination of the clinical-experimental literature on psychopathology. Etiologies of cognitive/affective functions and dysfunctions are explored, and implications for therapeutic intervention are considered.

# Psychology

## **404 Introduction to Clinical Assessment I (3)**

Prerequisite: Admission to clinical psychology program. Fundamentals of clinical assessment with emphasis on interviewing and the measurement of cognitive functioning.

## **405 Personality (3)**

Prerequisite: Admission to clinical psychology program or permission of instructor. Current theories and research in personality. Major psychodynamic, trait, phenomenological, cognitive, and social learning approaches are covered, with a focus on personality structure and individual differences, personality processes and dynamics, development, psychopathology, and change.

## **406 Introduction to Clinical Assessment II (3)**

Prerequisite: Psychology 404. Theory and techniques of personality assessment with emphasis on projective personality tests.

## **407 Psychopharmacology (3)**

Prerequisite: Consent of instructor. An examination of the effects of drugs on the brain and on behavior. Primary emphasis is on those drugs used in the treatment of affective disorders, schizophrenia, and anxiety.

## **408 Proseminar in Experimental Psychology I (3)**

An historical outline of experimental psychology and a survey of contemporary research on human learning, transfer, skill, and memory.

## **409 Proseminar in Experimental Psychology II (3)**

Prerequisite: Psychology 408. Survey of contemporary research in cognition, judgment, and information processing.

## **410 Women and Mental Health (3)**

This course will focus on contemporary research on the psychology of women pertaining to mental health issues. Etiology and treatment of disorders disproportionately affecting women will be emphasized.

## **411 Seminar: Learning and Cognitive Processes (3)**

Evolution of contemporary approaches to learning, both animal and human, and the higher cognitive processes.

## **412 Social Psychology (3)**

Prerequisite: Consent of instructor. A review of key areas in contemporary theory and research in social psychology.

## **413 Seminar: Developmental Psychology (3)**

Analysis of theories and empirical findings of human and infrahuman studies as related to development.

## **414 Seminar: Perception (3)**

Sensory processes, psychophysics, and theories of perception.

## **415 Seminar: Physiological and Comparative Psychology (3)**

Analysis and review of specific physiological and behavioral processes common to a wide variety of animals.

## **416 Seminar: Animal Behavior and Genetics (3)**

Analysis of the major theoretical positions and empirical findings concerning vertebrate and invertebrate forms.

## **417 Proseminar in Human Factors (3)**

Prerequisite: A research methods course, e.g., Psychology 219, or permission of instructor. First portion of course reviews human capabilities and limitations relevant to human-machine systems. Balance of course examines in depth several applications of experimental psychology to the work place; e.g., environmental stressors, control-display compatibility, information overloading, and display codes.

## **418 Seminar in Human Sexuality (3)**

Review of theory and research in human sexuality from physiological, psychological, and social perspectives. Implications for the assessment and treatment of sexual dysfunction are considered.

## **419 Existential Issues in Clinical Psychology (3)**

This course will review existential thought in psychology and its application to understanding clinical problems and treatment. Particular attention will be given to how psychotherapy can be understood within an existential framework that focuses on the issues of death, freedom, responsibility, and isolation.

## **420 Current Issues in Industrial Psychology (3)**

Prerequisites: Psychology 427, Psychology 428, Psychology 408, or equivalent. A consideration of special issues and methods in industrial psychology. This course is intended for students concentrating in Industrial/Organizational Psychology within the Master's Program.

## **421 Quantitative Methods I (4)**

(With laboratory.) A comprehensive study of the use of analysis of variance procedures in analyzing data. Topics include completely randomized designs, randomized blocks, factorial designs, and the analysis of covariance.

## **422 Quantitative Methods II (4)**

(With laboratory.) A comprehensive study of the use of multivariate statistics in data analysis. Topics include multiple regression, canonical correlation, factor analysis, discriminant analysis, and the multivariate analysis of variance.

## **423 Psychological Scaling (3)**

Theory of measurement and the principal methods of psychological scaling.

## **424 Factor Analysis (3)**

Principal factor analytic methods and multivariate procedures.

## **425 Mathematical Models (3)**

Decision theory and mathematical models used in the behavioral sciences.

## **426 Computer Programming (3)**

Fundamentals of digital computer programming and computer applications in the behavioral sciences.

## **427 Quantitative Measurement and Evaluation of Psychology I (3)**

Use of quantitative methods in psychology.

## **428 Quantitative Measurement and Evaluation of Psychology II (3)**

A continuation of Psychology 427.

## **429 Psychometric Theory (3)**

Prerequisite: Consent of instructor. A consideration of test reliability, validity, and construction from the standpoint of modern psychometric theory and a survey of unidimensional and multidimensional scaling procedures.



# Psychology

## **430 Practicum: Introduction to Clinical Assessment I (2)**

Prerequisite: Admission to clinical psychology program. Supervised experience in interviewing and the assessment of cognitive functioning.

## **431 Practicum: Introduction to Clinical Assessment II (2)**

Prerequisite: Psychology 430. Supervised experience in interviewing and the assessment of cognitive and personality functioning.

## **432 Clinical Practice I (3)**

Prerequisites: Admittance to doctoral program in clinical psychology and consent of instructor. Placement in an affiliated institution, agency, or organization under supervision of staff.

## **433 Clinical Practice II (3)**

Prerequisites: Psychology 432 and consent of adviser. Placement in an affiliated institution, agency, or organization under supervision of staff.

## **434 Seminar: Introduction to Psychotherapy (3)**

Prerequisite: Admittance to clinical psychology program, Psychology 404 and Psychology 406 or equivalent. This course considers theories of personal change and their practical application in psychotherapy. Topics include the development of the therapist-client relationship, case management, process and outcome research, and ethical principles for the psychotherapist.

## **436 Practicum: Introduction to Psychotherapy I (3)**

Prerequisites: Psychology 430 and Psychology 431 or the equivalent. Supervised experience in clinical practice.

## **437 Practicum: Introduction to Psychotherapy II (3)**

Prerequisite: Psychology 436. Continuation of Psychology 436.

## **438 Third Year Clinical Supervision (1-3)**

Prerequisite: Psychology 437. Advanced training in psychological assessment and intervention for third-year students in clinical psychology program.

## **439 Summer Supervision (1)**

Prerequisites: Psychology 430 and Psychology 431. Supervised experience in clinical practice at all graduate year levels during the summer months. Can be repeated for credit.

## **440 Principles of Family Therapy (3)**

Prerequisite: Psychology 434. Survey of research and theory underlying models of family interaction. Practical application of specific techniques to the family system is emphasized.

## **441 Seminar: Cognitive and Behavior Theories (3)**

Prerequisite: Admission to clinical psychology program or permission of instructor. A course on cognitive and behavioral theories and their applications to clinical populations. Emphasis is on a critical review of research on cognitive and behavioral therapy procedures.

## **442 Seminar: Cognitive and Behavior Therapy (3)**

Prerequisites: Admittance to doctoral program in clinical psychology and Psychology 441. The practice of behavior therapy. Students will learn to implement behavioral assessment and therapy strategies in clinical settings.

## **443 Advanced Clinical Supervision (1-3)**

Prerequisite: Psychology 438. Advanced training in psychological assessment and intervention for fourth-year students in clinical psychology program.

## **445 Seminar: Community Psychology (2)**

Critical examination of principles and application of preventive intervention in social systems and community mental-health programming.

## **446 Principles of Group Psychotherapy (3)**

Prerequisite: Psychology 432 or Psychology 434. Investigation of the models and principles of group intervention techniques.

## **447 Topics in Social Psychology (3)**

Focused and in-depth analysis of contemporary problems in social psychology. One or more specific topic areas will be covered in a given semester. May be taken twice for credit.

## **448 Multicultural Issues in Clinical Psychology (3)**

A survey of theoretical perspectives utilized in the treatment of various cultural groups. Their relationship to and implications for the treatment of members of various cultural groups will be explored. Strategies and ethical concerns in diagnosis, test interpretation, and treatment are considered.

## **449 Research Methods in Applied Psychology (3)**

Prerequisite: One graduate course in statistics. This course focuses on the basics of conducting research in applied psychology. Topics include: philosophy of science; reliability and validity; experimental, quasi-experimental, and nonexperimental designs; power; and meta-analysis.

## **450 Clinical Internship I (1)**

Prerequisite: Consent of adviser. Supervised training in an affiliated agency or organization following completion of two years of course work.

## **451 Clinical Internship II (1)**

Prerequisites: Psychology 450 and consent of adviser. Supervised training in an affiliated agency or organization following completion of two years of course work.

## **452 Survey of Industrial/Organizational Psychology (3)**

A review of theoretical, practical, and legal issues faced by personnel specialists. Topics covered include personnel selection and testing, performance appraisal and criteria development, leadership, motivation, job design, and job satisfaction.

## **453 Compensation and Applied Motivational Theory (3)**

A review of compensation theory, compensation programs, job evaluation, the Equal Pay Act and comparable worth, applied motivational theory, and the use of incentive systems for relating pay to individual and organizational performance.

## **454 Seminar: Personnel Psychology (3)**

An analysis of theories and research in personnel and industrial psychology. Topics include testing, assessment centers, performance appraisal, and interviewing.

# Psychology

## **455 Seminar: Organizational Psychology (3)**

An analysis of theories and research in organizational psychology. Topics include theories of motivation, leadership, job design, group process decision making, organizational effectiveness, and the relation between organizations and their environment.

## **456 Seminar: Employment Interviewing (3)**

A survey of the theory, research, and technology of employment interviewing. Topics include selection interviewing and job analysis interviewing.

## **457 Seminar: Special Topics in Industrial Psychology (3)**

A seminar of selected issues and methods in personnel psychology.

## **458 Seminar: Special Topics in Organizational Psychology (3)**

A seminar of selected issues and methods in organizational psychology.

## **459 Practicum in Industrial/Organizational Psychology (1-4)**

Supervised experience in personnel or human resource management.

## **460 Current Issues in Organizational Psychology (3)**

Prerequisites: Psychology 427, Psychology 428, Psychology 408, or equivalent. A consideration of special issues and methods in organizational psychology. This course is intended for students concentrating in Industrial/Organizational Psychology within the Master's Program.

## **461 Seminar: Learning (3)**

A critical examination of contemporary problems in learning.

## **462 Seminar: Motivation (3)**

A critical examination of contemporary problems in motivation.

## **464 Seminar: Perception (3)**

A critical examination of contemporary problems in perception.

## **465 Seminar: Physiological Psychology (3)**

A critical examination of contemporary problems in physiological psychology.

## **466 Seminar: Developmental Psychology (3)**

A critical examination of contemporary problems in developmental psychology.

## **467 Seminar: Conceptual Systems (3)**

A critical examination of the evolution of contemporary theory in psychology.

## **468 Seminar: Cognitive Processes (3)**

A critical examination of contemporary problems in cognitive processes.

## **469 Seminar: Animal Behavior (3)**

A critical examination of contemporary problems in animal behavior.

## **470 Seminar: Behavior Genetics (2)**

A critical examination of contemporary problems in behavior genetics.

## **471 Seminar: Comparative Psychology (3)**

A critical examination of contemporary problems in comparative psychology.

## **472 Special Topics in Psychology (3)**

A seminar of selected issues and methods in psychology.

## **474 Research Designs for Field Settings (1)**

The course provides information regarding the design and execution of research in applied settings (e.g., industry and human service agencies). Topics cover internal external, statistical conclusion, and external validity.

## **475 Introduction to Evaluation Research Methods (3)**

(Same as Sociology 475, Public Policy Administration 475, and Criminology and Criminal Justice 475.) Prerequisite: At least one course in research design and statistics at the graduate level. A comparative study of research strategies with regard to data sources, data collection, and modes of analysis that are appropriate for program evaluation research. Attention is given to observational, survey, and quasi-experimental methodologies.

## **476 Seminar in Clinical Child Psychology (3)**

Introduction to principles, theory, and methods of study in the field of clinical child psychology. Emotional and behavioral dysfunctions are considered from developmental and socialization perspectives.

## **477 Principles of Child Psychotherapy (3)**

Prerequisites: Psychology 434 and Psychology 476. The course will focus on treatments for children with clinical problems. Play therapy, family therapy, and behavioral therapy techniques will be reviewed. Special attention will be given to differentiating when to use each modality, as well as how they can be effectively combined.

## **478 Directed Research in Industrial/Organizational Psychology (1-4)**

Independent study of an issue in industrial/organizational psychology through the application of research techniques.

## **479 Directed Readings in Industrial/Organizational Psychology (1-4)**

Independent literature review of a topic in industrial/organizational psychology.

## **480 Research Methods in Clinical Psychology (3)**

Prerequisite: Psychology 421 or equivalent. An overview of research methods that are appropriate for clinical and other nonlaboratory settings.

## **481 Principles of Scientific Inquiry (3)**

Problems in the logic of inquiry and understanding in science.

## **482 Ethics for Psychologists (1)**

Prerequisite: Admittance to doctoral Program in clinical psychology. A study of ethical standards as they relate to teaching, research, and professional practice.

## **483 Directed Research (1-10)**

## **484 Directed Readings (1-10)**

## Psychology

### **485 Research Team (1)**

Prerequisite: Admittance to doctoral program in clinical psychology. Group supervision of advanced research leading to the specialty examination and dissertation proposal.

### **491 M.A. Thesis Research (1-10)**

### **492 Ph.D. Thesis Research (1-10)**

### **493 Topics in Gerontology (1-3)**

(Same as Gerontology 493.) Prerequisite: Graduate standing or approval of instructor. Intensive analysis of a specific problem in gerontology. Course may be repeated.

### **494 Integrative Research Seminar in Gerontology (2)**

(Same as Gerontology 494.) Prerequisite: A graduate level research methods course. This seminar requires students to critically examine research in gerontology in terms of both theory and methodology.

### **495 Practicum in Gerontology (3)**

(Same as Gerontology 495.) Prerequisite: Consent of instructor. This course provides supervised work experience in an agency that serves the elderly.

### **496 Gerontology Colloquium (1)**

(Same as Gerontology 496.) Presentation of current topics in gerontology by faculty and invited speakers. May be repeated for a total of three credits.

# Social Work

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 100, 150, 210, 275, 280, 285, 290, 310, 316, 350, 390.

## **100 Introduction to the Social Services (3)**

Prerequisite: Sociology 10 or Psychology 3. Examination of the network of social programs and services presently operating in modern urban communities and the various roles and functions performed by the helping professions. Students will be introduced to basic values, skills, and training involved in a helping relationship, as well as the characteristics of both clients seeking help and of professionals and paraprofessionals engaged in the helping process.

## **150 Social Welfare as a Social Institution (4)**

Prerequisite: Social Work 100 or consent of instructor. A study of the: 1) development of social welfare services and the philosophy underlying the present practices and systems; 2) present social welfare programs with particular emphasis given to public income-maintenance provisions; 3) special welfare needs of blacks, elderly, women, Hispanic and Native Americans; and 4) the development of social work as a profession. This course may be taken by non-social work majors.

## **151 Social Welfare as a Social Institution Laboratory (1)**

Prerequisites: Social Work major; simultaneous with Social Work 150. The lab session will be used for field trips to social agencies. This course is required by all Social Work majors and is taken concurrently with Social Work 150.

## **210 Introduction to Interventive Strategies for Social Work Practice (3)**

Prerequisites: Social Work 150, Sociology 160 or Psychology 160, or permission of instructor. A presentation of basic knowledge, skills, and theory used for entry-level professional practice, such as problem assessment, interviewing skills, crisis intervention, and referral procedures. The course objectives also will be to teach students how to help clients negotiate systems effectively, and to use resources, services, and opportunities.

## **265 Human Sexuality (3)**

Prerequisite: Social Work 280, Biology 110, or consent of instructor. This course will provide knowledge about physical, psychophysiological, and legal aspects of human sexuality. The range of human sexual behavior and sexual dysfunctions will be discussed. This course will also help students learn how to help clients recognize and express their concerns in sexual matters, recognize limits of their own intervention skills, and make appropriate referrals.

## **275 Stress and Stress Management (3)**

Prerequisite: Social Work 280 or Psychology 268. This course will explore the causes of stress, with special emphasis given to stressors on the job; linkage between stress and mental and physical disorders; and stress management techniques such as cognitive restructuring, environmental change, progressive relaxation, and biofeedback.

## **280 Human Behavior in the Social Environment (3)**

Prerequisite: Social Work 150 or permission of instructor. This course will focus on the normative stages in the life span, specifically how human development is affected by the physical environment and social status characteristics. Empirical information and theoretical views on human development will be included. Human development will be viewed as a complex interaction of individual developmental stages with family, social, and community systems.

## **285 Social Issues and Social Policy Development (3)**

Prerequisites: Social Work 150, Political Science 11, and Economics 40. The identification of issues concerning governmental provisions to meet contemporary social needs, with analysis of the principles and values underlying alternative solutions. A study of the processes by which citizen opinions and public policies evolve and are implemented in areas such as income maintenance, crime and delinquency, employment, family and child welfare, and public mental health.

## **290 Selected Topics in Social Work Practice (3)**

Prerequisite: Social Work 210 or Social Work 285, or consent of instructor. A course examining special topics in social work practice. Relative theories, strategies, and skills will be presented for topics selected. Course may be taken more than once for credit as different topics are offered.

## **300 Interventive Strategies for Social Work with Individuals, Families, and Groups (3)**

Prerequisites: Social Work 210, Social Work 280, and Social Work 285. This course continues the presentation of basic knowledge and practice skills for entry level professional practice begun in Social Work 210. It builds on the generalized helping model, incorporating specialized skills for working with specific groups of clients (e.g., children, aged, mentally ill, and physically handicapped), with families and small groups.

## **305 Interventive Strategies for Social Work with Organizations and Communities (3)**

Prerequisites: Social Work 210, Social Work 280, and Social Work 285. Continuation of basic practice skills with emphasis given to analysis and intervention at the organization and community levels. Includes assessment of available services, organization of client groups, efforts to modify resources for a client group unable to intervene effectively on its own behalf. Also emphasis on helping the practitioner evaluate the impact of intervention.

## **310 Abused and Neglected Children and Their Families (3)**

Prerequisite: Social Work 280 or consent of instructor. This course will focus on the major concepts necessary for understanding abused and neglected children and their families. Emphasis will be placed on: 1) defining the problem, including societal stresses which contribute to the abuse and neglect; 2) exploring existing practice methods; and 3) becoming familiar with treatment programs currently available.

## Social Work

### **312 Women's Social Issues (3)**

Prerequisite: Social Work 280. This course will help students become more sensitive to the social and welfare concerns of women. The discussions will include work and pension concerns, welfare benefits, family responsibilities (in the new dual career family), family violence, and special health and mental health service needs. Emphasis will be placed on integrating a knowledge base of women's needs with professional social work practice.

### **316 Clinical Gerontology (3)**

(Same as Gerontology 316.) Prerequisite: Social Work 280 or Psychology 268. This course includes: 1) an examination of the social, economic, health, and psychological problems specific to an older adult population; 2) consideration of special needs of the frail elderly, to include problems in long-term care; and 3) the special practice skills (individual, group) needed for intervention with older adults.

### **320 Supervised Field Experience in Social Work I (4)**

Prerequisites: Social Work 210; Social Work 300 must be taken prior to or concurrently, Social Work 320a must be taken concurrently, consent of instructor. This course provides students practice experience in social service agencies. Students work at the agencies approximately 20 hours per week. The purpose of this experience is to familiarize students with agency operations. Selection of the agency is based on student education needs.

### **320a Integrative Field Experience Seminar I (2)**

Prerequisites: Consent of instructor and concurrent registration in Social Work 320. This seminar provides an opportunity for students to integrate previous course work with their experience in social work agencies. Classroom discussion will emphasize direct practice issues.

### **321 Supervised Field Experience in Social Work II (4)**

Prerequisites: Social Work 320, Social Work 320a, and consent of instructor. This is a continuation of agency practice experience. Students work at the agency approximately 20 hours per week and may continue at the same agency as Social Work 320 or change agencies with the consent of the instructor.

### **321a Integrative Field Experience Seminar II (2)**

Prerequisites: Consent of instructor and concurrent registration in Social Work 321. This seminar is a continuation of Social Work 320a. Classroom discussion will emphasize administration and community organization issues.

### **350 Special Study (1-10)**

Prerequisite: Consent of instructor. Independent study through advanced readings in method and philosophy on a topic of particular interest, or field research in an agency.

### **390 Seminar in Social Work Issues (1-3)**

Prerequisite: Consent of instructor. A variable-credit course examining current and future considerations in designing and implementing social work service and delivery arrangements. Issues will be selected according to interests of the class. Course may be taken more than once for credit as different topics are offered.

### **420 Medical Social Work (3)**

Prerequisite: Consent of instructor or graduate standing (with Bachelor of Social Work degree). This course is for new health care professionals presently at work in health care settings or for upper level undergraduate students interested in medical social work. The course will include: major changes in health care legislation, advances in medical technology (those aspects important to the medical social worker), an overview of the organization of the health care system, and social work roles and tasks in health care settings.



# Sociology

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 10, 30, 40, 75, 90, 99, 100, 102, 105, 106, 160, 164, 175, 180, 200, 202, 205, 210, 214, 218, 220, 224, 230, 231, 234, 240, 241, 260, 264, 268, 270, 278, 286, 290a, 290b, 290c, 298, 300, 304, 310, 312, 314, 316, 320, 325, 326, 328, 330, 336, 338, 340, 342, 344, 346, 350, 352, 354, 360, 361, 370, 377, 378, 380, 394.

## 10 Introduction to Sociology (3)

An introduction to sociological approaches to human behavior, including types of social organizations, patterns of social interaction, and social influences on individual conduct.

## 30 Interpretation of Social Data (3)

Prerequisite: Sociology 10. An introduction to the understanding of sociological research. Emphasis will be placed on how research is conducted and on how to read and interpret data analysis. This will be done in a nontechnical fashion. Sociology majors cannot receive sociology credit for this course.

## 40 Social Problems (3)

Prerequisite: Sociology 10 or consent of instructor. Conditions defined by society as social problems, as well as potential solutions, are examined from various sociological perspectives. Emphasis is given to problem issues prevalent in metropolitan settings. Analyses focus on victims and beneficiaries of both problem conditions and alternative solutions.

## 75 Crime and Punishment (3)

(Same as Criminology and Criminal Justice 75 and Interdisciplinary 75.) An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior.

## 90 Freshman Seminar (3)

Prerequisites: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students.

## 99 The City (3)

(Same as Criminology and Criminal Justice 99, Political Science 99, and Interdisciplinary 99.) Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is for freshmen and sophomores. It is open to juniors and seniors with the consent of instructor.

## 100 Women in Contemporary Society (3)

Prerequisite: Sociology 10 or Interdisciplinary 50. An introduction to the sociological analysis of the status of women in society, including their work, family, and political roles. Socialization, education, and the women's movement will also be considered, as these affect the position and participation of women in a variety of social arenas.

## 102 Sex Roles in Contemporary Society (3)

Prerequisite: Sociology 10 or Interdisciplinary 50. The study of social processes through which sex roles are developed and acquired; the impact of gender and sex roles on personal identity and social conduct; the relationship between sex roles and social inequality; and individual and social consequences of changing sex roles in contemporary society.

## 105 Group Prejudice and Minority Identity (3)

Prerequisite: Psychology 3 or Sociology 10. The psychological and sociological study of determinants of identity formation and transformation among minority groups.

## 106 Development of Social Thought (3)

Prerequisite: Sociology 10. The antecedents of sociological theory, as traced through social thought traditions until the time of Comte.

## 160 Social Psychology (3)

(Same as Psychology 160.) Prerequisite: Sociology 10 or Psychology 3. Study of the interaction between the individuals and their social environment. Examination of basic principles, concepts, and methods.

## 164 Criminological Theory (3)

(Same as Criminology and Criminal Justice 164.) Prerequisites: Sociology 10 and Criminology and Criminal Justice 60 or consent of instructor. An introduction to explanations of criminal behavior and societal reactions to crime which bear upon the administration of justice. Includes historical and contemporary approaches.

## 175 Women, Crime, and Society (3)

Prerequisite: Sociology 10 or consent of instructor. Topics include social origins of laws relating to women; quantitative and qualitative views of women's criminality; theories of women's criminality; women as crime victims; treatment of women in the correctional process; and women personnel within the criminal justice structure.

## 180 Alcohol, Drugs, and Society (3)

(Same as Criminology and Criminal Justice 180.) Prerequisite: Sociology 10 or Psychology 3. This course examines the medical, legal, and social aspects of alcohol and drug use. Medical aspects considered include treatment approaches and the role of physicians in controlling such behavior. In the legal realm, past and present alcohol and drug laws are explored. Cultural and social influences on alcohol and drug use are discussed.

## 200 Sociology of Deviant Behavior (3)

Prerequisite: Three hours of sociology or anthropology. Theories of the nature, causes, and control of deviance as a generic phenomenon. Application of theories to specific types, such as mental disorder, delinquency, drug abuse, suicide, and unconventional sexual behavior.

## 202 Urban Sociology (3)

Prerequisite: Sociology 10 or consent of instructor. Urbanization as a world phenomenon; urban social and ecological structures and changing life styles; the decision-making processes in urban problem-solving.

# Sociology

## 205 Introduction to Models in the Social Sciences (3)

(Same as Anthropology 205, Political Science 205 and Interdisciplinary 205.) Prerequisite: Sociology 10 or Anthropology 11 or Political Science 11 or consent of instructor. The course will focus on explaining social and cultural behavior. Elementary models of decision making, exchange, and adaptation will be covered. Computer processing of data to test empirical hypotheses will be introduced.

## 210 Sociological Theory (3)

Prerequisite: Sociology 10. The nature of sociological theory. An investigation of theory from Comte through contemporary developments. Contributions made by theorists in related disciplines.

## 214 Juvenile Delinquency and Youth Crimes (3)

Prerequisite: Three hours of 100-level sociology. A theoretical and research-oriented approach to delinquency and youth crime, including types, trends, causation, correction, and prevention.

## 218 Social Choice in Political-Economic Systems (3)

Prerequisites: Two courses in economics, political science, or sociology. A study of the mechanisms of social choice from the standpoint of individual and political party maximization of personal objectives. This area draws on work done by sociologists, political scientists, and economists.

## 220 Sociological Statistics (3)

Prerequisites: Sociology 10 and satisfaction of mathematics proficiency requirement. For majors, concurrent enrollment in Sociology 230 is strongly recommended. Issues and techniques of statistical analyses relevant to quantitative sociological research, e.g., elementary probability, measurements of central tendency and dispersion, measures of relationships including linear regression and correlation, inferential statistics.

## 224 Sociology of the Family (3)

(Same as Nursing 224.) Prerequisite: Sociology 10. Universal and variable aspects of family organization, family role systems, and changes in family social structure.

## 230 Research Methods (3)

Prerequisites: Sociology 10 and satisfaction of mathematics proficiency requirement and Sociology 220 or consent of instructor. Research planning and interpretation, principles of research design, measurement, and sampling. Techniques for the collection, analysis, and presentation of data.

## 231 Laboratory in Research Methods (1)

Prerequisite: Must be taken concurrently with Sociology 230. Laboratory course to accompany Sociology 230. The course will include practical experience in the conduct of research. Required for the B.A. in sociology.

## 234 Political Sociology (3)

Prerequisite: Sociology 10 or Political Science 11. The analysis of power as a social phenomenon. The processes of legitimizing power and instituting authoritative structures. Stabilizing of social control and social integration at various levels of social and political organization.

## 240 Selected Topics in Micro-sociology (1-3)

Prerequisite: Sociology 10 or consent of instructor. Examination of a specific sociological topic that focuses on small groups and interpersonal relations. May be taken more than once for credit provided the topic of the course is different each time.

## 241 Selected Topics in Macro-sociology (1-3)

Prerequisite: Sociology 10 or consent of instructor. Examination of a specific topic that focuses on large-scale social systems and the structural relationships among social organizations and institutions. May be taken more than once for credit provided the topic of the course is different each time.

## 260 Social Interaction in Small Groups (3)

Prerequisite: Sociology 160 or Psychology 160. Analysis of human interaction with emphases on group problem solving, group structure, and group process.

## 264 The Sociology of Religion (3)

Prerequisite: Sociology 10. Religion as a universal phenomenon. The effect of religion upon the individual and society. The organization of religious enterprises.

## 268 The Sociology of Conflict (3)

Prerequisite: Six credit hours of sociology. The conditions under which social conflicts arise, develop, and are terminated (or in some cases resolved) are examined. The functions of different levels of conflict are studied to determine the potential effects and outcomes of planned intervention.

## 270 Socialization (3)

Prerequisite: Sociology 10. Analysis of the structural and social psychological aspects of roles and the self as a product of social interaction.

## 278 Sociology of Law (3)

Prerequisite: Sociology 10. A study of law and society with emphasis on the sociological analysis of specific problems of legal doctrines and legal institutions. The law is examined as an instrument of social control through study of the courts, the legal profession, the police, and various social institutions. Consideration is given to law as an instrument of social change.

## 286 Society, Arts, and Popular Culture (3)

(Same as Anthropology 286.) Prerequisite: Sociology 10 or Anthropology 11. The relationship of artists, writers, and musicians; their traditions and modes of artistic expression to variant social structures and institutions; and social pressures and rewards.

## 290a, 290b, 290c Undergraduate Seminar in Sociological Issues (3)

Prerequisites: Sociology 10 and consent of instructor. Consideration of an issue or area of the instructor's choice not already covered by other undergraduate courses. May be taken up to three times for nine hours of credit, provided the subject matter is different each time the seminar is taken.

# Sociology

## 298 Practicum in Field and Laboratory Research (1-3)

Prerequisites: Sociology 220 and Sociology 230, or consent of instructor. Intensive field or laboratory research to be taken subsequent to, or concurrent with, a specific substantive course. May be taken twice for credit.

**Note:** Any 300-level course taken for major elective credit requires prior completion of **two** of the following: Sociology 210, Sociology 220, or Sociology 230.

## 300 Communities and Crime (3)

(Same as Criminology and Criminal Justice 300.) Prerequisite: Criminology and Criminal Justice 110, 120, 130, 210, 220, or consent of instructor. Analysis of the sources, consequences, and control of crime within communities. Emphasis on social and ecological theories of crime and on population instability, family structure, and the concentration of poverty as causes of crime. Community crime prevention efforts are also addressed.

## 304 Survey Research Practicum (3)

(Same as Economics 304 and Political Science 304.) Prerequisites: Junior standing, Sociology 220, Sociology 230, and consent of instructor. The execution of a sample survey, including establishing study objectives, sampling, questionnaire construction, interviewing, coding, data analysis, and presentation of results. May be taken more than once for credit provided the course topic is different each time.

## 310 Selected Topics in Sociological Theory (1-3)

Prerequisite: Sociology 210. Focused examination of selected issues, the contributions of individual theorists, and methodological implications in the study of sociological theory. May be taken twice for credit.

## 312 Sociology of Wealth and Poverty (3)

Prerequisites: Sociology 10 and junior standing or consent of instructor. Theory and research on social stratification and inequality in contemporary societies.

## 314 Social Change (3)

Prerequisites: Sociology 10 and junior standing, or consent of instructor. Theories of social change applied to the analysis of small and large social systems, including the planning of change and projecting of alternative futures.

## 316 Power, Ideology, and Social Movements (3)

Prerequisite: Social Work 285 or Sociology 234 or Sociology 314. Effect of events and social processes on thought and action in the twentieth century. Social functions of ideologies as expressed in movements and formal and informal organizations seeking social change.

## 320 Forms of Criminal Behavior (3)

(Same as Criminology and Criminal Justice 320.) Prerequisite: Criminology and Criminal Justice 110, 120, 130, 210, 220, or consent of instructor. Examination of major types of criminal behavior including violent, property, public order, and organizational offenses. Emphasis on theories of, and responses to, these crimes.

## 325 Gender, Crime, and Justice (3)

(Same as Criminology and Criminal Justice 325.) Prerequisite: Criminology and Criminal Justice 110, 120, 130, 210, 220, or consent of instructor. Analysis of the role of gender in crime and the justice system. Emphasis on gender differences in crime commission, criminal processing, and employment in criminal justice agencies.

## 326 Criminology (3)

Prerequisites: Sociology 200 and Sociology 214 or six hours of sociology or anthropology. Crime as a social phenomenon. Theory and research concerning the causes of crime.

## 328 Institutions and the Control of Crime and Delinquency (3)

(Same as Criminology and Criminal Justice 328.) Prerequisite: Sociology 214 or Sociology 326. Institutional responses to crime and delinquency. Theories and programs of rehabilitation and punishment. Organizational conditions affecting behavior of correctional personnel.

## 330 Field Research in Criminology (2-4)

Prerequisites: Sociology 214 and Sociology 230, or Sociology 326, or their equivalent. Students will participate in individual or group research projects involving systematic data collection and sociological analysis concerning the causation or societal reaction to crime, delinquency, or related forms of deviance. One option available to students will be an opportunity to study organizations dealing with juvenile or adult offenders.

## 331 Qualitative Methods in Social Research (3)

Prerequisite: Sociology 220 and Sociology 230, or their equivalent, or consent of instructor. This course is devoted to such qualitative methods as participant observation, intensive interview, content analysis, and oral history, among others. The place of these kinds of techniques in social research, as well as the issues raised by them, will be considered. Students will participate in individual or group research projects using one or more of the methods discussed.

## 336 Organizations and Environments (3)

Prerequisites: Sociology 10 and junior standing or consent of instructor. Internal and external forces that influence the structures, adaptive flexibility, and actions of public and private organizations and agencies are examined. Specific foci include: organizational responses to environmental opportunities, constraints, and contingencies; sources of conflict and impediments to organizational goal attainment; and strategies for increasing organizational effectiveness, efficiency, and chances for survival.

## 338 Sociology of Health (3)

(Same as Nursing 338.) Prerequisites: Sociology 10 and junior standing. Exploration of social dimensions and issues related to health and illness, such as access to the health care delivery system; factors influencing prevention, utilization and compliance; changing relationships among health care providers and consumers; health care costs, trends, and cross-cultural variations.

# Sociology

## 340 Race, Crime, and Justice (3)

(Same as Criminology and Criminal Justice 340.) Prerequisite: Criminology and Criminal Justice 110, 120, 130, 210, 220, or consent of instructor. Analysis of the involvement of racial minorities in crime and the criminal justice system. Emphasis on group differences in offending, processing, victimization, and employment in criminal justice agencies.

## 342 World Population and Ecology (3)

Prerequisites: Sociology 10 and junior standing or consent of instructor. Sociological theories and research relating people to their ecological environments. Selected topics include fertility and population change in the Western and non-Western world.

## 344 Problems of Urban Community (3)

Prerequisites: Sociology 10 and junior standing, or consent of instructor. The urban community as an area of social action and problem solving with emphasis on the sociological aspects of urban problems.

## 346 Demographic Techniques (3)

Prerequisites: Sociology 220 and Sociology 230, or consent of instructor. This course is designed to familiarize students with the research techniques used in population analysis. Topics included are: appraisal of census and vital data; measurement of mortality, fertility, and migration; standardization; construction of life tables; and population projection.

## 350 Special Study (1-10)

Prerequisite: Consent of instructor. Independent study through readings, reports, and field work.

## 352 Advanced Principles of Sociology (3)

Prerequisites: Sociology 10 and junior standing or consent of instructor. Analysis of the main concepts and principles of sociology and survey of sociology as a social science.

## 354 Sociology of Business and Work Settings (3)

Prerequisites: Sociology 10 and junior standing, or consent of instructor. The sociology of work and occupations; the work plant as a social system; occupational role behaviors, including deviant occupations; the socialization of the worker; determinants of occupational behavior in America and other societies; social problems of work, and the impact of community on work behavior.

## 356 Sociology of Education (3)

Prerequisite: Sociology 10 and junior standing, or consent of instructor. Education as a social institution, its role as an agent of socialization, and its effect upon the processes of social change and social mobility. The relationship between the school and its community.

## 360 Sociology of Minority Groups (3)

Prerequisites: Sociology 10 and junior standing or consent of instructor. The study of dominant-subordinate group relations. Religion, ethnicity, race, and gender as factors in the unequal distribution of power.

## 361 Social Gerontology (3)

(Same as Gerontology 361.) Prerequisites: Sociology 10 and junior standing, or consent of instructor. Topics include: sociological theories of aging, technological and social change and its effects on the environment of older people, and prejudice and discrimination against the elderly.

## 370 Selected Topics in Techniques of Sociological Research (1-3)

Prerequisite: Sociology 220, Sociology 230, or consent of instructor. The study of a specific research technique used in sociological analyses. May be taken more than once for credit provided the course topic is different each time.

## 377 Personality and Culture (3)

Prerequisites: Sociology 10 and junior standing or consent of instructor. Analysis of behavior from the standpoint of interaction between psychological, sociological, and cultural systems.

## 378 Selected Topics in Social Psychology (1-3)

Prerequisite: Psychology 160 or Sociology 160, or consent of instructor. Focused examination of selected issues, concepts, and methods in the study of social interaction. May be taken twice for credit.

## 380 Selected Topics in Social Policy (1-3)

Prerequisite: One course from at least two of the following sets of courses: (Sociology 312, 314, 316, 342, or 344), (Sociology 360), (Sociology 214, 275, 280, 326, or 328), (Sociology 361), and (Sociology 224, 234, 254, 264, 278, 338, or 356), or consent of instructor. Examination of a specific sociological topic of current relevance in the community. May be taken more than once for credit provided the course topic is different each time.

## 394 Methods in Theory Construction (3)

Prerequisite: Sociology 210 or consent of instructor. An in-depth comparison of selected techniques of theory building and testing. Verbal and/or mathematical formalization of selected sociological examples of theory will be the central activity.

## 400 Proseminar in Sociology (3)

Required of all entering graduate students in the fall semester of the first year of residency. An overview of the field of contemporary sociology, with emphasis on the major theories, issues, research approaches, and ethical problems in the field today, and an introduction to theory construction, measurement, and design strategies.

## 402 Advanced Quantitative Techniques (3)

Prerequisite: Sociology 220 or consent of instructor. A study of advanced quantitative analysis of sociological data, focusing on problems of multivariate analysis, sampling theory and techniques, and the use of electronic data processing in approaching these problems.



# Sociology

## 404 Advanced Methodology (3)

Prerequisite: Sociology 230 or consent of instructor. A study of methodological problems on an advanced level, focusing on contemporary issues in the processes of inquiry with particular emphasis on the applicability of different modes of research to various types of theoretical problems. Consideration of ethical problems in social research.

## 406 Research Practicum (3)

Prerequisites: Sociology 400 and consent of instructor. Involvement of students in an individual or group project culminating in a report, in order to provide firsthand experience in integration of theoretical concerns, methodological principles, and appropriate research techniques in an empirical study, the subject of which shall be determined in collaboration with the instructor.

## 410 Comparative Social Structures (3)

Prerequisite: Sociology 400 or consent of instructor. Social institutions in selected societies are examined in terms of their similarities and differences. Typically, non-American and American social structures such as religion, education, politics, family, and economy are compared, along with population dynamics and change, myths, values, and norms. Societies are selected depending on specialty of faculty and interests of students. May be repeated for credit if the topic is different.

## 420 Theories of Conflict (3)

Prerequisite: Sociology 400 or consent of instructor. The conflict perspective in sociology is contrasted with consensus models of society. Conflict theorizing is traced from the Classical social thought tradition in Western civilization to its modern Marxist and non-Marxist formulations in contemporary sociology. Ethical implications for social conflict intervention are considered.

## 422 Family and Interpersonal Conflict Resolution (3)

Prerequisite: Sociology 420 or consent of instructor. The sources and functions of interpersonal conflict in family and neighborhood settings are analyzed. Mediation and conciliation strategies are developed in relation to primary and secondary structures, role systems, and social change.

## 424 Conflict Management in Organizations (3)

Prerequisite: Sociology 420 or consent of instructor. Intrinsic sources of inter- and intraorganizational conflict and related methods of mediation are examined. Conflict management strategies and situational manifestations of conflict are analyzed within the context of antecedent conditions, such as domain *dissensus*, differential interests and goals, previously unresolved disputes, unbalanced power relations, structural barriers to communications, internal and external competition for resources, and environmental change.

## 426 Community and Regional Conflict Intervention (3)

Prerequisite: Sociology 420 or consent of instructor. Community and regional conflicts are examined, with emphasis on paradigms for analyzing power, policy, and social change, and on developing intervention skills through simulation exercises. Intervention roles and approaches, such as mediation, conciliation, arbitration, and advocacy are discussed.

## 430 Policy Mediation Processes (3)

Prerequisite: Sociology 426 or consent of instructor. Sociological theories of conflict are applied to public issues and policy-making, with an emphasis on building analysis and practice skills. Processes of mediated problem solving are studied and applied to conflict between jurisdictions, between citizens and governments, and between public and private sectors.

## 440 Seminar in Urban Sociology (3)

Prerequisites: Nine hours of undergraduate course work in sociology and consent of instructor.

## 442 Minority Aging (3)

(Same as Gerontology 442.) Prerequisite: Sociology 361 or consent of instructor. The experience of aging for racial and ethnic minority elderly will be examined in the context of their families, communities, and society. Key questions concerning minority elderly frame the course, such as the relative importance of culture versus social structure, and the applicability of gerontological theory to the minority aging experience.

## 444 Social Policy and Community Planning (3)

Prerequisite: Consent of instructor. Analysis of the formulation of policy as a social process with concentration on political as well as technical-rational elements. Relation of social policy formation to planning at the community level and analysis of the elements and dynamics of community planning. Analysis of and exposure to planning agencies in the St. Louis metropolitan area.

## 445 Sociological Dimensions of Chronic Illness (3)

(Same as Gerontology 445.) Prerequisite: Sociology 400 or consent of instructor. The consequences of chronic illness for social roles, family and organizational dynamics, and the functioning of society are examined. Chronic illness is presented as both a medical problem and a social phenomenon that is shaped by the changing age structure of society.

## 446 Selected Topics in Health Care Policy (3)

(Same as Public Policy Administration 446 and Political Science 446.) Prerequisite: Consent of instructor. The study of specialized issues and methods relating to health care policy. May be repeated for credit, provided the subject matter is different.

## 447 Health Policy and the Elderly (3)

(Same as Gerontology 447 and Public Policy Administration 447.) Prerequisite: Consent of instructor. Examination of how public policy addresses the acute medical problems, as well as the long-term care needs, of the elderly. The influence of health policy on the structure of the long-term care system is analyzed, along with the consequences of age-based versus need-based policies.

## 450 Seminar in Social Psychology (3)

Prerequisites: Nine hours of undergraduate course work in sociology and consent of instructor.

## 460 Seminar in Deviant Behavior (3)

Prerequisites: Nine hours of undergraduate course work in sociology and consent of instructor.



## Sociology

### **462 Sociology of Criminal Law (3)**

Prerequisites: Nine hours of undergraduate course work in sociology and consent of instructor. A survey of research on the formulation, enforcement, and administration of criminal law.

### **464 Seminar in Criminological Theories (3)**

(Same as Criminology and Criminal Justice 464.) Prerequisite: Sociology 400 or consent of instructor. Theories of criminality are examined, with an emphasis on explanations of criminal behavior and societal responses. Theories discussed include: structural strain, differential association, subcultural deviance, differential opportunity, labeling, and social control.

### **470 Seminar in Sociological Issues (1-3)**

Prerequisites: Nine hours of undergraduate course work in sociology and consent of instructor. Consideration of an issue or area of the instructor's choice not already covered by one of the other 400-level courses. May be taken up to three times for up to nine hours of credit, provided the subject matter is different each time the seminar is taken.

### **475 Introduction to Evaluation Research Methods (3)**

(Same as Psychology 475, Public Policy Administration 475, and Criminology and Criminal Justice 475.) Prerequisite: At least one course in research design and statistics at the graduate level. A comparative study of research strategies with regard to data sources, data collection, and modes of analysis that are appropriate for program evaluation research. Attention is given to observational, survey, and quasi-experimental methodologies.

### **476 Research Practicum in Evaluation Research Methods (3)**

Prerequisites: Sociology 475 and consent of instructor. Instruction in, and supervision of, research design and data collection for evaluation of social-deviance action program research report. Concurrent with on-site participant observation.

### **480 Individual Study (3)**

Prerequisite: Consent of adviser and instructor. Designed to give the student the opportunity to pursue particular interests within the discipline and/or to study areas not currently covered by formal courses. Guided by faculty with appropriate interests. May be taken only twice.

### **490 Supervised Research (1-10)**

Prerequisites: Sociology 322, Sociology 332, Sociology 492, and consent of instructor. Individual supervision of research leading to the preparation of a thesis, research paper, or publishable article, in which the student demonstrates skills in the discipline of sociology.

### **492 Advanced Sociological Theory (3)**

Prerequisite: Sociology 210 or consent of instructor. Recent and current developments in sociological theory in light of its tradition and methodological issues. The state of modern theory with regard to specific conceptual, substantive, and methodological concerns.

### **495 Sociological Reporting (3)**

Prerequisites: Sociology 400, Sociology 402, and Sociology 404. As part of the M.A. degree exit requirement, the seminar offers directed practice in the interpretation and reporting of sociological data in a wide range of styles, including those appropriate for research reports, journal articles, policy papers, nontechnical magazines, books, and monographs, as well as oral reports to diverse consumers. Ethical dimensions of interpretation and dissemination are explored.

## Interdisciplinary Courses

In addition to regular departmental offerings, the College of Arts and Sciences also offers several interdisciplinary courses, listed below. These courses bring together the resources of two or more disciplines to focus on topics that benefit from being studied from the point of view of more than one discipline. In many cases faculty from several departments teach an interdisciplinary course together, giving students the opportunity to experience faculty dialogue on issues in a cross-disciplinary fashion. Most interdisciplinary courses have no prerequisites. Freshman and sophomore students are especially encouraged to take these courses.

The following courses fulfill the Social Sciences [SS] breadth of study requirements: 10\*, 20, 40, 50, 60, 75, 90\*, 91\*, 99, 205, 269\*, 287, 295\*.

The following courses fulfill the Humanities [H] breadth of study requirement: 65, 265.

\*These courses may fulfill the Humanities [H] or Social Sciences [SS] breadth of study requirements.

### 10 The Classical World (3)

A survey of the cultures of ancient Greece and Rome—from the beginning of Hellenic civilization during the second millennium B.C. to the start of the breakup of the Roman Empire in the West. Focuses on various central issues and trends; illustrated primarily by the history, literature, philosophy, and art of the period.

### 20 Foundations of Law: An Introduction to Legal Studies (3)

As a broad liberal-arts approach to the study of law, this course is designed to familiarize students with legal ideas, legal reasoning, and legal processes. It also provides comparative and historical perspectives on law that will help explain legal diversity and legal change. Finally, it offers opportunities to explore some of the persistent issues in law and legal theory: for example, issues about the sources of law, the responsibilities of the legal profession, or the relative merits of the adversary system.

### 40 The Black World (3)

A survey of the cultural life, historical experience, and contemporary socio-political issues facing the black peoples of Africa, the Caribbean, and United States.

### 50 Interdisciplinary Perspectives on Women (3)

An interdisciplinary study of the role of women in the family and in society. Areas of coverage will include the biological, psychological, anthropological, economic, social, political-legal, and historical.

### 60 Aging in America (3)

(Same as Gerontology 60.) An introduction to the major issues, research, problems, and current service approaches in the study of the aging process. An overview of information useful for students in the arts and sciences, business, education, and nursing schools. This course is primarily for freshmen and sophomores.

### 65 Photography and Society (3)

(Same as Art 65.) A study of photography as a means of information and expression, as an influence on culture, and as a reflection of concepts in politics, science, morality, and art.

### 70 Introduction to the Study of Religion (3)

The nature of religion and approaches to its study. Examples will be drawn from representative Western and non-Western traditions.

### 75 Crime and Punishment (3)

(Same as Criminology and Criminal Justice 75 and Sociology 75.) An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior.

### 90 The Foundations of American Culture (3)

An examination of the development of American culture from its pre-Columbian origins until the turn of the twentieth century. Particular emphasis will be placed on the Native American, British, African, and European origins of American culture, the conflict and amalgamation of these cultures, and the impact of the physical environment. Consideration will be given to the emergence of a national political and economic system, national and regional cultures, racial and sexual ideology, and sectional conflict. These developments will be examined through their impact on art, literature, religion, music, architecture, political philosophy, and economic thought. The development of natural science in America will be given attention.

### 91 American Culture in the Twentieth Century (3)

This course examines the central cultural developments that have characterized American society from the Progressive Period to the present. These developments will be examined through their impact on art, literature, religion, music, architecture, philosophy, and economic thought. Themes such as the following will be considered: the rise of the middle class and generalized affluence; the formation of large corporations and a centralized economy; the nature and impact of periods of crisis such as the 1930s and 1960s; issues of race, sex, and rapid technological change. The special role of science in twentieth-century American culture will be discussed.

### 99 The City (3)

(Same as Criminology and Criminal Justice 99, Political Science 99, and Sociology 99.) Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission.

## Interdisciplinary Courses

### **101 AIDS: Myths, Threats, and Realities (3)**

Issues regarding the AIDS threat are examined, along with their ramifications. Topics include biologic aspects of HIV retroviruses, how they are contracted and spread; methods of testing for them, and issues of public health versus individual rights; similarities and differences with past plagues and epidemics; ethical and theological positions; projected and actual effects of AIDS on society including workplace, education, the law, insurance industry, and economy; problems of labeling and deviance, psychological stigma, interpersonal communication and counselor burnout; political responses and the rational promotion of political strategies and policies to control the spread of AIDS.

### **200 Special Topics in Classical Studies (3)**

Prerequisite: Interdisciplinary 10 or consent of minor coordinator. Selected topics dealing with various aspects (e.g. literature, history, philosophy, politics, sociology, fine arts) of ancient Greece and Rome. The specific contents of this course will vary from semester to semester. The course may be repeated for credit with the consent of the Coordinator for the Minor in Classical Studies. Readings will be in English.

### **205 Introduction to Models in the Social Sciences (3)**

(Same as Sociology 205, Anthropology 205, and Political Science 205.) Prerequisite: Sociology 10, Anthropology 11, Political Science 11, or consent of instructor. The course will focus on explaining social and cultural behavior. Elementary models of decision making, exchange, and adaptation will be covered. Computer processing of data to test empirical hypotheses will be introduced.

### **265 Topics in Photographic Studies (3)**

(Same as Art 265.) Prerequisite: Permission of instructor. Advanced study of specific styles, periods, or issues within photographic history.

### **269 The Marxist Heritage (3)**

(Same as Philosophy 269, and Political Science 269.) Study of Marx and leading Marxists. Designed to evaluate their influence on recent political, economic, and social thought and institutions.

### **287 The World Food Problem (3)**

Prerequisite: Economics 40 or Economics 51, or consent of instructor. An introduction to the world's food problem and an examination of the economic and political problems in distributing basic food-stuffs among the earth's people.

### **295 Issues in American Culture (3)**

Prerequisites: Interdisciplinary 90 and Interdisciplinary 91 or consent of instructor. An examination of specific topics in American culture from the point of view of a number of disciplines. This exit seminar for the American Studies minor may be repeated for credit.

### **350 Topics in Women's Studies (3)**

Prerequisites: Junior standing and three Women's Studies courses including Interdisciplinary 50 or consent of instructor. This course will focus on a particular aspect of woman's condition (to be announced prior to registration) and will draw upon recent theoretical and methodological work in the field of women's studies from a variety of disciplines.

### **351 Theories of Feminism (3)**

Prerequisites: Junior standing and three Women's Studies courses including Interdisciplinary 50 or consent of instructor. An analysis of contemporary theories of feminism, including liberal, radical, socialist, and women-of-color perspectives, and an exploration of the underpinnings of feminist theory in major systems of thought.

### **390 Independent Studies in Photographic Studies (1-10)**

Prerequisites: Twelve hours completed in photographic studies. Integrated individual projects conducted under photographic studies committee and departmental faculty supervision.

## Certificate Programs

In order to find the descriptions of the courses listed within a specific certificate program, refer to the individual departments.

### Biochemistry Certificate

The Biochemistry Certificate is an interdisciplinary specialization which may be earned by completing the core requirements and either a **chemistry track** or a **biology track**. All students complete the following **core requirements**:

**Biology 10**, Introductory Biology  
**Biology 210**, Cell Structure and Function  
**Biology 224**, Genetics  
**Chemistry 11**, Introductory Chemistry I  
**Chemistry 12**, Introductory Chemistry II  
**Chemistry 122**, Quantitative Analysis  
**Chemistry 261**, Structural Organic Chemistry  
**Chemistry 262**, Organic Reactions  
**Chemistry 263**, Techniques of Organic Chemistry

and **one** of the following **biology** courses:

**216**, Microbiology  
**235**, Development  
**310**, Cell Physiology  
**326**, Gene Expression in Eukaryotes

Students choosing to complete the certificate through the **biology track** must take these **additional courses**:

**Biology 376**, Topics in Biological Chemistry  
**Biology 378**, Topics in Biological Chemistry Laboratory  
**Biology 389**, Senior Seminar  
**Chemistry 230**, Physical Chemistry for the Life Sciences

Students choosing to complete the certificate through the **chemistry track** must take these **additional chemistry courses**:

**231**, Physical Chemistry I  
**232**, Physical Chemistry II  
**233**, Laboratory in Physical Chemistry  
**289**, Seminar  
**371**, Biochemistry  
**372**, Advanced Biochemistry  
**373**, Biochemical Techniques

### Biotechnology Certificate

A student may receive the Certificate in Biotechnology by completing a total of 18 hours taken from the following **requirements**.

Students must take:

**Biology 326**, Gene Expression in Eukaryotes  
**Biology 328**, Methods in Biotechnology  
**Biology 338**, Gene Expression in Prokaryotes  
**Chemistry 230**, Physical Chemistry for the Life Sciences

The remaining hours can be taken from the following:

**Biology 310**, Cell Physiology  
**Biology 334**, Virology  
**Biology 376**, Topics in Biological Chemistry  
**Biology 378**, Topics in Biological Chemistry Laboratory  
**Biology 417**, Advanced Immunology  
**Biology 492**, Topics in Molecular Biology/Genetics

### Photographic Studies Certificate

#### Requirements

The following courses are required:

**Art 60**, Photography I  
**Art 160**, Photography II  
**Art 265**, History of Photography, or **History 168**, Photohistory  
**Interdisciplinary 65/Art 65**, Photography and Society  
**Art 360**, Advanced Photography, or **Interdisciplinary 390**, Independent Studies in Photographic Studies

Students must also take at least **one three-hour course** selected from the following departmental offerings: (New courses will be reviewed periodically for inclusion.)

**Art 5**, Introduction to Art  
**Art 260**, Photography: Color Printing  
**Art 274**, Printmaking: Photolithography  
**Art 360**, Advanced Photography  
**Art 363**, Photography Since 1945  
**Biology 360**, Techniques in Electron Microscopy  
**Communication 50**, Introduction to Mass Media

**Communication 70**, Introduction to Cinema  
**Communication 210**, Television Production  
**English 214**, News Writing  
**English 215**, Feature Writing  
**History 168**, Photohistory  
**Interdisciplinary 40**, The Black World  
**Interdisciplinary 365**, Seminar in Photographic Studies  
**Philosophy 274**, Philosophy of Art  
**Physics 172**, Light and Color  
**Physics 173**, Applications of Light and Color  
**Psychology 213**, Principles of Perception  
**Psychology 355**, Psychology of Perception  
**Extension course**, Professional Photography Seminar

### Studies in Religions Certificate

Courses must be chosen from two or more departments (interdisciplinary offerings excluded), and the program must include two or more courses which focus on different, major religious traditions. (Courses which fulfill this requirement are marked with an asterisk [\*] in the list below.)

#### Requirements

Students must take:

**Interdisciplinary 70**, Introduction to the Study of Religion

and **15 hours** chosen from the following list in accordance with the guidelines above:

**Anthropology 144**, Religion, Magic, and Science  
**\*Art 114**, Early Christian Art and Archaeology  
**\*Art 225**, Topics in Medieval Art  
**\*English 13**, Topics in Literature: Jewish Folklore  
**\*English 123**, Jewish Literature  
**\*English 124**, Literature of the New Testament  
**\*English 125**, Literature of the Old Testament  
**\*History 144**, Christianity: Jesus to Martin Luther  
**\*History 252**, The World of Islam  
**\*History 330a**, The Ancient World: Israel

## Certificate Programs

**•History 330d**, History of the Church: Early Christianity

**•History 330e**, History of the Church: The Middle Ages

**•History 331b**, The Age of Reformation

**Music 103**, Music in Religion

**Philosophy 85**, Philosophy of Religion

**Philosophy 102**, Medieval Philosophy

**Philosophy 120**, Asian Philosophy

**•Philosophy 124**, Philosophy of Judaism

**Philosophy 285**, Problems in Philosophical Theology

**Political Science 165**, American Political Thought

**Political Science 261**, Ancient and Medieval Political Thought

**Sociology 264**, The Sociology of Religion

### Women's Studies Certificate Undergraduate

#### Requirements

A student must complete **18 hours** in Women's Studies courses, including: **Interdisciplinary 50**, Interdisciplinary Perspectives on Women

and **either** a 300-level course in Women's Studies **or** an independent study (3 hours) to be taken in the junior or senior year. Students choosing the independent study option will write a research paper on some aspect of Women's Studies.

**Also required are four additional courses** chosen from the following list. These shall be distributed among at least **two** of the following areas: social science, humanities, and natural science. They should also be distributed among at least **three** academic departments. No more than three hours may be taken on a satisfactory/unsatisfactory basis.

**Interdisciplinary 350**, Topics in Women's Studies (e.g., Women and Science; Survival Strategies of Third World Women)

**Interdisciplinary 351**, Theories of Feminism

**Art 276**, Women and the Visual Arts

**Biology/Psychology 140**, Female Sexuality

**Communication 395**, Seminar in Communication (Women and Theater)

**English 13**, Topics in Literature (when appropriate topic)

**English 280**, Topics in Women and Literature (e.g., Black Women Writers; Women and Poetry)

**History 101**, History of Women in Comparative Cultures

**History 300**, Selected Topics in History (Topics in American History: Women and Work)

**History 320**, History of Feminism in Western Society

**History 321**, History of Women in the United States

**Music 108**, Women in Music

**Nursing 365**, Women's Issues in Health Care

**Philosophy 153**, Philosophy and Feminism

**Political Science 129**, Women and the Law

**Political Science 247**, Women, Power, and Public Policy

**Psychology 230**, Psychology of Women

**Social Work 312**, Women's Social Issues

**Sociology 100**, Women in Contemporary Society

**Sociology 175**, Women, Crime, and Society

### Women's Studies Certificate Graduate

The Graduate Certificate in Women's Studies is designed for those students who wish to receive postbaccalaureate training in Women's Studies. This program provides a multidisciplinary course of study for students wishing to specialize in women's issues. It is appropriate for students in the College of Arts and Sciences or any of the Schools of the University.

#### Admission Requirements

Program applicants must have the following:

- 1) Baccalaureate degree;
- 2) 2.75 Grade Point Average (Students with exceptions should contact the director of Women's Studies);
- 3) Official transcripts of all previous undergraduate/graduate work;
- 4) Three letters of recommendation.

#### Certificate Requirements

A student may earn the Graduate Certificate in Women's Studies by completing a total of 18 hours from the following courses listed. At least nine hours of course work must be at the 400 level; no more than six hours of course work may be Independent Study.

#### Core Courses

**English 416**, Feminist Critical Theory

**History 320**, History of Feminism

**History 321**, History of Women in the United States

**History 300**, Topics in History: Women and Work in U.S. History

**Interdisciplinary 350**, Topics in Women's Studies

**Interdisciplinary 351**, Theories of Feminism

**Nursing 365**, Women's Issues in Health Care

**Psychology 418**, Human Sexuality

**Psychology 410**, Women and Mental Health

**Social Work 312**, Women and Social Issues

Six hours of Women's Studies electives at the 400 level.



## Certificate Programs

### Writing Certificate

A student may earn a Certificate in Writing by completing a total of **18 hours** in writing courses chosen from the following:

**Communication 212**, Broadcast Writing and Reporting  
**Communication 217**, Script Writing for Business and Industry  
**English 103**, Poetry Writing  
**English 104**, Short Story Writing  
**English 105**, Play Writing  
**English 112**, Topics in Writing  
**English 209**, Practical Criticism: Writing About Literature  
**English 210**, Advanced Expository Writing  
**English 211**, Advanced Expository Writing for International Students  
**English 212**, Business Writing  
**English 213**, Technical Writing  
**English 214**, News Writing, or **Communication 214**, News Writing  
**English 215**, Feature Writing  
**English 218**, Reporting  
**English 300**, Writing in the Professions  
**English 302**, Writing Literary Criticism  
**English 303**, Advanced Poetry Writing  
**English 304**, Advanced Fiction Writing  
**English 305**, Writing for Teachers  
**English 313**, Advanced Business and Technical Writing  
**English 319**, Editing

**Required: English 320**, Independent Writing Project. Students serve a supervised writing internship or work with the instructor to complete an extensive writing project.

### International Studies Certificates Undergraduate

#### Requirements for Each Program

In the junior or senior year, students seeking certificates must take an independent study course (3 hours) in which a research paper will be written focusing upon some aspect of the particular field or on one of the fields offered in the program.

#### East Asian Studies Certificate

**1)** First- and second-year Chinese, Japanese, or other appropriate Asian language (20 hours taken in four semesters). Chinese and Japanese courses are available through Washington University for UM-St. Louis students.

**2)** **History 61** and **History 62**, East Asian Civilization.

**3)** **One** course in **three** of the following six areas, a total of nine hours:

#### Area 1: Anthropology

**110**, Cultures of Asia

#### Area 2: Art

**107**, The Arts of China  
**108**, The Arts of Japan  
**208**, Topics in Asian Art

#### Area 3: History

**162**, The Chinese Revolution: Readings in Chinese Literature  
**361**, Modern Japan: 1850 to Present  
**362**, Modern China: 1800 to Present  
**\*393**, Senior Seminar

#### Area 4: Music

**9**, Non-Western Music I  
**10**, Non-Western Music II

#### Area 5: Philosophy

**120**, Asian Philosophy

#### Area 6: Political Science

**155**, Asian Comparative Politics  
**\*359**, Studies in Comparative Politics  
**\*388**, Studies in International Relations

**\*Note** Students should take Political Science 359 or Political Science 388 only when the specific topic is appropriate.

**\*Note** Students should take History 393 only when the topic is appropriate to East Asia.

#### European Studies Certificate

**1)** Four semesters of college work or the equivalent in a modern European foreign language.

**2)** **History 32**, Topics in European Civilization: 1715 to the Present.

**3)** **One** course each from at least **four** of the following eight areas, a total of 12 hours. Students should consult advisers at the Center to determine how these courses can best be arranged to meet their interests.

#### Area 1: Art

**135**, Renaissance Art  
**145**, Baroque Art  
**235**, Topics in Renaissance Art  
**245**, Topics in Seventeenth- and Eighteenth-Century European Art  
**255**, Topics in Nineteenth- and Twentieth-Century European Art

#### Area 2: Economics

**238**, Comparative Economic Systems

#### Area 3: English

**127**, Survey of European Literature from 1650 to the Second World War  
**128**, The Contemporary World in Literature  
**132**, English Literature II  
**323**, Continental Fiction  
**346**, Restoration and Eighteenth-Century Drama  
**364**, The Eighteenth-Century English Novel  
**365**, The Nineteenth-Century English Novel  
**372**, The Later Nineteenth Century  
**383**, Modern British Fiction

#### Area 4: History

**31**, Topics in European Civilization: Emergence of Western Europe to 1715  
**331a**, The Age of the Renaissance  
**331b**, The Age of Reformation  
**332d**, The Rise of the Modern British State  
**332e**, Europe from the French Revolution to World War I, 1789-1914  
**333a**, Contemporary France: Since 1870  
**333b**, Germany in the Modern Age  
**333c**, History of Russia from 1917-Present  
**333d**, Europe in the Twentieth Century  
**333e**, Contemporary Europe, 1939-Present

#### Area 5: Modern Foreign Languages

##### FRENCH

**110**, Modern French Literature in Translation  
**150**, European Literature in Translation: Special Topics  
**211**, Contemporary French Civilization  
**281**, French Literature II: Nineteenth and Twentieth Centuries  
**341**, Seventeenth-Century French Theatre and Poetry  
**342**, Seventeenth-Century French Prose  
**353**, Eighteenth-Century French Literature

# Certificate Programs

- 354**, Eighteenth-Century French Theatre and Novel  
**362**, Nineteenth-Century French Novel  
**371**, Twentieth-Century French Novel  
**375**, Modern French Theatre

## GERMAN

- 110**, Masterpieces of German Literature in Translation  
**150**, European Literature in Translation: Special Topics  
**201**, Masterpieces of German Literature  
**202**, The German *Novelle* and Drama  
**210**, German Culture and Civilization  
**315**, German Classicism and Romanticism  
**320**, German Realism and Naturalism  
**345**, Modern German Literature  
**397**, Survey of German Literature Part I  
**398**, Survey of German Literature Part II

## SPANISH

- 110**, Spanish Literature in Translation  
**150**, European Literature in Translation: Special Topics  
**310**, Spanish Literature from 1898 to 1939  
**315**, Spanish Literature from 1939 to the Present  
**320**, Realism and Naturalism in the Nineteenth-Century Spanish Novel  
**321**, Poetry and Drama of the Nineteenth Century  
**325**, Poetry and Drama of the Golden Age

## Area 6: Music

- 322**, Music of the Renaissance  
**323**, Music of the Baroque  
**324**, Music of the Classic Period  
**325**, Music of the Romantic Period

## Area 7: Philosophy

- 103**, Early Modern Philosophy  
**104**, Kant and Nineteenth-Century Philosophy  
**105**, Twentieth-Century Philosophy  
**205**, The Rationalists  
**206**, The British Empiricists

## Area 8: Political Science

- 251**, Comparative Politics of Europe  
**256**, The Soviet Political System  
**284**, European International Relations  
**\*351**, Comparative Public Policy and Administration  
**\*359**, Studies in Comparative Politics  
**\*388**, Studies in International Relations

**\*Note** Students should take Political Science 351, Political Science 359, or Political Science 388 only when the topic is appropriately European.

## Latin American Studies Certificate

- 1)** Thirteen credit hours or the equivalent in Spanish.  
**2)** Either **History 71**, Latin America Civilization, or **Spanish 211**, Hispanic Culture and Civilization: Spanish America.  
**3)** A total of 12 hours from at least **three** of the following areas:

### Area 1: Anthropology

- 134**, The Inca, Aztec, and Maya  
**140**, Cultures of Mexico and Central America  
**145**, Indians of South America

### Area 2: Art

- 119**, Pre-Columbian Art of Mexico and Central America

### Area 3: History

- 371**, History of Latin America: To 1808  
**372**, History of Latin America: Since 1808

### Area 4: Political Science

- 253**, Political Systems of South America  
**254**, Political Systems of Mexico, Central America, and the Caribbean  
**\*359**, Studies in Comparative Politics

**\*Note** Students should take Political Science 359 only when the topic is appropriate to Latin America

### Area 5: Spanish

- 111**, Spanish-American Literature in Translation  
**211**, Hispanic Culture and Civilization: Spanish America  
**281**, Introduction to Hispanic Literature: Spanish America  
**340**, Spanish-American Literature of the Nineteenth Century  
**341**, Modernismo  
**345**, Spanish-American Literature of the Twentieth Century  
**351**, Spanish-American Fiction in the Twentieth Century  
**360**, Spanish-American Poetry from Modernismo to the Present

## International Studies Certificate

- 1)** Satisfactory completion of the language requirements for the degree program in which the student is enrolled.  
**2)** **Political Science 180**, World Politics.  
**3)** A total of 12 hours from at least **three** of the following nine areas:

### Area 1: Anthropology

- 201**, Comparative Economic Behavior  
**202**, Culture, Politics, and Social Organization

### Area 2: Biology

- 120**, Environmental Biology

### Area 3: Business Administration

- 316**, International Marketing  
**317**, International Management  
**380**, International Business

### Area 4: Communication

- 332**, Intercultural Communication  
**354**, Comparative Telecommunication Systems  
**356**, International Communication

### Area 5: Economics

- 230**, International Economic Analysis  
**231**, International Finance  
**238**, Comparative Economic Systems  
**331**, International Economic Analysis: Finance

### Area 6: Geography

- 102**, World Regions

### Area 7: History

- 112**, America in World Affairs  
**332e**, Europe from the French Revolution to World War I, 1789-1914  
**333d**, Europe in the Twentieth Century  
**333e**, Contemporary Europe, 1939 to Present

### Area 8: Political Science

- 80**, Global Issues  
**282**, United States Foreign Policy  
**285**, International Institutions and Global Problem-Solving  
**289**, Middle Eastern Politics  
**381**, Comparative Foreign Policy  
**385**, International Law  
**386**, Studies in War and Peace  
**388**, Studies in International Relations

### Area 9: Sociology

- 314**, Social Change  
**342**, World Population and Ecology  
**354**, Sociology of Business and Work Settings

## Certificate Programs

### International Studies Certificate Graduate

The Certificate is awarded after completion of 18 hours, including a minimum of 12 hours drawn from a list of core courses. No more than 12 hours may be from any one discipline. Students may simultaneously earn a graduate degree and count credits earned in their degree program toward the Certificate when appropriate.

#### Requirements

Students must complete **at least 12 hours** chosen from the following list of **core courses**:

#### Anthropology

- 425**, Peoples and Cultures of Southeast Asia
- 430**, Global Refugee Crisis

#### Business Administration

- 416**, International Finance, Investment, and Commercial Relations
- 417**, International Business Operations
- 443**, International Accounting

#### Economics

- 430**, International Trade
- 431**, International Monetary Analysis

#### History

- 419**, Readings in East Asian History
- 431**, Readings in European History
- 460**, Readings in Latin American History
- 470**, Readings in African History

#### Political Science

- 450**, Proseminar in Comparative Politics
- 451**, Seminar in Comparative Politics
- 480**, Proseminar in International Relations
- 481**, Seminar in International Relations
- 488**, Studies in International Relations

#### Sociology

- 410**, Comparative Social Structures

Students may complete an additional six hours chosen from the following:

#### Art

- 356**, Nineteenth-Century Art
- 357**, Twentieth-Century Art

#### Business Administration

- 316**, International Marketing
- 317**, International Management
- 380**, International Business

#### Communication

- 332**, Intercultural Communication
- 354**, Comparative Telecommunication Systems
- 356**, International Communication

#### Criminology and Criminal Justice

- 305**, Comparative Criminology and Criminal Justice

#### Economics

- 331**, International Economic Analysis: Finance
- 350**, Special Readings

#### English

- 323**, Continental Fiction

#### History

- 314**, American Foreign Relations: Since 1941
- 320**, History of Feminism in Western Society
- 332a**, History of Spain
- 332b**, Russian History to 1917
- 332c**, Modern France: to 1870
- 332d**, The Rise of the Modern British State
- 332e**, Europe from the French Revolution to World War I, 1789-1914
- 333a**, Contemporary France: Since 1870
- 333b**, Germany in the Modern Age
- 333c**, History of Russia from 1917-Present
- 333d**, Europe in the Twentieth Century
- 333e**, Contemporary Europe, 1939-Present
- 361**, Modern Japan: 1850 to Present
- 362**, Modern China: 1800 to Present
- 372**, History of Latin America: Since 1808
- 381**, West Africa: Since 1800
- 382**, Crisis in Southern Africa
- 390**, Special Readings

### Modern Foreign Languages and Literatures

- French 362**, Nineteenth-Century French Novel
- French 365**, Modern French Poetry
- French 371**, Twentieth-Century French Novel
- French 375**, Modern French Theatre
- German 315**, German Classicism and Romanticism
- German 320**, German Realism and Naturalism
- German 345**, Modern German Literature
- German 398**, Survey of German Literature Part II
- Spanish 310**, Spanish Literature from 1898-1939
- Spanish 315**, Spanish Literature from 1939 to Present
- Spanish 320**, Realism and Naturalism in the Nineteenth-Century Spanish Novel
- Spanish 321**, Poetry and Drama of the Nineteenth Century
- Spanish 340**, Spanish-American Literature of the Nineteenth Century
- Spanish 341**, Modernismo
- Spanish 345**, Spanish-American Literature of the Twentieth Century
- Spanish 351**, Spanish-American Fiction in the Twentieth Century
- Spanish 360**, Spanish-American Poetry from Modernismo to the Present

#### Music

- 325**, Music of the Romantic Period
- 326**, Music of the Twentieth Century

#### Political Science

- 351**, Comparative Public Policy and Administration
- 359**, Studies in Comparative Politics
- 381**, Comparative Foreign Policy
- 385**, International Law
- 386**, Studies in War and Peace
- 388**, Studies in International Relations
- 485**, Directed Readings and Research in International Relations

#### Sociology

- 342**, Population Dynamics

## Business Administration

Courses in this section are grouped as follows: all undergraduate courses are listed under Business Administration; 400-level graduate courses are listed under Business Administration, Accounting, Finance, Management, Management Science/Information Systems, and Marketing.

The School of Business Administration uses the University course numbering system (see p. 5) with the following clarifications:

100 to 199, sophomore, junior, or senior standing is required unless a specific exception is listed.

200 to 299, junior or senior standing is required.

300 to 399, junior, senior, or graduate standing is required unless a specific exception or restriction is listed.

**A minimum grade of C shall be required to meet the prerequisite requirement for any course.**

Prerequisites may be waived only by consent of both the instructor and the area coordinator.

For 200- and 300-level Business Administration courses, a minimum overall GPA of 2.0 is required for admittance.

## Business Administration

**36 Introduction to Accounting I (3)**  
The course is designed as a home-study course intended to meet the needs of off-campus students. This is a one semester course in financial accounting theory and practices, with primary emphasis upon the accounting cycle and the preparation and interpretation of financial statements.

**37 Introduction to Accounting II (3)**  
Prerequisite: Business Administration 36. The course is designed as a home-study course intended to meet the needs of off-campus students. The development, interpretation, and use of relevant cost behavior, control, and traceability concepts for management

planning, controlling, and decision making are emphasized. Topics include: an introduction to product costing, the contribution concept, direct costing, performance standards and variance analysis, responsibility accounting, segment profitability, alternative choice decisions, and capital budgeting.

### **103 Computers and Information Systems (3)**

The basic concepts of data processing and the fundamental principles of computer-based information systems are studied. The characteristics of computer hardware and software used in implementing business applications are considered. Students will develop skills in utilizing both mainframe and microcomputers.

### **104 FORTRAN Programming (3)**

Prerequisite: Business Administration 103. A study of the principles of programming digital computers using the FORTRAN language. Credit will not be granted for both Business Administration 104 and Computer Science 122.

### **109 COBOL Programming (3)**

Prerequisite: Business Administration 103. Structured COBOL programming techniques for business applications are presented. Included are report generation, control breaks, output editing, debugging, tables, and sort concepts.

### **131 Elementary Statistics (3)**

Prerequisite: Mathematics 102. An introduction to statistical methods and concepts used in the decision processes of business problems. Statistical measures and estimators are examined in relation to the estimation and testing problems of statistical inference.

### **140 Fundamentals of Financial Accounting (3)**

Prerequisites: Mathematics 30 and completion of 27 credit hours or consent of area. This is a one-semester course in financial accounting theory and practices, with primary emphasis upon the accounting cycle and the preparation and interpretation of corporate financial statements.

### **145 Managerial Accounting (3)**

Prerequisites: Mathematics 30 and Business Administration 140, or consent of area. This is an advanced course that goes beyond the scope of a second-semester course in fundamentals of accounting. The development, interpretation, and use of relevant cost behavior, control, and traceability concepts for management planning, controlling, and decision making are emphasized. Topics include: an introduction to product costing, the contribution concept, direct costing, performance standards and variance analysis, responsibility accounting, segment profitability, alternative choice decisions, and capital budgeting.

### **156 Legal Environment of Business (3)**

Prerequisites: Economics 51 and Business Administration 140. An introduction to the nature and meaning of law, sources of law, legal process and institutions. The legal environment of business is defined as: the attitude of the government toward business, the historical development of this attitude; current trends of public control in taxation, regulation of commerce, and competition; freedom of contract, antitrust legislation and its relationship to marketing, mergers, and acquisitions; and labor management relations.

### **202 Fundamentals of Production (3)**

Prerequisites: Economics 51, Business Administration 131, Business Administration 145, and Business Administration 103 or a higher-level programming language course, and a 2.0 overall GPA. An examination of the concepts, processes, and institutions which are fundamental to an understanding of the production function in business enterprise. Emphasis is on the management and organization of production operations and upon the application of scientific and quantitative methods to the solution of production problems.

### **204 Financial Management (3)**

Prerequisites: Economics 52, Business Administration 131, and Business Administration 140, and a 2.0 overall GPA. The study of a firm's need for funds; the institutions, instruments, and markets concerned with raising funds; and the techniques of analysis used to determine how effectively these funds, once raised, are invested within the firm.

# Business Administration

## 206 Basic Marketing (3)

Prerequisites: Economics 51, junior standing, and a 2.0 overall GPA. An examination of the character and importance of the marketing process, its essential functions, and the institutions performing them. Attention is focused on the major policies (such as distribution, product, price, and promotion) which underlie the multifarious activities of marketing institutions and the managerial, economic, and societal implications of such policies.

## 209 Data Management (3)

Prerequisite: Business Administration 109 and a 2.0 overall GPA. The course covers job control language, utilities, partitioned data sets, updating of sequential files, indexed files, direct and/or relative files. The topics are implemented in a COBOL environment. A database management system is used to illustrate design and implementation of business applications.

## 210 Management as a Behavioral Science I (3)

Prerequisites: Three hours of anthropology, psychology or sociology; junior standing; and a 2.0 overall GPA. This course involves a study of the behavior of individuals and groups in an organizational setting. Specific topics examined include: motivation, leadership, organizational design, and conflict resolution, as well as a basic coverage of management principles. In covering these topics, both "classic" and current perspectives are provided.

## 215 Information Systems Analysis (3)

Prerequisites: Business Administration 109, Business Administration 209, and a 2.0 overall GPA. Business Administration 209 may be taken concurrently. Techniques and philosophies of systems analysis are addressed. Included are: traditional versus structured design methods, computer-based tools for systems analysis, workbenches, design and analysis of data base systems, maintenance of existing information systems, human/machine interfaces, and security and control.

## 224 Managerial Applications of Object-Oriented Programming (3)

Prerequisites: Business Administration 109 or Computer Science 125 and a minimum overall GPA of 2.0. The course provides a study of the UNIX operating

system and the C++ programming language as they pertain to managerial applications. In addition, the course will introduce the use of object-oriented programming methodologies.

## 256 Business Law: Contracts, Sales, Secured Transactions, Bankruptcy (3)

Prerequisites: Business Administration 140, Economics 51, and a 2.0 overall GPA, or junior standing and a 2.0 overall GPA. Introduction to the laws of contracts, sales, secured transactions, bankruptcy, and other selected topics.

## 257 Business Law: Negotiable Instruments, Business Organizations, Property (3)

Prerequisites: Business Administration 140, Economics 51, and a 2.0 overall GPA, or junior standing and a 2.0 overall GPA. Introduction to the laws of negotiable instruments, the principal-agent relationship, partnerships, corporations, property, and other selected topics.

## 270 Management of Promotion (3)

Prerequisite: Business Administration 206 and a 2.0 overall GPA. A study of the design, organization, and implementation of the marketing "communications mix." Various methods, such as advertising, personal selling, and publicity are analyzed as alternatives for use alone, or in combination, to stimulate demand, reseller support, and buyer preference. Particular topics considered include: media selection, sales promotionals, packaging, and selling strategy, and their relationships in the promotion process.

## 275 Marketing Research (3)

Prerequisites: Business Administration 103, Business Administration 131, Business Administration 206, and a 2.0 overall GPA. An investigation of the acquisition, presentation, and application of marketing information for management. Particular problems considered are defining information requirements, evaluating research findings, and utilizing information. Statistical methods, models, and/or cases are employed to illustrate approaches to marketing intelligence problems, such as sales forecasts, market delineation, buyer motives, store location, and performance of marketing functions.

## 289 Career Planning (1)

Prerequisite: A minimum of junior standing and a 2.0 overall GPA. The emphasis of this course will be to assist business students to develop an understanding of themselves as related to employment, to develop an understanding of the world of work, and to integrate these so that effective career decisions can be made.

## 295 Business Administration Problems (1-10)

Prerequisite: To be determined each time the course is offered and to include a minimum 2.0 overall GPA. Study of selected special problems in business and administration. May be repeated for credit with different topics.

## 296 Independent Study (1-3)

Prerequisite: Permission of the professor, the dean, and a minimum overall GPA of 2.0. Occasional special individual study topics under the guidance of a specific professor.

## 301 Buyer Behavior (3)

Prerequisites: Business Administration 206, three hours of psychology or sociology, and a 2.0 overall GPA. A study of consumer functions and concepts in economics, marketing, and related subjects, such as decision making, attitude formation, cognition, perception, and learning as related to marketing phenomena, product image, brand loyalty, shopping preference, and diffusion of innovations. These are considered in context with political, social, market, and legal influences on buyer behavior.

## 302 Quantitative Marketing Methods (3)

Prerequisites: Business Administration 103, Business Administration 131, Business Administration 206, and a 2.0 overall GPA. Applications of stochastic, deterministic, and simulation techniques to decision areas, such as market potential, product diversification, physical distribution alternatives, retail location, media selection, and market exposure. Quantitative and computerized methods are used heavily to enhance decision making in marketing, especially the selection, allocation, budgeting, and forecasting of marketing resources.



## Business Administration

### 303 Industrial Marketing (3)

Prerequisites: Senior standing, Business Administration 131, Business Administration 206, and a 2.0 overall GPA. A study of the nature of the industrial marketplace, concentrating on those aspects that differentiate it from consumer markets. The major focus of the course is strategy, starting with analysis of the market wants and segments, concepts of pricing, the distribution arrangements, and buyer/seller relations. In this last area, consideration will be given to service, sales technical development, sales promotion, and advertising, as found in the industrial marketplace. At all times emphasis is given to relating industrial marketing strategy to basic concepts in underlying business disciplines. Lectures and case discussions are used heavily in the course.

### 305 Management of Telecommunications (3)

Prerequisite: Business Administration 103 and a 2.0 overall GPA. The technical and managerial aspects of telecommunications as they apply to the business environment are discussed. Issues include: communications components and services, local area network architecture, managerial implementations, organizational issues, and cost/benefit analyses.

### 306 Decision Support and Expert Systems (3)

Prerequisites: (Business Administration 104 or 109), and (Business Administration 202 or 204 or 329), and a minimum 2.0 overall GPA, or permission of instructor. Applications of decision support systems and expert systems in a business environment are studied. Relationships between decision support systems, expert systems, and data base management systems are explored.

### 307 Management of End-User Computing (3)

Prerequisite: Business Administration 109 and a 2.0 overall GPA. Issues in the management and practice of end-user computing are presented. The topics include information centers, Micro/Mainframe links, fourth generation languages, and end-user software packages.

### 308A Production and Operations Management (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Business Administration 202 and Mathematics 101; or consent of area. Application of the tools and techniques of statistical decision theory and operations research to production and operating problems. Emphasis is on the use of mathematical modeling and simulation techniques to analyze complex and ill-structured problems in large scale systems.

### 308B Production and Operations Management-Logistics (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Business Administration 202 and Mathematics 101; or consent of area. Detailed study of the logistical management of organizations. Topics include transportation, routing, facility location, fleet design, and capacity planning.

### 308C Production and Operations Management-Manufacturing (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Business Administration 202 and Mathematics 101; or consent of area. Study of manufacturing processes, manufacturing management, and strategic aspects of manufacturing. Topics include facility design and location, production planning and scheduling, inventory control, quality control, and technological innovation.

### 308D Production and Operations Management-Service System (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Business Administration 202 and Mathematics 101; or consent of area. The methods for managing the operations of service delivery systems, such as hospitals, banks, public safety, airlines, etc. Topics include facility design and location, queueing, and personnel scheduling.

### 308E Production and Operations Management-Information Resource Management (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Business Administration 202 and Mathematics 101; or consent of area. Aspects and methods for managing the computer and information resources of organization. Topics include facility management, purchase decisions, project scheduling, economic evaluation, queueing, and job design as they relate to information resources.

### 309 Personnel Management (3)

Prerequisites: Business Administration 131 and Business Administration 210, and a 2.0 overall GPA. This course is a study of personnel practices and policies. Employee selection, development, job performance, compensation, safety, and collective bargaining are covered. The course emphasizes practical applications.

### 310 Information Systems Design (3)

Prerequisites: Business Administration 215 and either Business Administration 209 or Computer Science 322, and a 2.0 overall GPA. System design, implementation, and methods of systems installation and operation are presented. A system development project is required.

### 311 Management as a Behavioral Science II (3)

Prerequisite: Business Administration 210 and a 2.0 overall GPA. Building upon Business Administration 210, this course provides a more detailed examination of motivation, leadership, group process, decision-making, job design, and organizational development. In addition to providing more detail in terms of content, this course provides the student with considerable practical experience through the use of class exercises, case studies, and small group discussions.

### 312 Industrial and Labor Relations (3)

Prerequisite: Business Administration 210 and a 2.0 overall GPA. Emphasis is on the dynamic relationship between management, employees, unions, and government as determinants in the efficient and effective use of human resources. Current issues and case materials are used to supplement text and lecture.

# Business Administration

## 315 Marketing Management (3)

Prerequisites: Business Administration 131, Business Administration 206, one other three-hour marketing course, senior standing and a 2.0 overall GPA. An intensive analysis of major marketing decisions facing the firm, such as level, mix, allocation, and strategy of marketing efforts. Specific decision areas investigated include market determination, pricing physical distribution, product policy, promotion, channel management, and buyer behavior. Competitive, political, legal, and social factors that may affect such areas of decision are discussed. Cases, models, and problems are used heavily.

## 316 International Marketing (3)

Prerequisite: Business Administration 206 and a 2.0 overall GPA. Marketing management problems, techniques and strategies needed to apply the marketing concept to the world marketplace. Understanding a country's cultural and environmental impact on the marketing plan is emphasized, as well as competing in markets of various cultures. Worldwide consumerism, economic and social development, the spread of multinational corporations, business ethics, and current economic and marketing issues are examined.

## 317 International Management (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Economics 52 and Business Administration 210; or permission of the area coordinator and the instructor. A study of international business and international management practices. Topics covered include an introduction to international management and the multinational enterprise, the cultural environment of international management, planning in an international setting, organizing for international operations, directing international operations, international staffing, preparing employees for international assignments, and the control process in an international context.

## 318 Industrial and Organizational Psychology (3)

(Same as Psychology 318.) Prerequisite: Psychology 101 or Business Administration 131 and Business Administration 210. This course introduces the student to psychological research and theories pertaining to human behavior in the work setting. Topics covered include: selection, performance appraisal, training, leadership, motivation, job satisfaction, and organizational design.

## 319 Employee Training and Development (3)

Prerequisite: A minimum 2.0 overall GPA. In addition, Business Administration 210 or permission of instructor. An intensive study of training in organizations, including needs analysis, learning theory, management development, and development of training objectives and programs. Projects and exercises are used to supplement the readings.

## 329 Business Forecasting (3)

Prerequisites: Business Administration 202, Mathematics 101, and a minimum overall GPA of 2.0. Further study of statistical tools for forecasting in a decision-making context. Topics include explanatory models (multiple regression), classical time series decomposition, and extrapolative techniques (exponential smoothing and Box-Jenkins procedures). In addition, methods for considering problems of intervention effects, seasonality, and collinearity will be discussed. Students will perform extensive analyses of time series data using computer packages.

## 330 Quality Assurance in Business (3)

Prerequisites: Mathematics 101, Business Administration 202 and a minimum overall GPA of 2.0. A study of statistical quality control concepts and procedures applicable to management systems, administrative activities, service industries, and nonprofit organizations. Some successful quality assurance programs will be examined.

## 331 Multivariate Analysis (3)

Prerequisites: Business Administration 131, Mathematics 101, Mathematics 102, and a 2.0 overall GPA. A study of statistical techniques applicable to multivariable relationships.

## 334 Investments (3)

Prerequisite: Business Administration 204 and a 2.0 overall GPA. Financial analysis of debt and equity instruments available on organized exchanges and in less tangible over-the-counter markets. Techniques of such analysis are presented in context with economic and management circumstances within the company, industry, and economy.

## 335 Advanced Investments (3)

Prerequisite: Business Administration 334 and a 2.0 overall GPA. In-depth coverage of selected topics and issues introduced in the introductory investments course. Emphasis will be placed on the analysis of investments in speculative markets: options, futures, and options on futures.

## 340 Intermediate Accounting I (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30, Business Administration 140, and 57 credit hours, or consent of area. Accounting theory and practice related to the acquisition, use, and disposal of current, fixed, and intangible assets (excluding long-term investments in securities). Other topics include current liabilities and accounting for income taxes.

## 341 Intermediate Accounting II (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30 and Business Administration 340; or consent of area. Accounting theory and practice related to issued corporate debt and equity and to long-term investments in securities. Other topics include pension accounting, leases, statement of cash flows, determination of earnings per share, and inflation accounting.

## 342 Advanced Accounting (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30 and Business Administration 341; or consent of area. Accounting theory and practice related to business combinations, consolidated financial statements, multinational operations, partnerships, and governmental and nonprofit organizations.

## Business Administration

### 343 Accounting for Governmental and Nonprofit Entities (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30, Business Administration 140, and 57 credit hours; or consent of area. Principles of fund accounting and financial reporting for governmental and nonprofit entities.

### 344 Computer Applications in Accounting (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30, Business Administration 103, Business Administration 145, and Business Administration 340; or consent of area. Managerial and financial accounting applications of computers—budgeting, financial planning and analysis, and accounting information processing systems. Emphasis on development of systems for micro- and mainframe computers using high-level applications development software and on associated internal control and auditing problems.

### 345 Cost Accounting (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30, Business Administration 145, and 57 credit hours; or consent of area. The study of the basic principles of cost determination for, and control of, manufacturing and distribution activities. Topics include job-order costing, process costing, cost allocations, and the development and use of standard costs within a system of absorption costing.

### 347 Income Taxes (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Mathematics 30, Business Administration 145, and 57 credit hours; or consent of area. Fundamentals of federal income taxation with emphasis on individuals. Topics include determination of income, exclusions, exemptions, personal and business deductions, credits, and accounting methods, and capital gains and losses.

### 348 Auditing (3)

Prerequisites: A minimum 2.0 overall GPA. In addition, Business Administration 131 and Business Administration 341; or consent of area. Fundamental auditing standards, audit reports, professional ethics, and procedures employed by the independent public accountant in the verification and analysis of financial statements.

### 349 Business Income Taxation (3)

Prerequisite: A minimum 2.0 overall GPA. In addition, Business Administration 347; or consent of area. A study of the federal income taxation of partnerships and shareholders and corporations, including subchapter S (small business) corporations with emphasis on problems encountered in their formation, operation, liquidation, and sale.

### 350 Financial Policies (3)

Prerequisite: Business Administration 204 and a 2.0 overall GPA. The intensification and application of the concepts developed in Business Administration 204. Special emphasis is given to the development of top management policies and their application toward complex problems of finance. Techniques for identifying and dealing with these problems before they become acute will be investigated. Cases will be integrated with appropriate outside reading.

### 351 Computer Applications in Finance (3)

Prerequisites: Business Administration 103, Business Administration 204, one 300-level finance course, and a 2.0 overall GPA. Financial problem solving and applications on the microcomputer. A project-oriented course with an emphasis on micro-based finance projects: present value/IRR analysis, duration, immunization, portfolio optimization, leasing, capital budgeting, financial forecasting, options, and futures.

### 355 Financial Services Industry and Instruments (3)

Prerequisite: Business Administration 204 and a 2.0 overall GPA. The theory of financial services, instruments, and markets is discussed. In this framework, the valuation consequences of money and capital markets, corporate control, complex contracting, and regulatory environment are developed. Topics also include hedging, interest rate risk, deposit insurance, and financial instruments.

### 356 Commercial Bank Management (3)

Prerequisites: Economics 52, Business Administration 204, and a 2.0 overall GPA. Corporate finance and microeconomics are applied to matters of importance to commercial bankers. Among the subjects treated are bank-asset portfolio construction, lending policies, liabilities management, bank capital structure, short-run cash management, financial market rates and flows, and quantitative models for bank management. Commercial bank management is analyzed from an internal viewpoint in terms of what bank managers should look for in asset management and why; what market conditions they should be aware of; and what techniques they can use to meet changing economic and financial conditions.

### 375 Operations Research (3)

Prerequisites: Mathematics 101, Business Administration 202, and a 2.0 overall GPA, or Mathematics 250 and a 2.0 overall GPA. Applications of the theories and techniques of operations research to problems of business, government, and industry, with emphasis on the construction and utilization of quantitative decision models.

### 380 International Business (3)

Prerequisites: Economics 51, Business Administration 204 and a 2.0 overall GPA. The United States in the world economy; emerging nations; foreign exchange market; foreign investment; commercial documents; world trade; and management of enterprises abroad.

## Business Administration

### **385 Operations Research II (3)**

Prerequisite: Business Administration 375 and a 2.0 overall GPA. Topics of special interest including mathematical programming, stochastic decision making, digital simulation, game theory, and other selected techniques. (Formerly Mathematical Programming).

### **391 Strategic Management (3)**

Prerequisites: Senior standing and Business Administration 204, Business Administration 206, Business Administration 210, and a 2.0 overall GPA. This is a capstone course drawing on the subject matter covered in prerequisite courses. Emphasis is on the formulation and implementation of corporate, business and functional strategies designed to achieve organizational objectives. Topics include the role of top management, globalization of business and ethical perspectives. Case studies and research reports may be used extensively. (It is preferred that this course be taken during the student's final semester.)

### **392 Entrepreneurship/Small Business Management (3)**

Prerequisites: Business Administration 156, 204, 206, 210, and a 2.0 overall GPA. This integrative general management course is designed to communicate the academic principles of business management applicable to solving of problems of small- and medium-size businesses and assist in their development. This course will provide a background in the forms of business, the development of business plans and systems integration, venture capital, accounting, procurement, promotion, financing, distribution and negotiations for initial organization, and operation and expansion of the firm. This course is also offered as a video instructional program through UM-St. Louis Continuing Education-Extension and/or the Center for Independent Study, University Extension.

### **395 Business Administration Seminar (1-10)**

Prerequisite: To be determined each time the course is offered and to include a minimum 2.0 overall GPA. May be repeated for credit.

### **396 Internship in International Business (3-6)**

Prerequisites: Economics 51 and Economics 52, Business Administration 140 and Business Administration 145, an additional 12 hours in Business Administration, concurrent enrollment in a UM overseas program; also a 2.0 minimum overall GPA. The internship will be a supervised field experience in a business/international organization at a foreign site. Students will work for 10 weeks on projects directed by host organization supervisors in consultation with a UM-St. Louis faculty member. Prior to the field experience students will receive training that includes familiarization with the language and practices of the country's business, the background of the host firm, and international information sources. The student will complete a written report of his/her project. Course may not be repeated for more than 6 hours credit.

### **405 Managerial Communication (3)**

An analysis of business writing and speaking, and the communication conventions common in organizations. Emphasis is placed on developing skills critical to career advancement and necessary for effective organizational functioning. A second goal is to prepare students for assignments in other business courses. This course must be taken within the first 12 credit hours of study, preferably in the student's first semester.

### **410 Managerial Economic Analysis (3)**

Microeconomic analysis of consumers, firms, and government. The concepts and mathematical tools of economic analysis are applied to the production and distribution functions of organizations.

### **411 Analysis of National Economic Environment (3)**

The character and functioning of the national economic system; analyzing and forecasting fluctuations in national income and product, employment, and prices; the influence of monetary and fiscal policies. Emphasis is on the acquisition of knowledge concerning forces affecting all business firms.

### **412 Public Policies Toward Business (3)**

Analysis of public policies, as represented by laws, court decisions, and other governmental activities, as they affect efficiency in the public and private sectors, employment and price levels, and business decision making.

### **415 Societal, Environmental, and Management Decisions (3)**

Prerequisites: Business Administration 410 and Business Administration 411. An examination of the external relationships of a business enterprise with the broad and diverse interests of society. These are government and social forces that sometimes operate counter to the potential dictates of theoretical internal economic policies for an individual organization. The primary objective is to examine the increasingly complex set of interrelationships among business, government, other economic groups, and "the public." A series of major current problems, chosen to raise some of the major issues involved in these interrelationships, and in particular to explore the development of public policy on such problems.

### **416 International Finance, Investment, and Commercial Relations (3)**

Prerequisite: Business Administration 411. The international monetary system; balance of payments; liquidity; foreign-exchange market; foreign investment; international and regional financial institutions. Commercial documents; United States trade patterns, composition, and structures; United States commercial policy; regional trade groupings; trade of emerging nations; and international trade organizations.

### **417 International Business Operations (3)**

Prerequisite: Business Administration 416. Functional management within multinational corporations; case studies of operations abroad; and focus on managerial decision making.



## Business Administration

### **418 Governmental Budgeting and Financial Control (3)**

(Same as Public Policy Administration 418.) Prerequisite: Accounting 440. A study of municipal and federal financial control and budgeting procedures with emphasis on public policy. The impact of financial control on top management decisions and the effect of budget strategies on the allocations of public funds.

### **420 Seminar in Business Administration (3)**

An intensive study of a specific area of business administration of some specific business or economic phenomenon, or a specific problem or theory. Several different courses may be offered under this course number.

### **430 Individual Research (1-10)**

Prerequisite: Consent of instructor and graduate director. Special individual research topics under the guidance of a specific professor.

### **490 Strategy Formulation and Implementation (3)**

Prerequisites: Finance 450, Management 460, Marketing 470, and Management Science/Information Systems 482. Graduate program capstone course examining concepts and methods that integrate functional areas of business. The perspective is that of general management charged with directing the total enterprise. Interactions between the environment, organization, strategy, policies and the implementation of plans are explored. Special emphasis is given to globalization of business and ethical perspectives. This course should be taken during the semester prior to graduation. In no case may it be taken sooner than two semesters prior to graduation.

## Accounting (400-level)

### **419 Management Accounting and Auditing in Governmental and Not-for-Profit Entities (3)**

Prerequisites: Business Administration 418 and Accounting 441 or consent of instructor. A study of accounting for use in the public sector and in not-for-profit organizations. Cost behavior controllability, and traceability concepts for management planning and control will be investigated, as well as auditing in the public sector.

### **421 Seminar in Corporate Accounting (3)**

Prerequisites: Accounting 448 or consent of instructor. Consideration of corporate financial reporting and disclosure practices. Critical analysis of topics of current interest and importance in accounting practice.

### **422 Seminar in Governmental and Non-Profit Accounting (3)**

Prerequisites: Business Administration 418 and Accounting 445, or consent of instructor. Consideration of the positions of authoritative groups concerning accounting theory and practice for governmental and nonprofit entities. Evaluation and critical analysis of these positions in view of current accounting literature and research finding.

### **431 Tax Research (3)**

Prerequisite: Business Administration 347 or consent of instructor. A discussion of the research tools and methods available to resolve questions pertaining to the tax laws. Addresses techniques for locating, verifying, and evaluating authority. Students will be expected to complete a number of tax research and writing problems throughout the semester. A basic understanding of the federal income tax law is presumed.

### **432 Taxation of Estates, Gifts, and Trusts (3)**

Prerequisites: Business Administration 347 and Accounting 431, or consent of instructor. Consideration of the transfer tax systems in general; the elements of the gross estate (includible versus nonincludible property), deductions (including the marital deduction) and credits; the gift tax and what it embraces; basic estate planning considerations; and income taxation of grantor and nongrantor trusts.

### **433 Taxation of Corporations and Shareholders (3)**

Prerequisites: Business Administration 347 and Accounting 431, or consent of the instructor. Addresses tax aspects of the formation, operation, and liquidation of a corporation, as well as changes in the corporate structure through division or reorganization. Topics include establishment of the corporate structure, distributions to shareholders, and stock dividends and redemptions.

### **434 Taxation of Partnerships and Partners (3)**

Prerequisites: Business Administration 347 and Accounting 431, or consent of instructor. Addresses tax aspects of the formation, operation, and termination of a partnership. Topics include special allocations and disposition of a partnership interest. Compares partnerships with Subchapter S corporations.

### **435 Tax Practice and Procedure (3)**

Prerequisite: Business Administration 347 or consent of the instructor. Addresses the audit process; practice before the Internal Revenue Service; administrative appeals; the notice of deficiency; waivers and extensions; amended returns and claims for refund; statute of limitations on deficiencies and overpayments; and taxpayer and tax return preparer penalties.

### **436 Advanced Topics in Taxation (3)**

Prerequisites: Business Administration 347 and Accounting 431, or consent of instructor. Addresses various topics selected by the instructor, such as property transactions, compensation plans, charitable contributions, the alternative minimum tax, and tax planning.

### **439 Seminar in Taxation (3)**

Prerequisite: At least nine hours of 400-level tax courses including Accounting 431 or consent of the instructor. Addresses tax policy topics drawing on literature from accounting, economics, and public finance. Other topics of current interest will be selected by the instructor.



# Business Administration

## **440 Financial Accounting: Theory and Practice (3)**

Business organization, operations, and terminology. A survey of the broad areas of accounting, including its mechanisms. Emphasis on the development of a logical framework of underlying concepts upon which practices and procedures are superimposed. Intensive study of balance sheet, income statement and other financial reports, together with the accounting principles underlying them. Statements designed for stockholders and creditors. The interpretative and analytical point of view is stressed.

## **441 Concepts in Management Accounting (3)**

Prerequisites: Mathematics 101 or Mathematics 102 or Economics 351 with a minimum grade of "C" and Accounting 440. The development, interpretation, and uses of accounting reports and supplementary information for management planning, control, and decision making. Emphasizes the application of relevant cost behavior, control, and traceability concepts in the preparation of internal accounting reports, with a secondary emphasis upon product costing techniques as appropriate to financial accounting needs. Topics include break-even analysis, operational budgeting, direct costing, absorption costing, standard costs and variance analysis, business segment analysis, responsibility accounting, distribution cost accounting, and gross profit analysis.

## **443 International Accounting (3)**

Prerequisite: Business Administration 341 or Accounting 445 or consent of instructor. Accounting practices for multi-national businesses. Discussion of comparative financial accounting practices, the development of international accounting standards, and managerial accounting practices related to multinational operations.

## **445 Financial Accounting: Advanced Theory and Analysis (3)**

Prerequisite: Accounting 440 or equivalent. Development of a structure of financial accounting theory and analysis of asset and equity valuation methods and their related effects on income determination.

## **446 Topics in Professional Accounting (3)**

Prerequisites: Accounting 440 and Management Science/Information Systems 481. An investigation of the impact of past, current, and prospective developments upon the role of the professional accountant. Topics include professional ethics, generally accepted auditing standards, types of auditor's opinions, internal control, and internal auditing; the use of probability theory and statistical sampling methods in the conduct of an audit; management advisory theory and statistical sampling methods in the conduct of an audit; management advisory services; auditing in mechanized and electronic data-processing systems; the requirements imposed by the S.E.C. and other regulatory agencies; and the legal responsibilities.

## **447 Accounting Systems for Management Planning and Control (3)**

Prerequisites: Accounting 441 and Management Science/Information Systems 481, or permission of instructor. A study of advanced managerial accounting techniques useful in facilitating the planning and control process in modern organizations. Emphasis on the implementation and administration of these techniques, their integration with management information systems, and the organizational role of the corporate accountant.

## **448 Seminar in Advanced Theory and Contemporary Issues in Accountancy (3)**

Prerequisite: Accounting 440 and Management Science/Information Systems 481 or consent of instructor. Examines the theory underlying accounting practice. The course includes an in-depth analysis of contemporary developments in financial accounting with a succinct overview of accounting research paradigms.

## **449 Systems Auditing (3)**

Prerequisites: Accounting 440, Management Science/Information Systems 480, or consent of instructor. Study of techniques involved in the control and audit of computer-based accounting information systems. Emphasis on the review of internal controls at operational and administrative levels and on computer-assisted audit techniques

## Finance (400-level)

### **450 Financial Management (3)**

Prerequisites: Accounting 440, Management Science/Information Systems 481 (or Business Administration 131), Business Administration 410 (or Economics 51 equivalent), and Business Administration 411 (or Economics 52 equivalent). A consideration of the methods used to determine the firm's need for short- and long-term capital, the possible means of securing such capital once a need has been determined, and the techniques for judicious use of the capital in terms of asset investment and asset management decisions. Topics include the finance function, operating and financial methods of capital budgeting decisions, cost of capital, dividend policy, long-term financing, management of current assets, intermediate and short-term financing, and corporate valuation in mergers and consolidations.

### **451 Advanced Financial Management (3)**

Prerequisites: Finance 450 and Management Science/Information Systems 481. Exposure to recent financial management theory through selected readings. Financial management problems are considered by the use of cases and simulation models. An original research project under the supervision of the instructor is required.

### **455 Security Analysis (3)**

Prerequisites: Finance 450 and Management Science/Information Systems 481. An in-depth study of techniques used in evaluating various financial assets as investment opportunities. Financial assets studied include common stock, preferred stock, and fixed income securities. Other related topics such as sources of investment information and current market trends are discussed.

### **456 Capital Markets and Financial Institutions (3)**

Prerequisite: Finance 450. The theory of financial intermediation is discussed in the context of banks, savings and loans, public and private insurance companies, and investment banking. In this framework, the relationship with money and capital markets, markets for corporate control, complex financial contracting, and regulatory environment is developed.

## Business Administration

### 457 Portfolio Management and Special Topics in Investments (3)

Prerequisite: Finance 455. Traditional portfolio management, as well as current portfolio theory, is studied. The use of simulation and mathematical models to optimize the return on portfolios is discussed. In addition, special topics of current interest or recent developments in the field of security analysis and portfolio management are presented.

### 458 Commercial Bank Management (3)

Prerequisite: Finance 450. This course explores the various bank management techniques required to manage a modern commercial bank in a rapidly changing environment. Topics include asset and liability management, capital adequacy, bank holding companies, profitability, and bank market structure and regulation.

## Management (400-level)

### 460 Organizational Behavior and Administrative Processes (3)

(Same as Public Policy Administration 460.) The theoretical and research contribution of the behavioral sciences to management and administration are examined and applied to selected organizational situations. Areas to be considered from the standpoint of both individual and organizational performance are communication, motivation, conflict, decision making, goal setting, leadership, organizational design, climate, development, and control. Utilizing a systems perspective, the course attempts to develop in each student an ability to analyze and solve organizational problems.

### 461 Managing Human Resources (3)

Prerequisite: Management 460. In-depth examination of selected human resource management issues from a contemporary manager's viewpoint. Topics examined include: personnel planning; employee selection; performance appraisal, training, and development; compensation; legal issues; discipline; and labor relations. The course examines these topics as they relate primarily to operational activities in organizations.

### 462 Advanced Organizational Behavior and Administrative Processes (3)

Prerequisite: Management 460. An in-depth examination of selected organizational and individual theories affecting behavior and operating performance. Organizational structure and design, formal and informal organization, decision making, communications, and motivation are analyzed for their organizational impact. The course seeks to develop further the ability to analyze and evaluate organizational processes and individual behavior.

### 463 Organizational Training (3)

Prerequisite: Management 460 or Management 461 or permission of department. An intensive study of training and developmental methods/issues in organizations. Topics include needs analysis, learning theory, training techniques, evaluation, and management development. Other topics include memory, training objectives, and training facilities. Projects and exercises are used to supplement reading and lecture.

### 464 Compensation and Benefits (3)

Prerequisites: Management 461 and Management Science and Information Systems 481. An in-depth study of compensation and benefit programs in organizations. Topics include job evaluation, incentive systems, performance appraisal, and employee benefits. Discussion of relevant laws, such as the Equal Pay Act, is also provided.

### 465 Union-Management Relations and Collective Bargaining (3)

Prerequisites: Management 460 and Business Administration 412. Primary concern is with the setting and the dynamics of contract negotiation and administration. Emphasis is on the development of insight and understanding of the forces affecting the decisions of the parties to a labor contract within the context of the social, political, and economic environment of the organization. A dynamic approach is taken to examine difficulties that arise in attempting to administer a collectively established relationship between employer and employee.

### 466 Personnel Administration: Theory and Practice (3)

Prerequisites: Management 461 and Management Science/Information Systems 481. Examination of various methods and procedures (including statistical techniques) critical to the design and operation of a modern personnel management system. Personnel techniques to be studied include: job analysis, employee recruitment, selection, and placement; performance appraisal; measurement of employee attitudes, job satisfaction, and organizational climate. Consideration will be given to relevant legal issues, as well as to the theories or rationale which underlie the various personnel techniques and functions.

### 467 Dynamics of Interpersonal Relations (3)

Prerequisite: Management 460 or academic background in general psychology. The self-concept, personality dynamics, and mechanisms of adjustment. Catalysts and barriers to effective communication. Examination of the functional relationship between ego-needs, perceptual distortion, and stereotypical thinking. Roleplaying, the resolution of role-conflict, and objective self-evaluation. The development of cooperation and trust as a prerequisite to effective human relations.

## Management Science/Information Systems (400-level)

### 424 Seminar in Current Management Information System Topics (3)

Prerequisite: Management Science/Information Systems 488 or Management Science/Information Systems 491. Advanced topics of current interest in management information systems. Content to be determined each time the course is offered. May be repeated for credit.

# Business Administration

## 425 Advanced MIS Applications (3-6)

Prerequisite: Management Science/Information Systems 488 or permission of instructor. The course requires a project through which the student applies MIS concepts to a real problem; a written, professional quality report will be required. The course material must build upon, not duplicate, material in the MIS curriculum. The course may be repeated for credit with the permission of the MS/IS area. Consent of the MS/IS area for the topic and number of hours is required.

## 480 Management Information Systems (3)

(Same as Public Policy Administration 480.) Prerequisite: Economics 351 or Mathematics 101 or Mathematics 102. An overview of management information systems is presented, including various information systems concepts and technologies. Students are introduced to a mainframe operating system, a microcomputer-based operating system, and a programming language. Students are also exposed to several common microcomputer-based software packages.

## 481 Statistical Analysis for Management Decisions (3)

Prerequisites: Management Science/Information Systems 480 (may be taken concurrently) and Economics 351 with a minimum grade of "C." The role of statistical evidence in the formation of inference and in the selection of strategies in solving business problems is developed. Probability and probability distributions are studied as a basis of statistical inference. An introduction to multivariate analysis is provided, which includes analysis of variance and regression methods.

## 482 Operations Research Methods (3)

Prerequisite: Management Science/Information Systems 481. Development of a working knowledge of operations research techniques, as applied to dynamic business problems. A study of analytical approaches to business programs, construction of mathematical models, and manipulation of model variables for managerial decision making. Topics include mathematical programming, inventory theory, game theory, queueing theory, sequencing models, and simulation models.

## 483 Production and Operations Management (3)

Prerequisite: Management Science/Information Systems 482. The economic concepts of production and technology are integrated with practical problems encountered in the production of goods and services. Topics include design, layout, and location of facilities, forecasting, manpower and production scheduling, inventory control, queueing, material planning, and quality control. Modeling, analytical techniques, and simulation are used in studying these problems. Applications to service industries (e.g., hospitals, government) are included.

## 484 Business Programming and File Systems (3)

Prerequisite: Management Science/Information Systems 480. The course provides a study of business-oriented programming. The programming language COBOL will be introduced and studied in detail. Emphasis will be on program definition and the use of file structures in business-oriented applications.

## 485 Theoretical Foundations of Management Information Systems (3)

Prerequisite: Management Science/Information Systems 480. Students are exposed to current Information Systems literature and major theoretical issues in Information Systems. Coverage stresses the fit between information systems and the organization. Topics include Management Information Systems development, end-user computing, systems architecture, decision support systems, and planning and control.

## 486 Advanced Statistical Methods for Management Decisions (3)

Prerequisite: Management Science/Information Systems 481. A study of statistical methods applicable to specialized areas of statistical analysis. Topics include Markov processes, distribution-free tests, sampling theory and methods, experimental design, time series analysis, and spectral analysis.

## 487 Advanced Operations Research Applications (3)

Prerequisite: Management Science/Information Systems 482. Application of operations research techniques to business problems. After a brief review of these techniques, followed by an examination of typical applications reported in the literature, the major portion of the term is spent in analyzing and solving an actual business operations research problem. A team approach is used, with groups of two or three students responsible for finding and solving an operations research problem in a local company. Primary emphasis is placed on the use of operations research techniques to solve management problems.

## 488 Information Systems Analysis (3)

Prerequisite: Management Science/Information Systems 484. The theory and practice of structured analysis are presented. Topics may include: traditional vs. structured analysis methods, requirements analysis, user/analyst interaction, investigation of existing systems, human/machine interfaces, CASE tools, and workbenches.

## 489 Database Management Systems (3)

Prerequisite: Management Science/Information Systems 484. The course introduces the concepts of Database Management Systems for business applications. Issues in database architecture, design, administration, and implementation are covered. Projects are assigned on a mainframe DBMS and a microcomputer-based DBMS to illustrate the concepts and applications.

## 491 Computer Systems: Architecture and Programming (3)

Prerequisite: Management Science/Information Systems 484. This is an introduction to concepts of comparative computer architecture and its relationship to the operating system software which augments the architecture. An assembly language is studied.

## Business Administration

### 492 Information Systems Management (3)

Prerequisites: Accounting 440, Management 460, Marketing 470, and Management Science/Information Systems 485. The course covers the management of computer-based information. Issues relating the decisions of the chief information officer to the overall strategic planning of the organization are discussed. Further topics may include: cost and value of information, hardware/software evaluation and acquisition, systems implementation, performance measurement and evaluation, and organizational and behavioral issues.

### 493 Simulation for Managerial Decision Making (3)

Prerequisites: Management Science/Information Systems 481, 482, and 485. Introduction to simulation as a managerial decision-making aid. Application of simulation to a number of management science-oriented problems. The course introduces and requires use of a simulation language.

### 494 Advanced Operations Research Topics (3)

Prerequisite: Management Science/Information Systems 482. Advanced topics from such areas as mathematical programming, stochastic processes, decision theory, or game theory are studied in depth.

### 495 Information Systems Design (3)

Prerequisite: Management Science/Information Systems 488. This course builds upon the analysis techniques presented in Management Science/Information Systems 488. It requires the student, usually working in a group, to design and implement a system in a real-world environment. Advanced design concepts are presented to support the students in their project work.

### 496 Telecommunications: Design and Management (3)

Prerequisite: Management Science/Information Systems 480. The topic of telecommunications is addressed from both a technical and managerial viewpoint. In particular, the course will address issues such as communications components and services, local area network architecture, managerial implementations, organizational issues, and cost/benefit analyses.

### 497 Expert Systems (3)

Prerequisite: Management Science/Information Systems 485. The course introduces the application of expert systems in the business environment. Current applications in business and development tools are discussed. In addition, topics such as knowledge representation methods, inference engines, knowledge acquisition, neural networks and the handling of uncertainty are addressed. A (group) project is required.

### 498 Fourth Generation Languages and End User Computing (3)

Prerequisite: Management Science/Information Systems 480. The course presents fourth generation languages and covers managerial issues of end-user computing. A specific fourth generation language will be introduced and programming applications will be assigned. In addition, the course will explore the problems of providing and managing micro-to-mainframe links, end-user software packages, and security/confidentiality issues.

### 499 Management Information Systems Thesis Research (1-6)

Credit to be awarded only upon successful defense of thesis.

## Marketing (400-level)

### 470 Contemporary Marketing Concepts (3)

Prerequisites: Accounting 440 and Business Administration 410. Designed for students with no prior course work in the field of marketing. A wide spectrum of marketing institutions and activities is covered. The impact of marketing on the total firm, the economy, and society in general is assessed. The course is intended to develop and organize the fundamental marketing concepts necessary to an analytical study of consumer behavior, the economic environment, and four managerial aspects of marketing. The acquisition and utilization of marketing research data for problem solving is stressed. Relation and integration of basic marketing knowledge to the successful development of sound marketing policy, planning, and strategy is developed.

### 471 Marketing Planning and Strategy (3)

Prerequisite: Marketing 470. Emphasizes the development of a total marketing program through an analytical study of the marketing-mix, the diagnosis of the business situation, along with the influence of exogenous variables and the development of an effective overall marketing strategy. Stresses importance of an integrated marketing plan and utilizes modern decision-making tools. Supplementary readings, journal articles, and current periodicals are used to place the theoretical framework of the course into the contemporary environment of the market place.

### 475 Consumer Motivation and Behavior (3)

Prerequisite: Marketing 470. An analysis of the socio-psychological foundations of consumer behavior including personality differences, needs and wants, status symbols, social change and mobility, and fads and fashions. Consumer spending and saving habits, product preferences, leisure-time patterns, shopping behavior, and motivation research also are examined for their impact on advertising, selling, and marketing management.

### 476 Marketing Communications (3)

Prerequisite: Marketing 470. Deals with managerial decision making by placing particular emphasis on assimilating and integrating all forms of marketing communication in the development of promotional policies, plans, and procedures. Course approach is analytical rather than descriptive in investigating the areas of advertising, public relations, sales management, packaging, and other forms of demand stimulation.

## Business Administration

### **477 Product Planning and Pricing (3)**

Prerequisite: Marketing 471 or concurrent registration. A study of product management including the areas of new product development, the concept of the product line, deletion of nonessential products, and establishing the product's price. Also examined are pricing alternatives and the factors influencing price setting in the framework of a contemporary market structure.

### **478 Marketing and Business Research (3)**

Prerequisites: Marketing 470 and Management Science/Information Systems 481. A broad approach to marketing research as a model for acquiring, retrieving, and analyzing decision-making information. Includes market measurement, evaluation of sales, and cost effectiveness, sales forecasting, and primary marketing research studies aimed at solving specific problems. Emphasis is placed also on building a theoretical and analytical framework to provide flexibility in the design of marketing experiments and in judging recent research innovations.

### **479 Marketing Channel Strategy (3)**

Prerequisites: Marketing 470 and Management Science/Information Systems 482. A study of the marketing institutions involved in the distribution of goods and services, industrial and consumer markets, as well as the establishment and integration of marketing channels. The planning and analysis of the macrodistribution and microdistribution systems which contribute to creation of optimal time and place utility. Some attention is paid to quantitative applications to marketing situations including simulation and logistics.



## Abbreviations

### Course Area Key

The following abbreviations are used to indicate instructional areas in the School of Education:

**ADU ED**

Adult Education p. 132

**CNS ED**

Counselor Education p. 126

**ECH ED**

Early Childhood Education p. 140

**ED ADM**

Educational Administration p. 133

**ED FND**

Educational Foundations p. 134

**ED PSY**

Educational Psychology p. 127

**ED REM**

Educational Research and Evaluation Methods p. 128

**ED TEC**

Educational Technology p. 135

**EDUC**

School-Wide Education p. 124

**ELE ED**

Elementary Education p. 141

**PHY ED**

Physical Education p. 144

**SEC ED**

Secondary Education p. 136

**SPC ED**

Special Education p. 129

## School-Wide Courses

### School-Wide Courses Education (EDUC)

Prerequisites may be waived by consent of the department.

**65 The University (3)**

A School of Education interdisciplinary course on the principles, development, and organized structure of the university. Special emphasis will be placed on the role of the university in modern society and upon forces affecting the direction of the university and its potential for change. Methods include outside speakers, discussion groups, and laboratory research on UM-St. Louis.

**204 Special Topics in Education (1-3)**

Prerequisites: Completion of 75 hours and consent of instructor. Examination of a special area or topic within the field of education. Topics to be considered will be announced prior to registration and may vary. For elective credit only. This course may be repeated for different topics. Not to exceed a total of six hours credit.

**297 Independent Study (1-3)**

Prerequisites: Completion of 75 hours and consent of instructor. Independent study through readings, research, reports, and conferences designed to provide depth in areas of study previously introduced in education courses. For elective credit only. May be repeated. Not to exceed a total of three hours credit.

**301 Introduction to Microcomputers in Education (3)**

A course designed to introduce individuals to the microcomputer as an instructional medium. The course will emphasize (1) the history, role, and use of microcomputers in education; (2) learning the elements of programming for the microcomputer; and (3) beginning program construction and debugging operations.

**306 Graduate Workshop (1-10)**

Prerequisite: Consent of instructor.

**308 Graduate Institute (1-10)**

Prerequisite: Consent of instructor.

**375 Microcomputer Applications in Music Education (2)**

(Same as Music 375.) Prerequisites: Music 257 or Music 267 and EDUC 301 or consent of the instructor. An examination of the potential of microcomputers in the music education field. Experiences with available hardware and software suitable for applications that include inventory, budget, music library cataloging, digital music synthesis, and computer-assisted instruction at all levels.

**376 Microcomputer-Assisted Instruction Curriculum Development in Music (2)**

(Same as Music 376.) Prerequisites: EDUC 375 or Music 375, and a working knowledge of BASIC or PILOT or consent of instructor. Design and development of Computer-Assisted Instruction (CAI) lessons in music. Commercial courseware and various CAI models will serve as the basis for creating original programs that can be used effectively to implement objectives of the music curriculum for a specific school or school district. The design, refinement, and production of a major CAI program for use in an elementary, secondary, or postsecondary setting is required.

**377 Advanced Microcomputer Applications in Music (2)**

(Same as Music 377.) Prerequisite: Music Education 375 or consent of the instructor. The study of complex microcomputer applications including music synthesis, MIDI, music-oriented graphics, voice and pitch recognition, administrative applications, and computer-assisted instruction.

**393 Practicum in Individualized Instruction (3-6)**

Prerequisites: Completion of the course(s) to which assigned for instruction and consent of instructor. Supervised instruction in individualized programs. Seminar accompanies instructional experience. May be repeated.

**408 Graduate Institute (1-10)**

Prerequisite: Consent of instructor

## School-Wide Courses

### **414 Common Doctoral Seminar(s) (3)**

Prerequisite: Admission to the doctoral program. Two EDUC 414 seminars are required for all doctoral students, for a total of six hours of EDUC 414 seminar credit. One: "Elements of Educational Leadership" is to be taken early in the program. The other: "Research: Implementing Change in Educational Systems" is to be taken following completion of the research courses identified in the student's approved program.

### **415 Emphasis Area Seminar(s) (3)**

Prerequisite: Admission to the doctoral program. All doctoral students are required to take at least two emphasis area seminars consistent with their programs. Students may take additional emphasis area seminars. Obtain a list of emphasis area seminars from the Office of Graduate Studies in Education.

### **491 Staff Development and Professional Growth (1-10)**

Designed in conjunction with an individual school district or educational agency and related to problems of education confronting that specific district or agency.

### **497 Thesis Research (1-10)**

Prerequisite: Consent of instructor.

### **499 Dissertation Research (1-12)**

Prerequisite: Admission to the doctoral program. Credit awarded only upon successful defense of the dissertation.

## Behavioral Studies

Courses in this section are grouped as follows: Counselor Education (CNS ED), Educational Psychology (ED PSY), Educational Research and Evaluation Methods (ED REM), Special Education (SPC ED).

Prerequisites may be waived by consent of the department.

For information about certification and licensure, an adviser should be consulted.

### Counselor Education (CNS ED)

#### 314 Human Relations Skills (3)

Prerequisite: Consent of the instructor. A course emphasizing the development of specific skills in human relationships to help facilitate effective interaction among individuals and groups in the helping professions. Readings, discussion, and skill-building exercises will be used to develop various human relations skills.

#### 327 Personal and Professional Development in Counseling (3)

This course will introduce students to the field of professional counseling. Professional issues, ethical and legal considerations, and the helping relationship will be explored. The skills and procedures utilized in the counseling process will be introduced.

#### 330 Principles and Procedures for Student Personnel Work (3)

Student personnel work in educational institutions, objectives of student personnel work, and certain pertinent techniques.

#### 331 Counseling Individuals with Special Needs (3)

Prerequisite: SPC ED 313 or equivalent. A course emphasizing counseling skills for individuals who plan to work with the handicapped. Emphasis is placed on using counseling strategies with school-age handicapped children.

#### 332 Youth and Chemical Dependence (3)

Prerequisite: Junior standing. This course provides information about adolescent and preadolescent chemical dependence and its relation to the developmental problems of youth. Skills in the identification, intervention, and referral of adolescent and preadolescent chemical dependents will be emphasized, along with preventive measures and family and school issues.

#### 342 Occupational and Educational Information (3)

Nature and use of occupational and educational information. Characteristics, requirements of occupations, and training opportunities.

#### 404 Seminar (3-10)

#### 411 Theories of Counseling (3)

Prerequisite: CNS ED 327. This course will explore the philosophical foundations of counseling theory. The major constructs of contemporary counseling approaches will be discussed, and the practical applications of these theories will be analyzed.

#### 412 Theories and Techniques of Counseling Children and Adolescents (3)

Prerequisite: CNS ED 411 (ED PSY 417 or ED PSY 418 or permission of the instructor). This course focuses on counseling theories and their applicability to the developmental special concerns of children and adolescents including abuse, suicide, divorce, and death and dying. Individual, group, and family intervention techniques and consultation skills will be emphasized, as well as legal and ethical considerations for counselors. Strategies presented can be utilized in a variety of settings. Multicultural considerations are also addressed.

#### 414 Individual Inventory (3)

Prerequisites: ED REM 421. Uses of educational and psychological appraisal techniques in counseling. Develops counselor's abilities in assisting clients toward self-awareness through the use of test and nontest data. Ethical practices in the use of tests and the maintenance of personnel records are stressed.

#### 420 Group Procedures in Counseling (3)

Prerequisites: CNS ED 411 and CNS ED 93. Emphasis is on a survey of theory and research in group structure and processes. Students are expected to participate in an intensive group experience and conduct a group themselves under the instructor's supervision.

#### 423 Introduction to Systems Theory for Marriage and Family Counseling (3)

Prerequisite: CNS ED 411. This course is an introduction to general systems theory and application to marriage and family counseling. Students learn the theoretical basis for intervention and counseling strategies in the context of an ecology of human development. Developmental issues at individual, sibling, marital, family, and community levels and the ways in which various social systems interact with and mutually influence one another are presented.

#### 424 Marriage Counseling and Enrichment (3)

Prerequisite: CNS ED 423 or consent of instructor. This course focuses on the theory and technique of marital or couples counseling and enrichment. Models and methods for prevention and treatment of relationship dysfunction are explored. Relationship developmental issues are addressed. Students are challenged to develop the critical skills necessary to be effective marriage counselors and marital life educators.

#### 425 Family Counseling (3)

Prerequisites: CNS ED 423 and CNS ED 493, or consent of instructor. This course offers an in-depth analysis of strategic, structural, experiential, communications, behavioral, and psychodynamic approaches to systems change and family counseling. The range of techniques and applied practices evolving from each orientation are explored as are normal and dysfunctional family processes. Various counseling modalities, such as individual, concurrent, collaborative, conjoint, group, intergenerational, and networking are also considered.

## Behavioral Studies

### **427 Counseling the Chemical Dependent (3)**

Prerequisite: CNS ED 411. This course is an introduction to the problems resulting from the abuse of alcohol and other chemicals, with an emphasis on the impact of chemical dependence on the individual, the family, the employer, and the community. The special problems resulting from chemical dependence as it affects various populations, e.g., women, minorities, handicapped, the elderly, will be analyzed and linked to appropriate counseling strategies.

### **429 Advanced Strategies in Chemical Dependence Counseling (3)**

Prerequisite: CNS ED 427, CNS ED 493, or consent of instructor. This course offers an in-depth analysis of the various strategies and techniques that can be utilized in counseling chemically dependent individuals. Programs and interventions appropriate to a variety of settings will be analyzed.

### **431 Foundations of School Guidance (3)**

This course will introduce the student to the organization and administration of counseling services in a school setting. Additionally, the unique considerations in working with special client populations and other current issues in the profession will be explored.

### **436 Student Personnel Work in Higher Education (3)**

A survey course in student personnel administration with an emphasis on understanding the college student and on learning ways to meet both his/her academic and nonacademic needs.

### **442 Career Information (3)**

Nature and use of occupational and educational information. Characteristics and requirements of occupations and training opportunities. Process of vocational choice.

### **443 Career Development (3)**

Emphasis is on current theories of vocational development and their application to interest, aptitude, and ability tests significantly related to vocational development.

### **451 Counseling Parents of Exceptional Children (3)**

The development of counseling skills to enable human service professionals to interact productively with families who have handicapped children.

### **490 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### **493 Guidance Practicum I (3)**

Prerequisite: Consent of instructor. Supervised practice in counseling.

### **494 Guidance Practicum II (3)**

Prerequisite: Grade of "B" or better in CNS ED 493 and/or consent of instructor. Supervised practice in counseling.

### **497 Problems (1-10)**

## **Educational Psychology (ED PSY)**

### **211 Growth and Development (3)**

Comprehensive study of chronological age norms and the process of growth and development throughout the entire life span. There will be special emphasis on childhood, adolescence, and senescence.

### **312 The Psychology of Teaching and Learning (3)**

Prerequisites: ED FND 111, Psychology 270 or Psychology 271, and admission to the School of Education. Application of the principles of psychology to an understanding of the dynamics of teaching behavior and learning behavior. Involves both theoretical and practical approaches to analysis of the learning environment of the school. Required of all who are preparing to teach.

### **325 Education and the Psychology of Human Sexuality (3)**

The course is designed to provide educators and other human services personnel with knowledge and understanding of various personal and social dimensions of human sexuality.

### **404 Seminar (1-10)**

### **411 Psychology of Learning Processes (3)**

An advanced course in the application of psychological theories and principles to the problems of the teacher, counselor, administrator, and others in the helping professions.

### **413 Personality Development and Adjustment (3)**

A course in personality development, personality structure, and the dynamics of adjustment. Course materials are oriented to the applied problems of counselors, teachers, administrators, and others in the helping professions.

### **416 Psychology of Early Childhood Development (3)**

A survey of current research on the development of children, ages birth to six, including research in the laboratory, in the home, and in day care and in early intervention projects.

### **417 Psychology of the Elementary School Child (3)**

The application of educational psychology to problems of teaching in the elementary school.

### **418 The Psychology of Adolescence (3)**

A critical psychological analysis of studies and investigation of the various aspects of adolescence.

### **420 Behavioral Analysis of Human Learning (3)**

Prerequisite: Graduate standing. A course in the principles of human learning and the technology of behavior modification, from the perspective of the teaching and counseling professions. Emphasis is placed on its application to school learning and behavior problems and to social behavioral patterns in a variety of appropriate counseling settings.

## Behavioral Studies

### 490 Internship (1-10)

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### 497 Problems (1-10)

## Educational Research and Evaluation Methods (ED REM)

### 310 Interpretation of Educational Tests and Measurements (3)

A study of the principles of psychometrics with emphasis upon the classroom interpretation of group tests of cognitive abilities and achievement. Required of all majors in special education.

### 320 Classroom Testing and Measurement (3)

Basic measurement principles for the classroom teacher: test planning; construction and use of selection, supply, and performance type test items; item analysis for test improvement; methods of summarizing test scores; derived scores for interpretation of performance; development and use of norms in evaluation.

### 330 Educational Statistics (3)

Statistical methods for preservice educators and beginning graduate students: frequency distributions, measures of central tendency, variability, sampling, and correlation.

### 404 Seminar (1-10)

Prerequisite: Consent of instructor. Educational research and evaluation methods seminar addressing special issues and topics not normally included in the regular statistics, research methods, evaluation, and measurement courses.

### 412 Evaluation and Applications of Computers in Education (3)

Prerequisite: ED S&R 427 or consent of instructor. Review of a computer language and evaluation of the various uses and capabilities of computers in the teaching, administration, and counseling areas of education. Familiarization with computing facilities and package programs.

### 420 Classroom Measurement and Evaluation (3)

An introductory graduate course to classroom testing and evaluation: comparison of criterion and norm referenced theory and technique; classical test theory, reliability, validity and associated descriptive statistics; derived and transformed scores; preparation of instructional objectives for use in developing the classroom test; evaluation of student achievement and instructional effectiveness through testing.

### 421 Educational and Psychological Measurement (3)

An introductory graduate course in testing and measurement theory in the affective behavior domain: reliability, validity, and associated descriptive statistics; correlation and simple regression; derived and transformed scores; interpretation of test scores based upon theory of psychological tests; measurement of aptitude, vocational interests, and personal-social adjustment.

### 422 Individual Assessment of Cognitive Abilities (3)

Prerequisite: ED REM 310, or 320, or 420, or 421, or consent of instructor. A course to develop administrative and interpretive skills in the use of individually administered tests such as the Wechsler scales, the Stanford-Binet, and similar instruments.

### 429 Advanced Test Theory in Education (3)

Prerequisite: ED REM 420, or ED REM 421, or consent of instructor. An advanced course in measurement theory and practice: issues of reliability, validity, and item analysis for both criterion and norm referenced tests; introduction to factor analysis theory and technique in the development and analysis of test structure and validity; introduction to item response theory and techniques for the improvement of educational testing and research.

### 431 Educational Research Methods I (3)

Prerequisites: At least one of the following: ED REM 310, 320, 330, 420, or 421, or consent of instructor. An introductory course in educational research methodology. Descriptive statistical concepts learned in the prerequisite course are extended to: inferential statistics and hypothesis testing; research design issues such as internal/external threats to validity; basic designs to minimize these threats; special issues associated with positivistic and nonpositivistic research paradigms; and the structure and content of the research proposal.

### 432 Educational Research Methods II (3)

Prerequisite: ED REM 431 or consent of instructor. A survey of advanced educational research methods: hypothesis testing using classical factorial analysis of variance; analysis of covariance; the general linear model; multiple and partial correlation; multiple linear regression; and advanced research designs for educational problems. Quantitative statistical methods associated with qualitative research situations are introduced.

### 433 Educational Research Methods III (3)

Prerequisite: ED REM 431 or consent of instructor. An advanced educational research methods course focusing on issues and techniques of multivariate analysis: multivariate analysis of variance (MANOVA); canonical correlation, discriminant function, factor, and cluster analysis; advanced topics in multiple linear regression analysis; and research designs and measurement techniques typically associated with these statistical methods.

### 435 Multiple Linear Regression in Education (3)

Prerequisite: ED REM 432 or ED REM 433. An advanced educational research methods course using MLR models and techniques to evaluate educational problems. Focus is on the theory, special issues, and techniques in the application of MLR to qualitative and quantitative educational research studies.



## Behavioral Studies

### 436 Nonparametric Statistics in Education (3)

Prerequisite: ED REM 431 or consent of instructor. An advanced educational research methods course in alternative analysis procedures to classical parametric statistics. Nonparametric methods are surveyed and their data requirements compared to their parametric counterparts. Educational research problems appropriate to or adaptable to these methods are studied.

### 437 Field Based Research Methods (3)

Prerequisite: ED REM 431 or consent of instructor. An advanced educational research methods course in the major paradigms of positivism and postpositivism. The principal traditions of qualitative research methods are reviewed. Alternative sampling strategies, observational measurement, individual and group interview techniques, and questionnaire construction are studied. Qualitative data analysis is addressed from two perspectives: nonquantitative and statistical. Quality control to establish the trustworthiness and authenticity of field studies is reviewed.

### 490 Internship (1-10)

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### 497 Problems (1-10)

Prerequisites: At least one previous ED REM course AND consent of course supervisor. Individual study on topics pertaining to educational measurement, evaluation, statistics, and research design.

## Special Education (SPC ED)

### 101 Introduction to Classroom Teaching (3)

An introduction to the study of teachers' behaviors and learners' responses in classroom settings. Students will be assigned to school sites for specified observations/analyses and limited participation. Students will have the opportunity to evaluate the teaching profession as an appropriate career choice. The course will consist of approximately one-third lecture/seminar and two-thirds clinical/field experiences.

### 192 Field Experience in Special Education (3)

Intensive early field experience involving on-site observation and limited participation with exceptional individuals in schools and/or other educational agencies. This course is open to all students.

### 242 Characteristics of Learning Disabilities (3)

A study of the divergent characteristics of children with perceptual impairments. This course consists of fifteen half-hour tapes, designed to offer instruction at an undergraduate level on the nature of children with learning disabilities, and the roles of educators, parents, and auxiliary personnel in diagnosis and remediation. Historical perspectives and future trends will be explored. The tapes are followed by student contact with the instructor, for discussion, work evaluation, and testing.

### 290 Student Teaching in Special Education I (5)

Prerequisites: SPC ED 313, SPC ED 320, SPC ED 332 and admission to student teaching. Must be taken with SPC ED 291 and must immediately precede SPC ED 291 in the semester. Clinical teaching experience in special education classrooms in schools under University and school supervision. Required of all majors in special education.

### 291 Student Teaching in Special Education II (5)

Prerequisite: SPC ED 290. Must be taken with SPC ED 290, and must immediately follow SPC ED 290 in the semester. Clinical teaching in special education classrooms in schools under University and school supervision. Assignments will be in different school districts, buildings, serving families of different socioeconomic and cultural backgrounds, and at different grade levels from those of the SPC ED 290 assignments. Required of all majors in special education.

### 311 Sex Education for Exceptional Individuals (3)

Prerequisite: Consent of instructor. Course is designed to give teachers a thorough knowledge and understanding of the issues, problems, teaching techniques, and the current curricular resources of teaching sex education to handicapped individuals.

### 313 The Psychology and Education of Exceptional Individuals (3)

Prerequisite: Psychology 270 or Psychology 271 or equivalent. The psychology and education of individuals with special problems and/or abilities. Survey of theories and strategies for the learning-teaching process and of sources of assistance to educators and parents. Required in certification programs.

### 315 Speech and Language Problems of Exceptional Children (3)

Prerequisites: ED FND 111, SPC ED 313, and admission to the School of Education. Study of the problems associated with speech and language development and the techniques employed by classroom teachers to lessen these problems for children. Required for all majors in special education.

## Behavioral Studies

### **320 Behavior Management (3)**

Prerequisites: SPC ED 313 and an appropriate introductory course in the special education area of concentration. An in-depth exploration of various behavior control techniques that are particularly applicable to exceptional children. Students will be required to conduct at least one behavior modification project with exceptional children.

### **322 Teaching Mainstreamed Students (3)**

Prerequisite: SPC ED 313 or SPC ED 412, or equivalent. The course is designed to assist regular classroom teachers to better understand the nature and needs of handicapped students who are likely to receive much of their daily instruction in the regular classroom. Regular teachers, roles and responsibilities, teaching strategies, and adjustment options in integrating handicapped students will be considered.

### **330 Introduction to Mental Retardation and Severe Handicapped (3)**

Prerequisite: SPC ED 313. An introductory course describing characteristics, classification, and causes of mental retardation and severe handicapped.

### **332 Education of the Mentally Retarded (3)**

Prerequisites: ED FND 111, SPC ED 313, and SPC ED 330. Methods and techniques of use in the education of mentally retarded children. Required of all who are preparing for certification in special education for the mentally retarded.

### **342 Career Education for the Special Needs Individual (3)**

Prerequisite: Consent of instructor. This course is intended to provide information to teachers and other personnel charged with the responsibility of delivering career development services to special needs clientele. Topics including designing a K-12 career education curricula, techniques of improving job readiness for the unemployed and underemployed, and ways to utilize community employment resources for the handicapped.

### **345 Introduction to Emotional Disturbances and Learning Disabilities (3)**

Prerequisite: SPC ED 313. A comparative approach to these two areas of specialization regarding their history, etiologies, definition, prevalence, and service delivery systems.

### **347 Teaching in the Learning Disabilities Classroom (3)**

Prerequisites: SPC ED 313 and SPC ED 320. An application of the instructional techniques to be utilized with learning disabled students. Instructional techniques, appraisal for instruction, interdisciplinary team work, parental involvement, individualized education plans, and classroom techniques will be presented in this class.

### **350 Instructional Techniques for the Emotionally Disturbed Student (3)**

Prerequisites: SPC ED 313, SPC ED 320, and SPC ED 345. A course designed to instruct students in the management and instructional strategies necessary to educate children with emotional disturbances.

### **370 Sensory-Motor Development of the Severely Handicapped (3)**

Prerequisite: SPC ED 330 or equivalent or consent of instructor. An examination of basic sensory-motor development and associated disorders to enable teachers to work more effectively with occupational and physical therapists. Basic techniques used by therapists are presented together with an exploration of the teacher's role regarding sensory-motor programming. Required for certification for teaching individuals with severe handicaps.

### **371 Methods and Curricula for Severely Handicapped (3)**

Prerequisite: SPC ED 370 or consent of instructor. This course begins with the application of the clinical teaching model to the severely handicapped population regarding objectives, training methods, and program process monitoring. It also includes critical analysis of existing curricula and methods of classroom or living unit organization. Required for certification in Severe Handicapped.

### **372 Screening and Diagnosis of the Developmentally Delayed (3)**

Prerequisites: ED REM 310 or equivalent and SPC ED 313. This course addresses the content, techniques, and special problems related to the assessment of handicapped individuals in the birth-to-five developmental range. Students gain experience in construction, administration, and interpretation of assessment tools used with low functioning handicapped individuals. Required for certification in Severe Handicapped and Early Childhood-Special Education.

### **382 An Introduction to Gifted Children (3)**

Prerequisite: SPC ED 313. This course provides an introduction to gifted children. Their characteristics, cognitive abilities, special abilities, and creativity will be reviewed. Current problems, research, and issues concerning the gifted are covered.

### **384 The Education of Gifted Children (3)**

Prerequisite: SPC ED 313. This course deals with methods, techniques, and curricular modifications necessary for the effective education of gifted children.

### **390 Student Teaching in Special Education III (5)**

Prerequisites: SPC ED 291 or equivalent and admission to student teaching. Clinical teaching experience in special education classrooms in schools under University and school supervision with seminar included. For students who wish an additional student teaching experience.

### **412 Psychology of Exceptional Children (3)**

An in-depth analysis of the unique psychological problems of exceptional children and youth. Current psychological theories and research emphasized.

### **413 Organizational Foundations for Special Education (3)**

Prerequisite: SPC ED 313 or SPC ED 412. A study of organizational issues in special education and their implications for practices and procedures. Specific attention will be given to special education delivery systems, compliance standards, funding sources, and regulatory standards.

## Behavioral Studies

### **416 Current Research in Psychology of Exceptional Children (3)**

Prerequisite: Permission of instructor/adviser. A study of current issues, trends, and major research in special education. Areas of investigation shall center around major developments in exceptionalities, situations relative to programming projected needs, and considerations and utilization of investigation of the exceptional individual. Graduate students should have experience or an undergraduate background in exceptionalities prior to admission to this course.

### **421 Prescriptive Teaching of Exceptional Children (3)**

Prerequisite: SPC ED 412. Course will instruct teachers on how to develop and implement prescriptive educational programs for exceptional children and adolescents based upon available information. Students will become familiar with prescriptive systems which will enable them to utilize sources of information for remedial and developmental needs.

### **430 Theories and Practice in Mental Retardation (3)**

Prerequisite: Permission of instructor. An advanced study of the pedagogical and theoretical problems germane to the area of mental retardation with particular emphasis on the application of current research findings to the solution of these problems.

### **431 Education of Individuals with Mental Retardation (3)**

Prerequisite: SPC ED 430. A systematic study of modern educational procedures for students with mental retardation. Methods and materials for educating students with mental retardation are stressed.

### **443 Learning Disabilities (3)**

Prerequisite: SPC ED 412. An advanced study of the pedagogical and theoretical problems germane to the area of learning disabilities with particular emphasis on the application of current research findings to the solutions of these problems.

### **444 Education of Children with Learning Disabilities (3)**

Prerequisite: SPC ED 443. A systematic study of modern educational procedures for children with learning disabilities. Methods and materials for educating children with learning disabilities are stressed.

### **450 Introduction to Behavioral Disorders (3)**

Prerequisite: SPC ED 412. An advanced study of the pedagogical and sociological problems germane to behavioral disorders with particular emphasis on the application of current research findings to the solutions of these problems.

### **452 Education of Behaviorally Disordered Children (3)**

Prerequisite: SPC ED 450. A systematic study of modern educational practices for behaviorally disordered children. Methods and materials for educating behaviorally disordered children are stressed.

### **462 Introduction to Early Childhood Special Education (3)**

Prerequisite: SPC ED 412. A study of issues and concepts central to special education for the young handicapped child. Focus will be placed upon program models, screening and assessment procedures, and curriculum concepts. An ecological approach to special education will be emphasized.

### **463 Curriculum, Methods, and Materials for Early Childhood Special Education (3)**

Prerequisites: SPC ED 412 and SPC ED 462. In-depth study of integrated assessment-based curriculum development for preschool handicapped children. Emphasis will be on individualized educational planning and implementation.

### **490 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### **492 Practicum in Special Education (3-6)**

Prerequisite: Two courses in area of concentration. A supervised internship in educating exceptional children in a school setting or other appropriate site.

### **497 Problems (1-10)**

Prerequisite: SPC ED 412 or equivalent. Selected problems on student-learner exceptionalities for individuals at the postbaccalaureate level.

## Educational Studies

Courses in this section are grouped as follows: Adult Education (ADU ED) Educational Administration (ED ADM) Educational Foundations (ED FND) Educational Technology (ED TEC) and Secondary Education (SEC ED).

Prerequisites may be waived by consent of the department.

### Adult Education (ADU ED)

#### 310 Community and Adult Education (3)

Prerequisite: For upper-division students, practitioners, or by consent of instructor. This course presents an overview of the models, practices, programs, and processes of community and adult education.

#### 311 Teaching Basic Reading Skills to Adults (3)

A study of the reading process and of the characteristics of adult learners with a focus on instructional techniques and materials useful in upgrading the performance of adults with deficient reading skills.

#### 412 Foundations of Adult Education (3)

A comprehensive, systematic foundation for adult education. It will relate (a) the pragmatic philosophy and objectives of adult education in America to (b) the continuing education of the adult in a progressive social context.

#### 413 Improvement of Instruction in Adult Education (3)

Prerequisite: ADU ED 412 or consent of instructor. A study of selected methods and instructional techniques appropriate for the teaching of adults. An examination of current research will be made as it relates to the problems of instructing adults.

#### 414 Curriculum Theory and Development in Adult Education (3)

Prerequisites: ADU ED 412 and ADU ED 413 or consent of instructor. A study of curriculum theory and its application to adult education. Particular emphasis will be placed on the development of model curricula for various programs in adult education.

#### 425 Principles of Business Education (3)

Prerequisites: Business education certification and consent of instructor. Designed for the business education teacher, this course examines in depth the principles, practices, and problems of business education programs. It emphasizes research into historical and philosophical implications, the influence of contemporary attitudes on business education, evaluation of current programs, and development of innovative approaches. It may be applied toward Missouri Vocational Business Education certification.

#### 426 Coordination of Cooperative Vocational Programs (3)

This course deals with student selection procedures. Coordinating vocational instruction and planned employment experiences; research techniques for collecting and analyzing data for process and product evaluation; procedures for implementing new ideas and innovations in cooperative vocational education programs. The course is designed for vocational teachers and for teachers who wish to qualify as coordinators of cooperative vocational programs. This course may be applied toward Missouri Vocational Certification.

#### 427 Improvement of Instruction in Teaching Business Subjects (3)

Prerequisites: Business education certification and consent of instructor. Designed for business education teachers, this course examines current trends in planning, organizing, developing, and evaluating instructional materials relevant to business education classes. Emphasis is placed on research techniques and strategies for selecting and utilizing appropriate curriculum materials, resources, and media to match learning needs. This course may be applied toward Missouri Vocational Certification.

#### 432 Teaching in the Community College (3)

This course is designed for students considering a teaching career in the community college. The main emphasis of the course will be to expose students to the unique features of the community college with respect to the special goals of the institution, variety of degree and nondegree programs, and diversity of community college students. A second objective will be to offer a brief review of teaching techniques that will be useful in the community college classroom.

#### 435 Problems in Teaching College Biology (3)

(Same as Biology 485.) Prerequisites: Teaching experience, 30 semester hours in biology, and consent of the instructor. Basic philosophies underlying undergraduate biology education at the college level will be presented and examined with concern for establishment of an individual philosophy in the prospective college teacher. Teaching techniques suitable for college-level instruction will be considered, practiced, and evaluated. Advantages and limitations of various methods of instruction will be considered with respect to current research findings.

#### 490 Internship (1-10)

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

#### 497 Problems in Adult Education (1-10)

Prerequisite: ADU ED 412 or consent of instructor. Independent study on topics in adult education.



# Educational Studies

## Educational Administration (ED ADM)

### 404 Seminar (1-10)

#### 411 Organizational Theory and Analysis in Education (3)

Prerequisite: ED ADM 414 or equivalent. The purpose of this course is to examine organizational theory and its implications for the field of education. A comprehensive survey of the work of scholars in the field of organizational theory will provide students with appropriate conceptual tools necessary to analyze problems in educational organizations.

#### 414 Foundations of School Administration (3)

Emphasis on processes common to all phases of educational administration. Conceptual framework for administration of education, decision making, and organizational theory.

#### 416 Policymaking in Education (3)

Prerequisites: ED FND 421 and ED ADM 411 or equivalent. The purpose of this course is to provide the student with a comprehensive and systematic approach to understanding the nature and function of policy making in education.

#### 422 Leadership in Educational Administration (3)

This course is designed to acquaint the administrator with the factors of groups and interpersonal relationships directly affecting job performance. The consequences of various types of group relationships upon the institution will be studied in detail. The administrator will study various rationales for and methods of improving interpersonal relationships within the institution.

#### 425 Organizational Change in Education (3)

Prerequisite: ED ADM 411 or equivalent. This course deals with (1) developing strategies for assessing educational needs, (2) methods of assessing the school's "organizational health," (3) the designing of educational change strategies involving theory-based models, (4) using systems-analysis techniques to implement educational change, and (5) methods of involving

students and staff in incorporating meaningful organizational change strategies in educational institutions.

#### 430 School District Administration (3)

Prerequisite: ED ADM 414 or consent of instructor. Course focuses on current research about school district administration; also deals with major central office issues including: board/superintendent relations, central office organization, the function and authority of assistant superintendents and program directors, and the administrative team approach to school district administration.

#### 432 Problems in School Public Relations (3)

Principles of good school public relations, unique public functions of various school and community groups. Techniques for conducting school public relations.

#### 435 Education Administration Policy Research (3)

Prerequisites: ED ADM 411, ED ADM 414, and ED ADM 416. A study of issues and trends in basic, applied, and action research in educational policy making.

#### 441 Elementary School Administration (3)

Prerequisite: ED ADM 411 or equivalent. This course is a comprehensive, systematic study of the elementary school principalship. Emphasis is placed on relating theories of learning, teaching, and organization to effective administration of elementary schools.

#### 451 Secondary School Administration (3)

Prerequisite: ED ADM 411 or equivalent. This course is a comprehensive, systematic study of the secondary school principalship. Emphasis is placed on relating theories of learning, teaching, and organization to effective administration of secondary schools.

#### 456 Extracurricular Activities (3)

Activities related to the extracurricular program of secondary schools will be studied in depth. Analysis of appropriate activities will include the nature and purposes of these activities.

#### 460 School Law (3)

Principles of law as derived from court decisions; statutory and constitutional provisions affecting education. Legal status (power and responsibilities) of school board members, superintendents, principals, teachers, and pupils.

#### 465 State and Federal Financing of Public Education (3)

Economic implications of public education. Determination of policy and practice in financing of public schools by local, state, and federal agencies. Developing principles of adequate tax programs and designing systems of state support of public education.

#### 466 Principles of Public School Finance in Missouri (3)

Course is designed to analyze and study critical areas of public school finance at the local and state levels, highlighting the role of such factors as legislative procedures, principles of local and state support, budgeting and accounting procedures, assessment of property, etc.

#### 470 School Personnel Administration (3)

Prerequisite: ED ADM 411 or equivalent. This course is a comprehensive, systematic study of problems in planning, recruitment selection, induction, and retention relative to school personnel.

#### 471 School Staff Development and Supervision (3)

Prerequisite: ED ADM 411 or equivalent. This course provides a systematic examination of the conceptual bases and practical applications of the administration of staff development and supervision programs in a broad spectrum of educational settings. The course explores organizations of several relevant theories and conceptual models including Social Systems Theory and Organizational Development (OD). Students will be introduced to a variety of administrative techniques used to assess needs; plan, deliver, and evaluate staff development; and supervision programs in education.



## Educational Studies

### **473 Collective Negotiations in Educational Organizations (3)**

This course focuses on the concepts, issues, and processes involved with collective negotiations (bargaining) in American educational organizations. The major issues addressed in the course include recognition procedures bargaining unit, determination, the scope of negotiations, the proposal and counterproposal compromise, impasse procedures, and master contract management.

### **475 School Buildings and Sites (3)**

Course is designed to acquaint the administrator with methods and procedures for projecting the future building and facility needs of a public school district and for supervising actual planning of facility construction. Maximizing utilization of current facilities will be studied in detail.

### **480 Administration of Adult and Community Education (3)**

A course designed to familiarize the student with the structure, purpose, and processes of community education with particular emphasis being placed on the administrative theories and functions of adult education.

### **481 Programming in Community and Adult Education (3)**

Prerequisite: ED ADM 480. Study and analysis of basic situations in which community and adult educational programming take place. Within this framework, application will be made of a fundamental series of steps essential to sound educational programming.

### **485 Financing of Community Education (3)**

The student will develop the necessary skills needed to construct an operational budget for the administration of community education programs. Emphasis will be placed on developing a support base from federal, state, and local funding resources. The student will be exposed to proposal writing and funding procedures.

### **490 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### **497 Problems (1-10)**

## **Educational Foundations (ED FND)**

### **111 The School in Contemporary Society (3)**

The introductory course in teacher education. An examination of the organization and purpose of the school in its social setting. Selected representative educational themes and issues will be studied. Required of students admitted to the School of Education. Prerequisite to other professional courses.

### **251 Black Americans in Education (3)**

An examination and analysis of conditions affecting the education of black Americans and their schools, with emphasis on relationships between schools and the black community, and needed changes in education.

### **330 History of American Education (3)**

Prerequisite: A course in American history or consent of instructor. An overview of the evolutionary development of American educational theory and practice from the early colonial period to the present. Attention is also given to selected issues in professional education.

### **332 Progressivism and Modern American Education (3)**

Relationship between American progressive school theory and contemporary classroom practices, including the open classroom, the community school, the alternate school, open admissions, and learning by individual contract. Trends will be interpreted in the light of various roles of the classroom teacher in the modern school.

### **340 Comparative Education (3)**

A study of selected Western and non-Western educational themes and issues viewed in the context of their respective cultures.

### **410 Development and Organization of Urban School Systems (3)**

An examination and analysis of the development and existing conditions affecting urban education, with emphasis on current efforts to bring about quality education in urban areas. A review of current projects and research, as well as the effect of these projects upon the school systems, would be included.

### **421 Philosophy of Education (3)**

A study of the fundamentals of education in the light of modern science and philosophy.

### **422 Analysis of Educational Issues (3)**

Prerequisite: A course in philosophy of education or a course in history of education, or consent of instructor. A critical examination of issues about the elementary and secondary schools. This is done through the analysis of the procedures, resources, and goals that guide school policies and practices.

### **435 History of Western Education (3)**

A course designed to survey the educational development of Western civilization from approximately the eighth century B.C. until the present. Salient educational theory and practice will be considered in their appropriate social context.

### **490 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### **497 Problems (1-10)**

# Educational Studies

## Educational Technology (ED TEC)

### 245 Audiovisual Equipment Operation for Classroom Teachers (1)

An entry-level course for all teacher education students. May be taken concurrently with ED TEC 246. A self-paced, modularized, and criterion referenced course. Students will demonstrate competence in operating standard audiovisual equipment normally found in the schools.

### 246 Preparation of Inexpensive Materials for the Classroom (1)

An entry-level course for teacher education students. May be taken concurrently with ED TEC 245. A lecture-demonstration laboratory course in material preparation for classroom use.

### 247 Integration of Media and Materials in Instructional Planning (1)

Prerequisites: ED TEC 246, and for secondary education students, SEC ED 213. Course concentrates on the integration of media and materials in lesson planning. Through lecture, demonstration, and individualized instruction, the student designs an instructional unit and prepares appropriate material for that unit. ED TEC 246 must be taken prior to, or concurrently with, this course.

### 248 Utilization of Computer-Based Materials in Instruction (1)

Utilizing a series of computer-based education modules, the instructional uses of the computer are explained and demonstrated. Students develop practical experience in using and evaluating computer materials for classroom use.

### 340 Selection and Utilization of Educational Media (3)

Introduction to the selection, use, and evaluation of audiovisual materials and equipment including films, slides, transparencies, projectors, globes, charts, maps, bulletin boards, plus programmed materials, information retrieval systems, and instructional television.

### 345 Preparation of Graphic Materials for Audiovisual Education (3)

Prerequisite: ED TEC 340 or consent of instructor. Not open to lower division students. A lecture-demonstration-laboratory course that emphasizes the graphic arts component of audiovisual material production. Theories of learning and communication are used in the design and production of materials used for classroom settings.

### 346 Instructional Television (3)

Prerequisite: ED TEC 340 or consent of instructor. Not open to lower division students. A lecture-demonstration-laboratory course designed to concentrate on the use of instructional television in formal and informal learning situations. Basic script writing, management of ITV systems, and design and production of low-budget programs will be emphasized.

### 353 Principles of Photographic Production for Education (3)

Prerequisite: ED TEC 340 or consent of instructor. A lecture-demonstration-laboratory course which stresses the application of theories of learning, perception, and retention to the visual medium of still photography. Emphasis on designing and producing photographic material that enhances the teaching/learning process.

### 354 Principles of Motion Picture Production for Education (3)

Prerequisite: ED TEC 340 or consent of instructor. A lecture-demonstration laboratory course. Emphasis on application of theories of learning, perception, and retention as they relate to motion picture production. Special attention will be given to the design and production of motion picture material that enhances the learning process.

### 404 Seminar in Educational Technology Research (3)

Prerequisites: ED TEC 340 and twelve hours of graduate work in educational technology. A review of research in educational technology with individual in-depth study. The student selects a research problem in conjunction with the instructor and completes a review project. Open to graduate students who have completed twelve hours of work in educational technology.

### 410 Computer-Based Graphics and Text Design and Production (3)

Prerequisite: Education 301 or permission of the instructor. A lecture-demonstration-laboratory course that emphasizes the theoretical and practical design of graphic and textual material through the use of computer-based graphics programs. Emphasis will be placed on the utilization of commercial software to produce graphic designs and desktop publishing projects such as newsletters, workbooks, and other textual materials.

### 412 Applications of Computers in Education (3)

Prerequisite: EDUC 301 or permission of instructor. Uses and capabilities of computers in the teaching, administration, and counseling areas of education. Familiarization with computing facilities and package programs.

### 415 Computer-Based Education: Authoring Software I (3)

Prerequisite: Education 301 or permission of the instructor. A lecture-demonstration-laboratory course that emphasizes the theoretical and practical design of computer-based educational materials. Students will develop practical experience in utilizing programming shells and authoring languages in the development of curricular-based CBE programs.

### 432 Educational Technology Systems Design (3)

Prerequisite: ED TEC 340. A lecture-demonstration course in the application of learning theory to the design of audiovisual materials. Emphasis on educational technology systems design, objectives, constraints, limitations, and evaluation. Methods of analyzing target populations and instructional demands along with decision-making models will be reviewed.

### 433 Educational Technology Systems Management (3)

Prerequisite: ED TEC 340. Basic principles of management in design and operation of media programs and systems in various educational settings. Emphasis on strategies and alternative structures for achieving and evaluating functions of media centers.

## Educational Studies

### **435 Diffusion and Adoption of Innovations in Educational Technology (3)**

Prerequisite: ED TEC 340. A lecture course designed to provide an overview of the diffusion and adoption of technical innovations in the educational system. This course will include the technological, sociological, psychological, and political aspects of the process of diffusion and adoption. Various models, techniques, and applications of the diffusion and adoption process are emphasized.

### **446 Advanced Instructional Television Production (3)**

Prerequisite: ED TEC 340 and ED TEC 346. Advanced management, script writing, and production of ITV programs. Laboratory activities in production of systematically designed instruction. Each student will produce ITV programs involving writing, production of graphics, directing, editing, and validating the programs.

### **490 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### **493 Practicum in Educational Technology (3)**

Prerequisite: ED TEC 340 or consent of instructor. Focus is on the application of principles of instructional development to teaching problems in educational technology. Selecting, developing, adapting, and using instructional technology appropriate to the specific teaching problems is an integral part of this course.

### **497 Problems (1-10)**

Prerequisite: ED TEC 340 or consent of instructor. Individual study on topics pertaining to educational technology.

## Secondary Education (SEC ED)

### **162 Computer Keyboarding and Formatting (3)**

Prerequisite: Intermediate typewriting or equivalent. Review of keyboarding techniques and skills; development of speed and accuracy; instruction in the preparation of business and professional papers and forms with emphasis on formatting and information processing skills.

### **204 Seminar: Business Education Student Teaching (1)**

Prerequisites: Completion of all required courses in major and/or certification emphasis area. To be taken concurrently with student teaching. Application of theory, methods, and techniques to the teaching of business subjects in grades 7-12.

### **213 Techniques of Secondary School Teaching and Field Experience (4)**

Prerequisites: ED FND 111 and admission to the Teacher Education Program. Activities and interaction of teachers and students in secondary schools. Included also is an analysis of teaching, learning, and field observations in secondary classrooms. Recommended that SEC ED 213 be taken during the first semester of the junior year prior to special methods courses.

### **222 Middle School/Junior High School Organization, Philosophy and Curriculum (3)**

Prerequisite: ED FND 111. A study of the unique history, goals, philosophy, and organization of the middle school/junior high school with a focus on curriculum and instruction. Intended to aid future teachers interested in middle school/junior high school teaching.

### **232 The Curriculum and Methods of Teaching English (3)**

(Same as English 262.) Prerequisites: SEC ED 213 and a near major in the subject matter. A study of the scope and sequence of the English course in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of English. To be taken prior to student teaching.

### **240 The Curriculum and Methods of Teaching Physical Sciences (3)**

(Same as Chemistry 280 and Physics 280.) Prerequisite: SEC ED 213 and a near major in the subject matter. A study of the scope and sequence of the physical science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science. To be taken prior to student teaching.

### **246 The Curriculum and Methods of Teaching Mathematics (3)**

Prerequisites: SEC ED 213 and a near major in the subject matter. A study of the scope and sequence of the mathematics courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of mathematics. To be taken prior to student teaching.

### **255 The Curriculum and Methods of Teaching History and Social Studies (3)**

(Same as History 255.) Prerequisite: At least junior standing. A study of the scope and sequence of the history and social studies courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is directed also toward learning the techniques and research tools of the scholar in the fields of history and social studies. May not count toward history hours required for history major. Must be completed prior to student teaching.

## Educational Studies

### **256 Social Studies Teaching Intern Seminar (1)**

(Same as History 256.) Prerequisite: Must be enrolled concurrently in student teaching. Addresses the application of educational philosophy, social studies curriculum, teaching strategies, and instructional technology in the classroom setting. Offered concurrently with Secondary School Student Teaching, SEC ED 290.

### **261 Methods of Teaching Keyboarding and Formatting (3)**

Prerequisite: Intermediate Typewriting or equivalent. Instruction in the methods and techniques used to teach keyboarding and document formatting.

### **262 Methods of Teaching Shorthand/Alpha Systems (3)**

Prerequisites: SEC ED 162 and consent of instructor. Instruction in methods and techniques used to teach alpha and symbol shorthand systems. Emphasis on planning, developing and organizing learning activities for high school office technology and college prep students.

### **263 Methods of Teaching Accounting (3)**

Prerequisites: Business Administration 140, Business Administration 145, or equivalent. Methods and techniques of teaching data processing and accounting in the secondary schools.

### **264 Methods of Teaching Basic Business Subjects (3)**

Prerequisites: Economics 51 or equivalent, Business Administration 206 and/or Business Administration 256. Methods and techniques of teaching basic business, business law, economics, consumer economics, and business principles and management in the secondary school curriculum.

### **265 Secretarial Practice (3)**

Prerequisites: SEC ED 162 and consent of instructor. Study of secretarial office procedures; office-style dictation for transcription; word processing; office machines; records management.

### **267 The Secondary Business Curriculum (3)**

Prerequisite: ED FND 111 or equivalent or consent of instructor. Study of the scope and sequence of business education courses in the high school curriculum. Attention is directed toward the history of business education, curricular change, standards, evaluation, and research in the field of business education.

### **270 English Teaching Intern Seminar (1)**

(Same as English 270.) Prerequisite: Concurrent enrollment in SEC ED 290. A seminar in the integration of English curricula, educational philosophy, teaching strategies, and instructional technology in the classroom setting. To be taken concurrently with Secondary School Student Teaching, SEC ED 290.

### **273 The Curriculum and Methods of Teaching Art (3)**

Prerequisites: SEC ED 213 and a near major in the subject matter. A study of the scope and sequence of art courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of art. To be taken concurrently with student teaching.

### **274 The Curriculum and Methods of Teaching Foreign Language (3)**

(Same as French 264, German 264, and Spanish 264.) Prerequisites: SEC ED 213 and a near major in the subject matter and passing the departmental language skill test. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign language. To be taken prior to student teaching.

### **275 Philosophic and Practical Foundation of the Secondary Music Education Curriculum (1)**

(Same as Music 267.) Prerequisites: Music 131, Music 257/ELE ED 277, and ED FND 111; concurrent registration in Music 261, Music 268/SEC ED 276 or Music 269/SEC ED 277 and Music 270/SEC ED 278 or Music 271/SEC ED 279. For music education majors. A study of the secondary school music program: curricular objectives, philosophy, and general administrative procedures common to all secondary music classes.

### **276 Curriculum and Methods of Teaching Instrumental Music I (2)**

(Same as Music 268.) Prerequisites: Music 131, 145, 151, 161, ED FND 111, two of the following: Music 25, 26, 27, 28. Concurrent registration in Music 257/ELE ED 277. A study of the teaching techniques, materials, curriculum, and organization of the instrumental music education program. Topics include student recruitment, the elementary band/orchestra, small group instruction, jazz ensemble, and marching band.

### **277 Curriculum and Methods of Teaching Middle School/JuniorHigh School General Music (2)**

(Same as Music 269.) Prerequisites: Music 131, Music 257/ELE ED 277, and ED FND 111; concurrent registration in Music 261, Music 267/SEC ED 275 and Music 271/SEC ED 279. For the music education major. A study of the middle school/junior high school general music program emphasizing a conceptually based curriculum, objectives, methodologies, materials, innovations, classroom organization, and management.

### **278 Curriculum and Methods of Teaching Instrumental Music II (2)**

(Same as Music 270.) Prerequisites: Music 131, 152a, 162, Music 257/ELE ED 277, Music 268/SEC ED 276, ED FND 111, three of the following: Music 25, 26, 27, 28. Concurrent registration in Music 267/SEC ED 275. A continuation of Music 268/SEC ED 276. Topics include large group rehearsal techniques, program development, administrative procedures, and evaluation.



## Educational Studies

### 279 Curriculum and Methods of Teaching Secondary Choral Music (2)

(Same as Music 271.) Prerequisites: Music 131, Music 257/ELE ED 277, and ED FND 111; concurrent registration in Music 261, Music 267/SEC ED 275, Music 269/SEC ED 277. For the music education major. Study of secondary school choral music program; curriculum, methods, teaching techniques, organization, and administrative procedures for choral performance classes.

### 285 Curriculum and Methods of Teaching Life Sciences (4)

(Same as Biology 285.) Prerequisites: SEC ED 213 and a near major in biology. A study of the scope and sequence of the life science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. The analysis of teaching/learning and field experience observations in secondary school classrooms will be integrated into classroom activities and discussions.

### 286 Laboratory in Teaching Life Sciences (2)

(Same as Biology 286.) Prerequisite: SEC ED 213. Discussion, development, utilization, and evaluation of equipment, materials, and techniques applicable to instruction in the life sciences. Must be taken concurrently with Biology 285/SEC ED 285.

### 290 Secondary School Student Teaching (12)

Prerequisites: SEC ED 213 and admission to student teaching. Clinical teaching experience in secondary school classrooms under University and school supervision. To be taken after appropriate curriculum and methods course.

### 293 Student Teaching in Music Education, K-6 (5)

Prerequisites: ELE ED 210, SEC ED 213, Music 257/ELE ED 277, Music 267/SEC ED 275, Music 118, Music 268/SEC ED 276, Music 270/SEC ED 278 (instrumental emphasis majors); Music 120, Music 269/SEC ED 277, Music 271/SEC ED 279 (Choral/vocal emphasis majors); and admission to student teaching. Must be taken "in block" with SEC ED 294 and must immediately precede it in the semester. Clinical teaching experience in music education settings in the schools under University and school supervision with seminar included. Required of all majors in music education.

### 294 Student Teaching in Music Education, 7-12 (5)

Prerequisite: SEC ED 293. Must be taken "in block" with SEC ED 293 and must immediately follow it in the semester. Clinical teaching experience in music education settings in the schools under University and school supervision with seminar included. Assignments will be in different settings from those of SEC ED 293. Required of all majors in music education.

### 305 Writing for Teachers (3)

(Same as English 305.) Prerequisite: English 210 or a comparable course in advanced composition. Designed for prospective as well as in-service teachers, the course includes: (1) writing—short papers to be shared in workshop groups; (2) reading—current theory and research on writing and the implications for teachers; (3) teaching—classroom activities that foster growth in writing.

### 312 Secondary School Curriculum (3)

Prerequisite: SEC ED 213. Sources, scope, and organization of the curriculum, modern trends, and methods of investigation.

### 360 Administration and Supervision of Office Personnel (3)

Prerequisite: Consent of instructor. An advanced course in office administration and supervision designed to meet the needs of business personnel involved in administrative office management work; emphasis on updating leadership and human relations skills, organizing, planning, controlling office services, and business data processing systems.

### 361 Information Processing: Applications and Techniques of Teaching (3)

Prerequisite: SEC ED 162, SEC ED 261, or equivalent, or consent of instructor. The course will focus on the needs of preservice and in-service teachers who instruct courses in information processing. Special emphasis placed on organizing and managing an information processing lab, software applications, integration of information processing concepts into existing courses, teaching strategies, and current information processing research.

### 362 Shorthand/Alpha Systems: Theory and Application (3)

Prerequisite: SEC ED 162 or equivalent or consent of instructor. A study of symbol and alphabetic shorthand systems. Instruction in the theory and application of symbol and alpha systems. Emphasis on teaching techniques, learning activities, evaluation, testing and current research.

### 385 Problems of Teaching Reading in Secondary Schools (3)

Prerequisite: ED FND 111. Methods and materials for improving reading in secondary school classes, including content fields.

### 391 Field Study in Secondary Education (1-10)

Identification of specific problems in the area of secondary education. Course is conducted as a field study in the public schools. A maximum of eight credit hours may be applied toward an advanced degree contingent upon adviser approval.

### 393 Student Teaching in Music Education, K-12 (5)

Prerequisite: SEC ED 294 or equivalent and admission to student teaching. Clinical teaching experience in music education settings in the schools under University and school supervision with seminar included. For students who wish an additional student teaching experience.



## Educational Studies

### **399 Science Teaching Intern Seminar (3)**

(Same as Biology 399.) Prerequisites: SEC ED 244 and SEC ED 245. Addresses the application of educational philosophy, science curriculum, teaching strategies, and instructional technology in the classroom setting. Offered concurrently with Secondary School Student Teaching, SEC ED 290.

### **404 Seminar (1-10)**

#### **413 Secondary Teaching with Microcomputers (3)**

Prerequisite: EDUC 301 or consent of instructor. A course designed for teachers, department heads, and school administrators. Research and theory on microcomputer-assisted instruction as a teaching method in the secondary schools will be presented. Both hardware and software suitable for microcomputers will be used and analyzed.

#### **414 Teaching the Gifted/Talented Student in Secondary School (3)**

A survey of research and theory on teaching the gifted/talented student in secondary school. Ways to identify the gifted/talented with emphasis on teaching the gifted/talented in both heterogeneous and homogeneous secondary classrooms. Models of gifted/talented programs in a school setting.

#### **415 The Secondary School Curriculum (3)**

For secondary school principals, teachers, and superintendents. Present methods in curricular change and methods of curricular investigation.

#### **416 Curriculum Construction for Secondary Schools (3)**

Prerequisite: SEC ED 415 or consent of instructor. Designed for those engaged in curriculum revision work and construction of new secondary school courses.

#### **418 The Junior High/Middle School (3)**

Survey of the progress of the junior high school, including the study of more important problems of organization and administration.

### **420 The Improvement of Secondary School Teaching (3)**

For secondary school teachers, principals, and superintendents with considerable training in education and experience in teaching. Recent developments in secondary school teaching.

#### **422 Individualizing Instruction in Secondary Schools (3)**

This course surveys a variety of theoretical models and research findings related to individualized instruction in the secondary school and is designed for teaching and administrative personnel.

#### **425 Secondary School Supervision (3)**

Methods of improving instruction in junior and senior high schools.

#### **427 Supervision of Clinical Experiences in Teacher Education (3)**

Prerequisites: Teaching experience and consent of instructor. A consideration of the clinical phase of the teacher education program, with special emphasis on student teaching. Examination of role responsibilities and supervisory practices. Study of professional literature for research findings, theoretical formulations, and recent developments in the field.

#### **429 The Department Head (3)**

This course emphasizes the role of the department chairperson as an educational leader. Theoretical concepts are related to sound practice. The potential for the job is discussed, as well as the roadblocks to successful execution. Appropriate for practicing department chairpersons, school administrators, or classroom teachers interested in acquainting themselves with this position.

#### **430 Problems of Teaching English in the Secondary School (3)**

A review of recent developments in the teaching of secondary English. Special attention is given to research involving instructional problems in urban and suburban schools. The course is designed for teachers, department heads, and supervisors in secondary English programs.

### **436 Gateway Writing Project (1-6)**

(Same as English 490.) An intensive course in the writing process and the writing curriculum, designed for experienced teachers. Readings of current theory and research will be related to participants' experience as writers and as teachers. Topics may vary. May be repeated for credit. No more than six hours may be applied toward the M.Ed. Counts toward the Certificate in Writing.

### **452 Problems of Teaching Social Studies in the Secondary Schools (3)**

A review of recent developments in the teaching of secondary school social studies. Special attention is given to research and scholarship involving instructional and curricular problems, especially in the metropolitan St. Louis area. Emphasis is placed upon development of effective materials, techniques, and resources. The course is designed primarily for teachers and supervisors in secondary school social studies programs.

### **486 Techniques in Teaching Biology for Graduate Students (2)**

(Same as Biology 486.) Prerequisites: Graduate standing and teaching assignment. Discussion and practice of techniques specific to instruction in the life sciences. Consideration will be given to teaching strategies, curriculum design, evaluation, instrumentation, and student teacher interactions. Recommended for all graduate students with teaching assistantships.

### **490 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### **497 Problems (1-10)**

## Elementary and Early Childhood Education

Courses in this section are grouped as follows: Early Childhood Education (ECH ED) and Elementary Education (ELE ED).

Prerequisites may be waived by consent of the department.

### Early Childhood Education (ECH ED)

#### 290 Student Teaching in Early Childhood Education I (5)

Prerequisites: ED FND 111, Psychology 270, ECH ED 312, ECH ED 333, ELE ED 385, ELE ED 336, Communication 40, English 210, ED PSY 312, ELE ED 230, ELE ED 389, ECH ED 321, ECH ED 331, ECH ED 317, ECH ED 346, and ECH ED 314; and admission to student teaching. Must be taken with ECH ED 291, and must immediately precede ECH ED 291 in the semester. Clinical teaching experience in early childhood education classrooms in the schools under University and school supervision. Required for all majors in early childhood education.

#### 291 Student Teaching in Early Childhood Education II (5)

Prerequisite: ECH ED 290. Must be taken "in block" with ECH ED 205 and ECH ED 290 and must follow ECH ED 290 in the semester. Clinical teaching experience in early childhood education classrooms in the schools under University and school supervision. Assignments will be in different school districts, buildings serving families of different socioeconomic and cultural backgrounds, and at different age/grade levels from those of the ECH ED 290 assignments. Required of all majors in early childhood education.

#### 312 Principles of Early Childhood Education (3)

Prerequisites: ED FND 111 and ED PSY 312. Study of basic principles underlying good schools for young children. Students will use theoretical base as well as on-site observations to develop an awareness of teaching-learning strategies appropriate for the developmental needs of children from birth through age eight. Scheduling, classroom arrangement, and child management practices will be considered. Throughout the course, students will be expected to begin developing their own philosophy of early childhood education.

#### 314 Curriculum Methods and Materials for Early Childhood Education (3)

Prerequisite: ECH ED 312. Curriculum development for preschool and early primary, including writing and sequencing objectives, constructing activities and materials, and using lesson plans with young children. Curriculum areas also include science and social studies. Individualization for special needs is emphasized.

#### 317 Assessing Individual Needs for Early Childhood Instruction (3)

Prerequisites: ED FND 111, ED PSY 312, and ECH ED 312. Techniques of observing children and using assessment instruments to plan an individualized program for early childhood.

#### 321 Parent and Community Resources in Early Childhood Education (3)

Prerequisite: Admission to the School of Education or graduate status. Competencies for working with parents and community agencies will be developed through a study of community and community resources. Procedures for parent participation and use of service agencies in the education of all young children, including those with special needs, will be examined.

#### 331 Language Acquisition and Development in Early Childhood (3)

Prerequisite: ED PSY 312. Development of language and the effects environmental and cultural factors have on the acquisition process. Identification of language problems for purpose of referral. Practicum experiences included.

#### 333 Creative Experiences for Young Children (3)

Prerequisite: Admission to the Teacher Education Program or consent of instructor. Materials, techniques, and resources for promoting cognitive, affective, and perceptual motor development through the use of art media, songs, and rhythms, play, and creative dramatics. Course includes a 20-hour practicum.

#### 341 Exploring the Physical World with Young Children (3)

Prerequisites: ECH ED 312 and completion of science requirements in general education. A study of and experiences with materials, techniques, and resources for broadening the child's awareness and understanding of science.

#### 346 The Acquisition of Mathematical Concepts (3)

Prerequisites: ELE ED 246 or equivalent and consent of instructor. Applications of the major theorists (Bruner, Piaget, Gagne, etc.) to mathematics for children of mental ages 3-8. Considerations suggested by research and implications in the areas of logical thinking, pre-number ideas, geometry, topology, problem solving, and arithmetical operations.

#### 351 Exploring the Social World With Young Child (3)

Prerequisites: ECH ED 312 and completion of social science requirements in general education. A study of and experience with materials, techniques, and resources for furthering the child's mastery of the skills of communication; understanding of people, social roles, society, and various cultures; and ability to develop satisfying relationships with peers and adults.

#### 390 Student Teaching in Early Childhood Education III (5)

Prerequisites: ECH ED 291 or equivalent and admission to student teaching. Clinical teaching experience in early childhood education classrooms in the schools under University and school supervision with seminar included. For students who wish an additional student teaching experience.

#### 410 Foundations of Preschool Education (3)

Prerequisite: A course in child psychology or equivalent. A study of the various types of early childhood programs and the philosophy upon which they are based. Attention will also be directed to the implementation of such programs, problems of parent involvement, and the social environment of the children.

## Elementary and Early Childhood Education

### 490 Internship (1-10)

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

### 497 Problems (1-10)

Prerequisite: Graduate standing. Individual study on topics pertaining to early childhood education.

## Elementary Education (ELE ED)

### 82 Effective Reading and Study Skills (2)

Designed to increase reading rate and comprehension and to develop study techniques appropriate to the purpose and difficulty of materials. Use is made of mechanical pacer, comprehension tests, vocabulary materials, and lecture demonstrations. No credit toward a degree.

### 101 Introduction to Classroom Teaching (3)

An introduction to the study of teachers' behaviors and learners' responses in classroom settings. Students will be assigned to school sites for specified observations/analyses and limited participation. Students will have the opportunity to evaluate the teaching profession as an appropriate career choice. The course will consist of approximately one-third lecture/seminar and two-thirds clinical/field experiences.

### 177 Elementary School Music (2)

Prerequisite: Consent of department. The role of the classroom teacher in the development of the elementary school general music program; selection of music, demonstration and practice of methods, and study of resources. This course will not apply toward requirements for a music major.

### 179 Art Activities for Elementary Schools (3)

(Same as Art 134.) A study of art principles; provides laboratory experiences with various media and materials. Stresses curriculum planning and developments of the elementary school program in art.

### 192 Educational Laboratory/Field Experience (1-3)

A laboratory/field experience requiring systematic observation and/or participation in appropriate educational settings. To precede student teaching. May be repeated to maximum of three hours.

### 230 Children's Literature and Reading (3)

Prerequisite: Junior standing. A course designed to provide a knowledge of the various types of literature for young people, including books, magazines, comics, television, and films; criteria for evaluating and selecting material; uses of material in the classroom and home; and motivating reading for enjoyment and information, bibliography, and communication.

### 246 Teaching Mathematics in the Elementary School (3)

Prerequisites: ED FND 111, junior standing, and completion of mathematics requirements in general education. Organization and implementation of a modern elementary school mathematics program.

### 253 Teaching of Social Studies in the Elementary School (3)

Prerequisites: ED FND 111, junior standing, and completion of social science requirements in general education. Study of elementary school social studies emphasizing the current social studies curricular content, methods of teaching, and instructional materials. Analysis of forces affecting objectives, materials, and teaching techniques.

### 277 Teaching Music in the Elementary School (3)

(Same as Music 257.) Prerequisites: Music 131 and ED FND 111. For the music education major. A study of the elementary school music curriculum emphasizing the objectives, methods of teaching and staffing music classes, and analysis of instructional materials and resources.

### 290 Elementary School Student Teaching I (5)

Prerequisites: ED FND 111, ELE ED 101, Psychology 270, ELE ED 336, ELE ED 385, Communication 40, English 210, ED PSY 312, ELE ED 230, ELE ED 341, ELE ED 253, ELE ED 246, ELE ED 389, and admission to student teaching. Must be taken with ELE ED 291, and must immediately precede ELE ED 291 in the semester. Clinical teaching experience in elementary school classrooms under University and school supervision. Required for all majors in elementary education.

### 291 Elementary School Student Teaching II (5)

Prerequisite: ELE ED 290. Must be taken "in block" with ELE ED 205 and ELE ED 290, and must immediately follow ELE ED 290 in the semester. Clinical teaching experience in elementary school classrooms under University and school supervision. Assignments will be in different school districts, buildings serving families of different socio-economic and cultural backgrounds, and at different grade levels from those of the ELE ED 290 assignments. Required for all majors in elementary education.

### 310 Elementary School Curriculum (3)

Prerequisites: ED FND 111 and junior standing. Study of modern education with regard to objectives, content, and methods in elementary school curriculum.

### 336 Teaching Language Arts and Reading N-9 (3)

Prerequisites: Six hours of English/Communication; ED PSY 312. Involves study of methods and materials for implementing a total language arts program, including reading in the elementary school. Emphasis is placed on using the language experience approach in teaching listening, reading, spelling, handwriting, grammar, and spoken or written composition as basic skills.

### 341 Teaching Science in the Elementary School (3)

Prerequisites: Completion of science requirements in general education, ED FND 111, and upper-level standing. An analysis of teaching science to elementary school children with emphasis on current science education trends, science curricular materials, and strategies of instruction.

## Elementary and Early Childhood Education

### **342 Teaching Remedial Mathematics (3)**

Prerequisite: ELE ED 246. Methods for diagnosing and remediating mathematical skills and concepts of the special needs learner.

### **346 Advanced Methods in Elementary School Mathematics (3)**

Prerequisites: ELE ED 246 and consent of instructor. Review, evaluate, develop, and provide classroom trial of instructional components prepared for teaching mathematics. Course will develop greater depth of preparation in: elementary program content; programs for exceptional children; and curricular extensions such as transformational geometry, rational numbers, and intuitive algebra.

### **385 Teaching Reading in the Elementary School (3)**

Prerequisites: ED PSY 312 and junior standing. Methods and materials of improving word perception, vocabulary, comprehension, and interests in independent reading.

### **387 Teaching Reading and Language Arts to Culturally Diverse Children (3)**

Prerequisites: ED FND 111 and senior standing. Systematic study of the problems of teaching reading and related language arts in ghetto schools. Attention is given to the ways in which the selection of materials and methodology of teaching relating to inner-city children is influenced by their physical and psychological needs, their experience backgrounds, their spoken language patterns, their cultural heritage, and the sociology of their environment.

### **389 The Analysis and Correction of Reading Problems in the Classroom (3)**

Prerequisites: ELE ED 385 or SEC ED 385, or equivalent. Study of causes of reading difficulties and procedures that may be used to analyze and correct them in the group setting.

### **390 Elementary School Student Teaching III (5)**

Prerequisites: ELE ED 291 or equivalent and admission to student teaching. Clinical teaching experience in elementary school classrooms under University and school supervision with seminar included. For students who wish an additional student teaching experience.

### **405 Seminar (1-10)**

#### **410 Current Research in the Elementary School Curriculum (3)**

A systematic examination of research related to elementary school curriculum. Students will be expected to become effective consumers of educational research and to utilize appropriate research findings in their decision-making processes when planning instruction.

#### **411 Curricular Issues in the Elementary School (3)**

Prerequisite: ELE ED 410. Selected contemporary problems which affect elementary classroom decisions. Computer literacy values, meeting individual needs, and dealing with discipline are studied through investigative discussions, reading, and a research paper.

#### **412 Microcomputers in Elementary Education (3)**

Focuses on principles and procedures for using microcomputers for instructional and classroom management activities in the elementary classroom.

#### **422 Curriculum Construction in Elementary Schools (3)**

Prerequisite: ELE ED 410. A study of the elementary curriculum with regard to selection of objectives and content and to provisions for curricular change.

#### **423 Curricular Implementation in the Elementary School (3)**

Prerequisite: ELE ED 422. Culminating experience for curricular project in ELE ED 422. Course will include procedures and techniques for curricular design implementation in the field.

#### **425 Elementary School Supervision (3)**

Organized to study such problems in field of supervision as will meet needs of superintendents, principals, and special supervisors.

### **427 Supervision of Clinical Experiences in Teacher Education (3)**

Prerequisite: Teaching experience and consent of instructor. A consideration of the clinical phase of the teacher education program, with special emphasis on student teaching. Examination of role responsibilities and supervisory practices. Study of professional literature for research findings, theoretical formulation, and recent developments in the field.

### **430 Problems of Teaching the Language Arts (3)**

Procedures used in teaching integrated language arts in elementary schools.

### **432 Problems and Research in Elementary School Language Arts (3)**

Prerequisites: ELE ED 430, ED REM 431, and six hours of English. A systematic study of research in teaching speaking, listening, written composition, handwriting, spelling, and linguistics as it focuses on the problems of teaching these skills in the elementary school. Attention is given to innovations in the field.

### **436 Children's Literature I: Survey and Analysis (3)**

A survey of children's literature published in the last ten years. Special emphasis will be placed on the relationship between children's literature and contemporary issues of society. Students will experience the materials themselves rather than reading about books. In addition, students will begin to study the literary elements that make literature interesting and meaningful for children.

### **437 Children's Literature II: Selection and Functions (3)**

Prerequisite: ELE ED 436. A study of literary elements that make literature interesting and meaningful for children will be completed. Further emphasis will focus on the application of trade books for children as resources in school curricula planning.



# Elementary and Early Childhood Education

## 441 Problems and Research in Teaching Elementary School Science (3)

Prerequisites: Eight hours of science, ELE ED 341, and ED PSY 411. A thorough examination of research related to elementary school science instruction with particular emphasis on innovative programs. Includes methods of investigation and techniques for interpreting the professional literature.

## 443 Teaching Physical Science in the Elementary School (3)

Activity-oriented experiences with basic physical science concepts, laboratory skills, and techniques that are appropriate for elementary school teachers. The physical science concepts in elementary school curricula will be analyzed in depth.

## 444 Environmental Studies for Elementary Teachers (3)

Activity-oriented training in developing environmental awareness, field and/or laboratory skills and techniques, and the use of elementary environmental curricula. Materials and activities appropriate for one's students and locale will be developed.

## 445 Problems of Teaching Arithmetic in the Elementary School (3)

A study of the mathematics program in the elementary school from the viewpoint of goals, content, techniques, and evaluation.

## 446 Curriculum and Methods of Teaching Measurement in Mathematics: Metric and Standard Systems (3)

Prerequisite: ECH ED 346 or ELE ED 246. Curricular development and implementation on reflecting recent research findings. Content, materials, methods of teaching the general topic: measurement. Applications in both the metric and standard systems.

## 447 Problems and Research in Teaching Elementary School Mathematics (3)

Prerequisite: ELE ED 445. A thorough examination of research related to recurrent problems in elementary school mathematics instruction, as well as current problems arising within modern programs. Includes methodology appropriate to investigation of such problems and techniques for assessment of the literature.

## 448 Diagnosis and Remediation of Disabilities in Learning Mathematics (3)

Prerequisite: ELE ED 445. Causes of mathematical disabilities. Materials and techniques for diagnoses and corrective programs for children and youth.

## 450 Problems of Teaching Social Studies in the Elementary School (3)

A classroom-oriented study of curricular and instructional problems encountered in social studies. Emphasis is placed upon development of materials, techniques, and resources.

## 452 Problems and Research in Teaching Elementary School Social Studies (3)

Prerequisite: ELE ED 450. An advanced study of pedagogical problems germane to social studies education with particular emphasis on application of research findings to the solution of classroom problems.

## 482 Problems and Research in Teaching Elementary School Reading (3)

Prerequisite: ELE ED 385 or equivalent. Systematic study of research as it focuses on the problems of teaching reading in the elementary school. Attention is given to innovations in the field.

## 484 Developmental Reading (K-13) (3)

Prerequisite: ELE ED 385 or SEC ED 385, or equivalent. Designed to update classroom teachers' skills in reading instruction. Study of basic reading instruction at all grade levels with special emphasis on current instruction programs, innovative approaches to reading instruction, basic techniques, commercial reading materials, and recent research findings which have a bearing on methodology.

## 486 Clinical Diagnosis and Treatment of Reading Disabilities (3)

Prerequisites: A graduate course in reading and in measurement or statistics. Etiology of specific reading disability; procedures that are used to diagnose and treat in the clinical setting.

## 488 Supervision of School Reading Programs (3)

Prerequisite: ELE ED 385 or SEC ED 385. Processes and techniques of developing, evaluating, and/or modifying the reading program in a school or district. The course would enable those seeking positions as consultants, coordinators, and directors of reading to conform with standards specified by the International Reading Association.

## 490 Internship (1-10)

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

## 493 Clinical Methods in Child Study I (3)

Prerequisites: ELE ED 486 and ED REM 422. Clinical experience in diagnosing learning problems, especially reading disability, in school children.

## 494 Clinical Methods in Child Study II (3)

Prerequisite: ELE ED 493. Clinical experience in applying remedial procedures to school children with learning problems, especially reading disability.

## 495 Supervision of Practicum in Clinical Reading (3)

Prerequisites: ELE ED 385 or SEC ED 385; ELE ED 486, ELE ED 493, ELE ED 494; and ED REM 422. Supervising graduate students in diagnosis and remedial process within the reading clinic.

## 497 Problems (1-10)

Selected problems to meet the needs of individual students.



## Physical Education

Prerequisites may be waived by consent of the department or the instructor.

### 101 Introduction to Classroom Teaching (3)

An introduction to the study of teachers' behaviors and learners' responses in classroom settings. Students will be assigned to school sites for specified observations/analyses and limited participation. Students will have the opportunity to evaluate the teaching profession as an appropriate career choice. The course will consist of approximately one-third lecture/seminar and two-thirds clinical/field experience.

### 121 Teaching Physical Education Skills I (2)

The study of skill analysis and techniques of teaching specific physical activities selected in PHY ED 123. Particular emphasis will be given to biomechanical analysis of movement, application of concepts of motor learning, and organization and management of instructional settings. Must be taken concurrently with four of the PHY ED 123 laboratory sections.

### 122 Teaching Physical Education Skills II (2)

Prerequisite: PHY ED 121. A continuation of PHY ED 121 with emphasis on the planning and teaching processes. Students will have opportunities to micro-teach, peer-teach, and videotape. To be taken concurrently with four of the PHY ED 123 laboratory sections.

### 123 Analysis and Teaching of Physical Activities Laboratory (4-10)

The study and performance of physical activities. Emphasis will be given to skill analysis, drills, strategy, rules, materials, and teaching of the various activities. Registration in four laboratory sessions is required. Must be taken concurrently with PHY ED 121 or PHY ED 122.

### 124 Principles and Practice in First Aid and Cardiopulmonary Resuscitation (1)

The course provides theory and supervised practice in first aid and cardiopulmonary resuscitation leading to American Red Cross certification in those areas.

### 130 Elements of Health Education (3)

Prerequisites: ED FND 111 and admission to the School of Education. Basic school health for teachers. Considers health as it relates to the school and the child.

### 132 Personal Health (3)

A study of factors that contribute to physical and mental well-being at all stages of the life cycle. Particular attention will be given to the identification and analysis of individual health behaviors.

### 134 Personal Physical Fitness (3)

Prerequisite: Consent of instructor. A study of the relationship between vigorous physical activity and individual well-being. Emphasis will be placed on an individualized analysis of health fitness, resulting in a prescribed program to develop optimal levels of physical fitness, including aerobic fitness, strength, muscular endurance, flexibility, body composition, and lifetime sports considerations.

### 165 Physical Education Activities in the Elementary School (3)

Objectives of physical education for the elementary school child with applications of choice of activities, organization of program, theory, and practices.

### 190 Clinical Experience in Physical Gerontology (3)

(Same as Gerontology 190.) Prerequisite: Consent of instructor. Early supervised experience in gerontological physical activity programming. Seminar precedes and accompanies clinical experience.

### 193 Clinical Experience in Youth Sport Programs (3)

Prerequisite: Consent of instructor. Supervised clinical experience in youth sport programs. Seminar precedes and accompanies clinical experience.

### 204 Special Topics in Physical Education (1-3)

Prerequisite: Consent of instructor. Independent study through readings, reports, field study, or research.

### 232 Sports Medicine (3)

Prerequisite: PHY ED 280. Study of the medical supervision of sports participants, training, and prevention and care of injuries. Course grants Red Cross first aid certificate.

### 261 Physical Activity of the Exceptional Learner (3)

Prerequisites: SPC ED 311 and SPC ED 313. A study of the special physical activity and exercise needs, interests, and problems of the exceptional learner, with considerable emphasis on the development of methods and competencies in modifying physical activities.

### 267 Performance Analysis in Physical Education (3)

Prerequisite: College-Level Mathematics. A study of quantitative and qualitative approaches, processes and instruments used in assessing student progress in physical education activities. Emphasis will be given to the application of statistical methods to the results of evaluations of human motor performance and the interpretation of those results, as well as to the construction and administration of measurement instruments.

### 268 Curriculum and Methods of Teaching Physical Education (3)

Prerequisite: ELE ED 210 or SEC ED 213. Study of the scope and sequence of the physical education courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of physical education. To be taken concurrently with student teaching.

### 275 Psychology of Sport (3)

Prerequisites: Psychology 3 and Psychology 270 or Psychology 271. A study of the following aspects of psychology as they influence performance in sport and physical activity: learning, retention, transfer, practice, feedback, motivation, anxiety, perception, motor control, social facilitation, cohesion, leadership, and reinforcement.

# Physical Education

## **276 Sociocultural Foundations of Sport and Physical Education (3)**

Prerequisite: Junior standing. Study of the role of sport and physical activity programs in society and schools. The study is based on historical, philosophical, sociological, and cultural perspectives.

## **280 Human Anatomy and Physiology (5)**

Prerequisite: Biology 1 and Biology 3, or consent of instructor. Study of the basic aspects of human anatomy and physiology and their relationship to concepts in sport and physical activity. Two hours of laboratory per week.

## **282 Physical Growth and Motor Development (3)**

Prerequisite: Psychology 270 or Psychology 271. An examination of the physical growth and aging, and motor development of the human being over the life span. Emphasis on evaluative tools, techniques, and studies of research findings. Laboratory field experience for observing individuals. Attention is directed toward acquisition of basic skills, perceptual-motor development, fitness development, and age-related changes in information processing. A required course for physical education majors; an elective course for early childhood, special, and elementary education majors.

## **283 Kinesiology (3)**

Prerequisite: PHY ED 280. Study of the biomechanics of human motion with particular application to performance in sport activities.

## **284 Physiology of Human Exercise (3)**

Prerequisite: PHY ED 280. Study of the physiological effects of human exercise, training, and sport activities upon the human body; understanding and evaluation of physical fitness components, with consideration given also to areas including work, fatigue, nutrition, age, sex, and environment.

## **290 Student Teaching in Physical Education I (5)**

Prerequisites: SEC ED 213; eight of the following courses: PHY ED 121, 122, 123, 130, 232, 275, 276, 277, 283, and 284; and admission to student teaching. Must be taken "in block" with PHY ED 268 and PHY ED 291 and must immediately precede PHY ED 291 in the semester. Clinical teaching experience in physical education settings in the schools under University and school supervision. Required for all majors in physical education.

## **291 Student Teaching in Physical Education II (5)**

Prerequisite: PHY ED 290. Must be taken "in block" with PHY ED 268 and PHY ED 290, and must immediately follow PHY ED 290 in the semester. Clinical teaching experience in physical education settings in the schools under University and school supervision. Assignments will be in different socioeconomic and cultural backgrounds, and at different grade levels from those of the PHY ED 290 assignments. Required of all majors in physical education.

## **292 Internship in Physical Gerontology (6-12)**

(Same as Gerontology 292.) Prerequisite: PHY ED 190. Clinical experience in gerontological physical education. Clinical experience in selected gerontological setting as a physical education practitioner under University and institutional supervision. Experiences will include at least two separate experiences completed concurrently or successively. Seminar accompanies internship experiences.

## **306 Dance Workshop (1)**

## **312 Management of Sports Programs (3)**

Prerequisite: Consent of instructor. A study of administrative theory, roles, responsibilities, and functions in the management of sports programs.

## **330 Prescribing Physical Activity (3)**

(Same as Gerontology 330.) Prerequisite: PHY ED 280 or consent of instructor. Prescription of physical activity for individualized and group programming based upon physical fitness assessment. Health, nutrition, age, physical fitness, and testing aspects are considered in developing specialized exercise programming based upon current physiological and biomechanical research.

## **380 Nutrition for Human Performance (3)**

A study of human nutrition and its relationship to human performance. Consideration is given to nutrients—function, food source, health concerns and implications, and energy intake and expenditure. Special consideration is given to the following: body composition including weight gain and loss, ergogenic aids, competitive athletes, older adults, children and teens, pregnant women, disease risk, fluid and electrolyte balance, and specific sport activities.

## **390 Student Teaching in Physical Education III (5)**

Prerequisites: PHY ED 291 or equivalent and admission to student teaching. Clinical teaching experience in physical education settings in the school under University and school supervision with seminar included. For students who wish an additional student teaching experience.

## **462 The Physical Education Curriculum (3)**

Prerequisite: Consent of instructor. A study of current practices, problems, trends, and research involved in the analysis and development of the physical education curriculum.

# Physical Education

## 464 Analysis of Teaching in Physical Education (3)

Prerequisite: Consent of instructor. A study of trends and research relating to teaching methodology, teacher effectiveness, and supervision of instruction in physical education. Emphasis will be given to the application of research on teacher effectiveness in the instructional process in physical education.

## 474 Psychological Dynamics of Sport Performance (3)

Prerequisite: PHY ED 275 or consent of instructor. Application of specific principles of social psychology to the teaching of physical education and sport and of mental aspects of peak physical performance. Explores the techniques of improving team and individual performance in interscholastic and elite competition through sport psychology. Attention is given to motivation, competitive anxiety, attitude, aggression, team cohesion and leadership, exercise adherence, personality, individual differences, and gender roles as they pertain to sport performance.

## 475 Motor Learning and Control (3)

Prerequisite: PHY ED 275 or consent of instructor. Application of specific principles of learning and the control of movement to the teaching of motor skills in physical education and sport. Surveys neurologic systems involved in perception and motor performance. Explores theoretical perspectives, including open versus closed loop control, schema theory, information processing, and dynamical systems theory. Attention is given to efficiency of learning skills by accommodating transfer of training, utilizing feedback, manipulating practice schedules, and promoting retention.

## 476 Social Inquiry of Sport (3)

Prerequisite: PHY ED 276 or consent of instructor. A study of basic social processes in sport, such as socialization, social facilitation, and assimilation.

## 478 Problems and Research in Physical Education (3)

A study of potential research problems and research processes in specific physical education subdisciplines. A research project will be completed in the student's physical education subdiscipline interest area.

## 482 Life Span Perceptual and Motor Development (3)

Prerequisite: PHY ED 282 or consent of instructor. A study of sensory and perceptual development and change, and the age-related qualitative and quantitative changes in motor skill. Both current theory and current empirical findings are stressed. Attention is given to methods of structuring learning environments to maximize development. Study is from a life span perspective.

## 483 Biomechanics of Sport Techniques (3)

Prerequisite: PHY ED 283 or consent of instructor. A study of the biomechanical concepts important to analysis of techniques used in selected sports. Explores recent research findings on efficient sports techniques. Provides experience in the analysis of skill performance.

## 484 Physiological Bases of Physical Performance (3)

Prerequisites: PHY ED 280 and PHY ED 284 or consent of instructor. Physiological bases and contemporary trends in the study of human performance and exercise stress; will analyze research literature and study experimental strategies with the focus upon application to teaching and coaching.

## 485 Theory of Exercise and Cardiovascular Disease Risk Factor Management (3)

Prerequisite: Completion of PHY ED 484 or equivalent. A study of the effects of exercise on the basic epidemiology, physiology, and management of unavoidable and avoidable cardiovascular risk factors. Special attention will be given to the examination of the effect of exercise in the management of cardiovascular disease risk.

## 490 Internship (1-10)

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

## 497 Problems (1-10)

Selected problems to meet the needs of individual students.

# Public Policy Administration

## 365 Introduction to Econometrics (3)

(Same as Economics 365.) Prerequisites: Economics 51 and Economics 52 (Economics 250 and/or Economics 251 recommended) or Business Administration 410; and Economics 265 or Mathematics 31 or Mathematics 132 or Business Administration 131 or Management Science/Information Systems 481 or Public Policy Administration 401; and Mathematics 80 or Mathematics 101; or equivalents. An introduction to quantitative analysis of economic behavior. The ordinary least squares technique and the assumptions underlying it are developed. Methods designed to detect and correct for the violations of these assumptions are examined. Special emphasis is given to the practical application of the procedures discussed through the use of computer exercises.

## 401 Introduction to Policy Research (3)

(Same as Political Science 401.) Procedures for testing explanations, including research design, principles of measurement, probability sampling, methods of data collection, and techniques for analyzing data.

## 410 Introduction to Policy Analysis (3)

(Same as Political Science 410.) Systematic development of a critical/analytic base for dealing with public policy.

## 418 Governmental Budgeting and Financial Control (3)

(Same as Business Administration 418.) Prerequisite: Business Administration 440. A study of municipal and federal financial control and budgeting procedures with emphasis on public policy. The impact of financial control on top management decisions and the effect of budget strategies on the allocations of public funds.

## 419 Cases in Public Policy Analysis (3)

(Same as Political Science 419.) Intensive analysis of several public policy cases. Cases will be problem-solving exercises in areas such as personnel management, program financing, budget preparation, and planning.

## 421 Public Sector Microeconomics (3)

(Same as Economics 421.) Prerequisites: Economics 251, or Business Administration 410, or equivalent. Survey of economics of bureaucracy, fiscal federalism, entrepreneurship in non-profit organizations, benefit-cost analysis, tax welfare, property rights, and externalities.

## 440 Proseminar in Public Administration (3)

(Same as Political Science 440.) Examination of major approaches to analyzing public policies and their administration. Emphasis is on the effects of administrative organization and procedures on policy decisions and their impacts. Specific topics may include administrative accountability, intergovernmental relations, public-private interaction, implementation processes, bureaucratic expertise, the legal environment of public policy administration, and public service and merit issues.

## 443 Health Care Policy (3)

(Same as Political Science 443.) Prerequisite: Consent of instructor. Survey course examining current issues in health policy that face the nation. Policies are placed in a historical context to show how issues have been influenced by different political and economic conditions. Secondary consequences and limitations of current trends in health policy are explored.

## 444 Public Policy and Aging (2-3)

(Same as Gerontology 444 and Political Science 444.) Prerequisite: Consent of instructor. Examination of federal, state, and local policies that affect the elderly. The interrelationships between age-specific and more general social policies are explored within a historical context. Pluralist, organizational, and structural approaches to aging policies are analyzed.

## 446 Selected Topics in Health Care Policy (3)

(Same as Political Science and Sociology 446.) Prerequisite: Consent of instructor. The study of specialized issues and methods relating to health care policy. May be repeated for credit, provided the subject matter is different.

## 447 Health Policy and the Elderly (3)

(Same as Sociology 447 and Gerontology 447.) Prerequisite: Consent of instructor. Examination of how public policy addresses the acute medical problems, as well as the long-term care needs, of the elderly. The influence of health policy on the structure of the long-term care system is analyzed, along with the consequences of age-based versus need-based policies.

## 449 Human Resources in the Public Sector (3)

(Same as Political Science 449.) Prerequisite: Public Policy Administration 460 or consent of instructor. This course presents an overview of personnel and labor relations in the public sector. The course has particular emphasis on issues which are unique to the public sector, such as the merit system, the questions of representative bureaucracy and the constraints of personnel in the nonprofit sector. The topics include personnel reforms in the federal sector, equal employment and affirmative action policies, testing, selection, hiring, comparable worth, job evaluation, and labor relations including grievance arbitration and collective bargaining.

## 460 Organizational Behavior and Administrative Processes (3)

(Same as Management 460.) The theoretical and research contribution of the behavioral sciences to management and administration are examined and applied to selected organizational situations. Areas to be considered from the standpoint of both individual and organizational performance are communication, motivation, conflict, decision making, goal setting, leadership, organizational design, climate, development, and control. Utilizing a systems perspective, the course attempts to develop in each student an ability to analyze and solve organizational problems.

## Public Policy Administration

### **475 Introduction to Evaluation Research Methods (3)**

(Same as Psychology 475, Sociology 475, and Criminology and Criminal Justice 475.) Prerequisites: At least one course in Research Design and Statistics at the graduate level. A comparative study of research strategies with regard to data sources, data collection, and modes of analysis that are appropriate for program evaluation research. Attention is given to observational, survey, and quasi-experimental designs.

### **480 Management Information Systems (3)**

(Same as MS/IS 480.) Prerequisite: Economics 351 or Mathematics 101 or Mathematics 102. An overview of management information systems is presented, including various information systems concepts and technologies. Students are introduced to a mainframe operating system, a microcomputer-based operating system and a programming language. Students are also exposed to several common microcomputer-based software packages.

### **495 Internship (1-6)**

(Same as Political Science 495.) Independent study involving work with an appropriate public or private agency.

### **499 Exit Project Research (1)**

Prerequisites: Completion of or simultaneous enrollment in other degree requirement courses. The exit project is viewed as the capstone of the MPPA program. As such, it is meant to be undertaken toward the end of a student's program, usually during the final semester. Its purpose is to provide evidence to the faculty that the degree candidate has mastered the skills acquired in the various courses completed during residence at the University and can apply them to the analysis of a practical research problem.



# Gerontology

## 16 Images of Age in Literature (3)

(Same as English 16.) Reading and discussion of literature that portrays aging and old age in various settings. Emphasis is on contemporary novels, but poetry and drama such as *King Lear* are read as well. Discussion and short essays enable consideration of how literature helps in the study of aging and also how the process of aging can be a creative force within literature.

## 60 Aging in America (3)

(Same as Interdisciplinary 60.)

An introduction to the major issues, research, problems, and current service approaches in the study of the aging process. An overview of information useful for students in the arts and sciences, business, education, and nursing schools.

## 111 Issues in Geriatric Health Care (2)

(Same as Nursing 111 and Biology 111.)

A course designed to acquaint the student with aspects of chronic disease frequent in later life, as well as a synopsis of biological aging processes. Disease symptomatology aspects of health maintenance and medical intervention with an older adult population will be discussed. In addition, issues in health care delivery will also be explored.

## 120 Special Topics in Gerontology (1-3)

Selected topics dealing with various aspects of gerontology. The specific contents of this course will vary from semester to semester. The course may be repeated for credit with permission of the Gerontology director.

## 156 Medical Ethics (3)

(Same as Philosophy 156.) An examination of ethical issues in medical practice and research and in public policies affecting health care. Topics include abortion, euthanasia, medical experimentation, informed consent, and the right to health care.

## 190 Clinical Experience in Physical Gerontology (3)

(Same as PHY ED 190.) Early supervised experience in gerontological physical activity programming. Seminar precedes and accompanies clinical experience.

## 215 Growing Old in Other Cultures (3)

(Same as Anthropology 215.) This course examines the wide ranging variability in the roles of older people across different cultures and the effects these have on older people, their families, and their societies.

## 272 Adult Development and Aging (3)

(Same as Psychology 272.) Personality, social, and physiological development from the onset of early adulthood through maturity and old age.

## 280 The Psychology of Death and Dying (3)

(Same as Psychology 280.) This course will address the psychological aspects of death and dying for both adults and children. The psychological reactions of terminally ill patients and their families will also be examined, and therapeutic interventions will be discussed.

## 292 Internship in Physical Gerontology (6-12)

(Same as PHY ED 292.) Clinical experiences in gerontological physical education. Clinical experience in selected gerontological setting as a physical education practitioner under University and institutional supervision. Experiences will include at least two separate experiences completed concurrently or successively. Seminar accompanies internship experiences.

## 316 Clinical Gerontology (3)

(Same as Social Work 316.) Prerequisite: Social Work 280 or Psychology 268. This course includes (1) an examination of the social, economic, health, and psychological problems specific to an older adult population; (2) consideration of special needs of the frail elderly, to include problems in long-term care; and (3) the special practice skills (individual, group) needed for intervention with older adults.

## 330 Prescribing Physical Activity (3)

(Same as PHY ED 330.) Prerequisite: PHY ED 280 or consent of instructor. Prescription of physical activity for individualized and group programming based upon physical fitness assessment. Health, nutrition, age, physical fitness, and testing aspects are considered in developing specialized exercise programming based upon current physiological and biomechanical research.

## 361 Social Gerontology (3)

(Same as Sociology 361.) Prerequisite: Sociology 10 and junior standing or consent of instructor. Topics include sociological theories of aging, technological and social change and its effects on the environment of older people, and prejudice and discrimination against the elderly.

## 373 Psychology of Aging (3)

Prerequisite: Nine hours of Psychology or consent of instructor. This course focuses on the developmental changes associated with aging including sensation, memory, emotions, and attitudes.

## 376 Mental Health and Aging (3)

(Same as Psychology 376.) Prerequisites: Consent of instructor plus Psychology 272, Psychology 373, or graduate student status. A survey of recent theory and research in mental health issues for older populations. The primary focus is on major psychological disorders prevalent among the elderly and in treatment approaches for elders.

## 401 Health and Wellness in the Elderly (3)

(Same as Nursing 401.) Prerequisite: Graduate standing. Factors contributing to longevity and health in old age, including genetic predisposition, lifestyle, culture and environment, are related to aspects of maintaining health and promoting wellness. Through a holistic approach, explores aspects of nutrition, exercise, and activity, prevention of hazards to health, maintaining self-responsibility, managing stress, and meeting continued developmental, emotional, and spiritual needs. Considers intervention and support to promote health and wellness in the elderly.

# Gerontology

## 440 Cultural Aspects of Aging (3)

(Same as Anthropology 440.) Focuses on the variety of solutions encountered in different sociocultural contexts for dealing with the problems, challenges, and opportunities of growing old. It is organized around topics that are of concern to both anthropology and social gerontology: the status of the aged, intergenerational relations, aging in modernizing societies, ethnic dimensions of aging in complex societies, health in later life, death and dying. Both in-depth case studies and cross-cultural comparisons are examined in an effort to arrive at a culturally informed assessment of factors affecting aging and the aged in the United States.

## 442 Minority Aging (3)

(Same as Sociology 442.) Prerequisite: Sociology 361 or consent of instructor. The experience of aging for racial and ethnic minority elderly will be examined in the context of their families, communities, and society. Key questions concerning minority elderly frame the course, such as the relative importance of culture versus social structure, and the applicability of gerontological theory to the minority aging experience.

## 444 Public Policy and Aging (2-3)

(Same as Public Policy Administration 444 and Political Science 444.) Prerequisite: Consent of instructor. Examination of federal, state, and local policies that affect the elderly. The interrelationships between age-specific and more general social policies are explored within a historical context. Pluralist, organizational, and structural approaches to aging policies are examined.

## 445 Sociological Dimensions of Chronic Illness (3)

(Same as Sociology 445.) Prerequisite: Sociology 400 or consent of instructor. The consequences of chronic illness for social roles, family and organizational dynamics, and the functioning of society are examined. Chronic illness is presented as both a medical problem and a social phenomenon that is shaped by the changing age structure of society.

## 447 Health Policy and the Elderly (3)

(Same as Sociology 447 and Public Policy Administration 447.) Prerequisite: Consent of instructor. Examination of how public policy addresses the acute medical problems, as well as the long-term care needs, of the elderly. The influence of health policy on the structure of the long-term care system is analyzed, along with the consequences of age-based versus need-based policies.

## 493 Topics in Gerontology (1-3)

(Same as Psychology 493.) Prerequisite: Graduate standing or approval of instructor. Intensive analysis of a specific problem in gerontology. Course may be repeated.

## 494 Integrative Research Seminar in Gerontology (2)

(Same as Psychology 494.) Prerequisite: A graduate level research methods course. This seminar requires students to critically examine research in terms of both theory and methodology.

## 495 Practicum in Gerontology (3)

(Same as Psychology 495.) Prerequisite: Consent of instructor. This course provides supervised work experience in an agency that serves the elderly.

## 496 Gerontology Colloquium (1)

(Same as Psychology 496.) Presentation of current topics in gerontology by faculty and invited speakers. May be repeated for a total of three credits.

# Nursing Courses

## 111 Issues in Geriatric Health Care (2)

(Same as Biology 111 and Gerontology 111.) A course designed to acquaint the student with aspects of chronic disease frequent in later life, as well as a synopsis of biological aging processes. Disease symptomology aspects of health maintenance and medical intervention with an older adult population will be discussed. In addition, issues in health care delivery will also be explored.

## 200 Dimensions of Professional Nursing Practice (3)

Prerequisites: Admission to the School of Nursing and junior standing. Acts as bridge to baccalaureate education for the registered nurse who has successfully completed an associate or diploma nursing program. Focus is on socialization and role transition. Key areas include general systems theory, self-care, self-awareness, problem solving, communication, and values clarification. (This course must be taken in the first semester of the nursing sequence.)

## 215 Computerized Systems for Health Care Professionals (2)

Prerequisite: Nursing 200 (may be taken concurrently) or consent of instructor. Prepares health care professionals to use computerized health information systems to enhance professional practice, clinical decision making and to provide more effective, efficient client care. Students will analyze current, future, and potential uses and constraints of computer systems and their impact on health care.

## 216 Teaching and Interpersonal Systems in the Practice of Nursing (3)

Prerequisites: Junior standing and Nursing 200\* (May be taken concurrently.) Focuses on therapeutic communication and on concepts of teaching and learning in meeting self-care needs of clients. This course includes practice activities.

## 220 Health Assessment (3)

Prerequisites: Junior standing and Nursing 200\* (May be taken concurrently.) Focuses on the development of systematic approaches to assess the comprehensive health status of individuals. The assessment phase of the nursing process provides the framework to determine the individual's self-care abilities and needs based on the collection of a complete data base.

## 224 Sociology of the Family (3)

(Same as Sociology 224.) Prerequisite: Sociology 10. Universal and variable aspects of family organization, family role systems, and changes in family social structure.

## 236 Family and Community Nursing (6)

Prerequisites: Nursing 200 and Nursing 220 (may be taken concurrently). Provides an introduction to family and community health nursing. Roles and responsibilities of the family and community health nurse are explored. Effects of social, cultural, ecological, political, and economic factors are studied as they impact families and communities. Clinical activities are concentrated in the community and encourage students to practice professional nursing with families and populations.

## 299 Special Study in Nursing (1-3)

Prerequisite: Consent of instructor. In-depth study of selected topics in nursing under the guidance of a specific instructor. No more than six hours may be taken under this option.

## 316 Leadership and Management in Nursing (3)

Prerequisite: Completion of all junior-level nursing courses. Focuses on organizational processes and management theories and provides an examination of motivational theories, group processes, critical thinking, leadership and communication skills, as well as authority and accountability.

## 326 Research in Nursing (3)

Prerequisites: Statistics (may be taken concurrently) and completion of junior-level nursing courses. Introduces basic research concepts, the critical analysis of research studies, and the application of research findings in clinical practice.

## 332 Dimensions of Health Care: Implications for Professional Nursing Practice (3)

Prerequisite: Completion of junior-level nursing courses or consent of instructor. Legislative, legal, economic, and bioethical concepts are explored as they impact professional nursing practice and health care delivery in a changing society.

## 338 Sociology of Health (3)

(Same as Sociology 338.) Prerequisites: Sociology 10 and junior standing. Exploration of social dimensions and issues related to health and illness such as access to the health care delivery system; factors influencing prevention, utilization, and compliance; changing relationships among health care providers and consumers; health care costs, trends, and cross-cultural variations.

## 340 Synthesis in Nursing Practice (3)

Prerequisites: Nursing 316, Nursing 326, and Nursing 332 (may be taken concurrently). Focuses on synthesis of professional nursing roles in a selective practice setting. Includes assessment of cognitive and affective growth achieved while in nursing program. This clinical course must be taken in the student's final semester.

## 350 Contemporary Nursing Issues (2)

Prerequisites: Nursing 316, 326, 332, and 340 (may be taken concurrently). Analyzes the development of the professional nursing role in the health care delivery system in contemporary and future society. (This course must be taken in the student's final semester.)

## 360 Independent Study in Nursing (1-3)

Prerequisite: Consent of instructor. Offers a student an opportunity to pursue a specific area of interest within the discipline of professional nursing. A variety of resources may be utilized to offer the student experiences appropriate to the area of interest. No more than six hours may be taken under this option.

## Nursing Courses

### 365 Women's Issues in Health Care (3)

This course is open to nursing majors and other persons interested in women's issues in health care. This seminar offers students the opportunity to explore women's issues in health care from the perspectives of both providers of health care and consumers of health care. Wellness, rather than pathology, is the emphasis of discussion of specific health care issues related to women. Student interest will determine specific issues to be examined.

### 370 Topics in Nursing (1-3)

Prerequisite: Consent of instructor. Explores special topics in the areas of clinical practice, nursing education, nursing administration, and professional development. No more than six hours may be taken under this option.

### 401 Health and Wellness in the Elderly (2)

(Same as Gerontology 401.) Prerequisite: Graduate standing. Factors contributing to longevity and health in old age, including genetic predisposition, lifestyle, culture, and environment, are related to aspects of maintaining health and promoting wellness. Through a holistic approach, explores aspects of nutrition, exercise and activity, prevention of hazards to health, maintaining self-responsibility, managing stress, and meeting continued developmental, emotional, and spiritual needs. Considers cross-disciplinary interventions to promote health and wellness in the elderly.

### 473 Quantitative Analysis in the Health Sciences (3)

Prerequisite: Mathematics 30 or equivalent or permission of instructor. This course is an introductory quantitative analysis course for nurses and other health care professionals who require a basic upper-division statistics course as a part of their professional or continuing education. Using examples and content from the health sciences, this course provides the basic conceptual structure of quantitative analysis and develops beginning competence in the selection and computation of parametric and non-parametric statistical procedures.

### 521 Child Growth and Development (3)

Prerequisite: Basic course in child growth and development or consent of instructor. Seminar discussions in child growth and development and child rearing practices as influenced by cultural, family, and organic conditions. Theories of growth and development, normal development, variation from normal and the use of current developmental screening methods are included.

### 550 Theoretical Foundations in Nursing (3)

This course is designed to provide the student with the cognitive skills necessary to the systematic analysis of concepts and theories relevant to nursing. It assists in the formation of a vocabulary necessary to professional discourse and to appraising methods by which knowledge is gained and validated. Ethical issues and dilemmas in the acquisition of knowledge and the application of the scientific method are addressed.

### 555 Inquiry in Nursing (3)

Prerequisites: Concurrently with or completion of an upper division course in Statistics, Nursing 550 and 560A, 560C, or 560W. This course is designed to provide the student with the fundamentals of scientific inquiry in nursing, as well as the terminology necessary to communication in research. Principles and techniques common to scientific investigations are applied to nursing and a plan of study of a nursing problem is developed.

### 560A Primary Prevention in the Nursing Care of Adults (3)

Prerequisites: Concurrently with or completion of Nursing 550 and Nursing 555. This course is concerned with the nursing assessment of intra-, inter-, and extrapersonal stressors which impact the health of adults in the physiologic, psychologic, sociocultural, and developmental domains. It focuses on the reduction of stressor encounters and the strengthening of the lines of defense.

### 560C Primary Prevention in the Nursing Care of Children (3)

Prerequisite: Concurrently with or completion of Nursing 550. This course is concerned with the nursing assessment of intra-, inter-, and extra-personal stressors which impact the health of children in the physiological, psychological, sociocultural, and developmental domains. It focuses on the reduction of stressor encounters and the strengthening of the lines of defense.

### 560W Nursing Care of Pregestational Women (3)

Prerequisite: Concurrently with or completion of Nursing 550. This course is concerned with the nursing assessment of intra-, inter-, and extrapersonal stressors which impact pregestational women and their families.

### 561A Secondary Prevention in the Nursing Care of Adults (3)

Prerequisite: Nursing 560A. This course is concerned with the analysis of nursing assessment data for the purpose of identifying nursing problems common to adults whose normal lines of defense have been penetrated and deriving nursing diagnosis. The emphasis of the course is on ranking intervention priorities, implementing nursing management approaches within the secondary mode, and evaluating client outcomes. The focus is on temporary adjustment to alterations.

### 561C Secondary Prevention in the Nursing Care of Children (3)

Prerequisites: Nursing 550 and Nursing 555 taken concurrently or upon completion. This course is concerned with the analysis of nursing assessment data for the purpose of deriving nursing diagnoses and the identification of nursing problems common to children whose normal lines of defense have been penetrated. The emphasis of the course is on establishing intervention priorities, implementing nursing management approaches within the secondary mode, and evaluating client outcomes. The focus is on temporary adjustment to alterations.



## Nursing Courses

### **561W Nursing Care of Intrauterine Women (3)**

Prerequisites: Nursing 550 and Nursing 560W. This course is concerned with the nursing assessment of intra-, inter-, and extrapersonal stressors which impact women and their families during pregnancy.

### **562A Tertiary Prevention in the Nursing Care of Adults (3)**

Prerequisites: Nursing 550 and Nursing 560A. This course is concerned with the development of creative problem solving strategies which support and assist client's successful adaptation to known stressors, ability to transfer adaptive capacities to future stressors, and achievement of optimal reconstitution and/or high-level wellness. The focus is on long-term adaptation to chronic/permanent alterations.

### **562C Tertiary Prevention in the Nursing Care of Children (3)**

Prerequisites: Nursing 550 and Nursing 560C. This course is concerned with the development of creative problem-solving strategies which support and assist client's successful adaptation to known stressors, ability to transfer adaptive capacities to future stressors, and achievement of optimal reconstitution and/or high-level wellness. The focus is on long-term adaptation to chronic/permanent alterations.

### **562W Nursing Care of Postgestational Women (3)**

Prerequisites: Nursing 550 and Nursing 560W. This course is concerned with the nursing assessment of intra-, inter-, and intrapersonal stressors which impact women and their families in the postgestational period.

### **563A Clinical Practicum in the Nursing Care of Adults (3)**

Prerequisites: Nursing 550 and Nursing 555. This course is designed to afford the student a concentrated, experiential opportunity to provide advanced-level nursing care to a population of clients within a student-designated area of practicum.

### **563C Clinical Practicum in the Nursing Care of Children (3)**

Prerequisites: Nursing 560C, Nursing 561C, and Nursing 562C. This course is designed to afford the student a concentrated, experiential opportunity to provide advanced-level nursing care to a population of clients within a student-designated area of practice.

### **563W Clinical Practicum in Nursing Care of Women (3)**

Prerequisites: Nursing 550 and Nursing 555. This course is designed to afford the student a concentrated, experiential opportunity to provide advanced-level nursing care to a population of clients within a student-designated area of practicum.

### **570 Foundations of Role Development in Nursing (1)**

This course is designed to provide a foundation for the development of functional roles in nursing. Major concepts of role theory will be reviewed and discussed in relationship to major issues affecting nursing roles.

### **571NA The Role of the Nurse Administrator (2)**

Prerequisite: Nursing 570. This course is designed to facilitate role development for nurses who desire to function as administrators within a nursing hierarchy. The emphasis is on the implementation and evaluation of nursing services within institutions providing skilled nursing services.

### **571NE The Role of the Nurse Educator (2)**

Prerequisite: Concurrently with or completion of Nursing 570. This course is designed to facilitate role development for nurses who desire to function in educational roles in a variety of educational settings. The emphasis is on the assessment of learning needs, the design and evaluation of learning experiences both didactic and clinical, and the evaluation of role performance as a nurse educator.

### **571NS The Role of the Clinical Nurse Specialist (2)**

Prerequisite: Concurrently with or completion of Nursing 570. This course is designed to facilitate role development for nurses who desire to function as specialists within an area of nursing practice and within organizations providing skilled nursing services. The emphasis is on the provision of high quality nursing care to groups of clients by the specialist herself/himself, as well as by other nursing personnel.

### **572NA Functional Role Practicum in the Role of the Nurse Administrator (3)**

Prerequisites: Nursing 570 and Nursing 571NA. This course is designed to afford the student a concentrated, experiential opportunity to function in the role she/he has chosen to pursue occupationally.

### **572NE Functional Role Practicum in the Role of the Nurse Educator (3)**

Prerequisites: Nursing 570 and Nursing 571NE. This course is designed to afford the student a concentrated, experiential opportunity to function in the role she/he has chosen to pursue occupationally.

### **572NS Functional Role Practicum for the Clinical Nurse Specialist (3)**

Prerequisites: Nursing 570 and Nursing 571NS. This course is designed to afford the student a concentrated, experiential opportunity to function in the role she/he has chosen to pursue occupationally.

### **598 Research Option (6)**

Prerequisites: Nursing 560 and Nursing 555. The research option consists of research activities undertaken by the student under the direction of a Faculty Research Adviser. The principle purpose of the research option is to provide learning experiences in research which combine clinical experience and theoretical knowledge in order to study a topic or problem of relevance to nursing. Activities associated with the research option are intended to introduce the student to the aspects of research that will contribute to nursing knowledge in her/his field of interest.



# Optometry

*The following 400-level courses may be taken in the Master of Science or Doctor of Philosophy programs in Physiological Optics.*

## **400 Sensory Processes and Perception (3)**

Prerequisite: Graduate standing in Physiological Optics or consent of instructor. Current views on the encoding of various aspects of the visual stimulus (intensity, space, time, and wavelength) that give rise to the perceptions of brightness, contour, motion, and color will be considered in this course. The psychophysical tools available to examine visual encoding will be emphasized. Other topics will include binocular vision and depth perception, information processing approaches to visual pattern recognition, and the similarities and interactions of the visual system with the other sensory modalities.

## **401 Visual Optics (3)**

Prerequisite: Graduate standing in Physiological Optics or consent of instructor. This course deals with the optical properties of the eye. Included are a review of general optics including physical optics, paraxial and non-paraxial geometric optics, image quality, radiometry and photometry, and optical instrumentation. Topics in visual optics will include schematic eyes, measurement of the parameters of the eye, accommodation, retinal image size, refractive errors, visual axes, spectral absorption by the ocular media, and the optical performance of the eye.

## **402 Ocular Anatomy and Physiology (3)**

Prerequisite: Graduate standing in Physiological Optics or consent of instructor. The structures and fluids of the eye and orbit, their interactions and functions are considered in this course. Specific topics include the eyelids, tearfilm, conjunctiva, cornea, iris, ciliary body, vasculature, aqueous humor, vitreous body, and the retina.

## **403 Psychophysical Methods and Experimental Design (3)**

Prerequisite: Graduate standing in Physiological Optics or consent of instructor. Advanced methodology for the design and analysis of experiments in a variety of areas of visual science are considered in this course. Both basic and applied topics will be considered. Special emphasis will be placed on psychophysical methodology, signal detection analysis, and scaling techniques.

## **404 Sensory Neuroscience (3)**

Prerequisite: Graduate standing in Physiological Optics or consent of instructor. This course will deal with the neural organization of the sensory systems with an emphasis on vision. It will include a review of general neurophysiology and neuroanatomy as they relate to the processing of environmental stimuli into neural information, as well as experimental approaches utilized in neurobiology. Topics to be covered include neural transduction and sensory coding by receptors and neurons, constraints on perception defined by the functional organization of the nervous system, sensory development and plasticity as related to neural development, and evolution of sensory systems.

## **451 Corneal Physiology (2)**

Prerequisite: Completion of core or consent of instructor. A detailed consideration of the biochemical and biophysical aspects of corneal transparency, including nutrition, metabolism, and methods of investigation. The effects of altered corneal environments (such as exist during sleep or contact lens wear) will be discussed.

## **452 Growth and Development of the Visual System (2)**

Prerequisite: Completion of core or consent of instructor. This course will be an in-depth coverage of topics related to the growth and development of the visual system, including visual deprivation, neuronal specificity and plasticity, and neurotrophic influences.

## **453 Advanced Physiology of Other Sensory Systems (2)**

Prerequisite: Completion of core or consent of instructor. This course will deal with the structure and function of the auditory, vestibular, olfactory, and somatosensory systems. Particular emphasis will be placed on similarities and interrelationships between these senses and vision.

## **454 Binocular Vision (2)**

Prerequisite: Completion of core or consent of instructor. Binocular fusion and summation, binocular rivalry and suppression, and stereopsis and depth perception are the major topics of the course. The neurophysiology of binocular vision, and its development will also be covered in the course.

## **455 Visual Information Processing (2)**

Prerequisite: Completion of core or consent of instructor. This course covers a variety of topics related to the computer modeling of visual problems, such as the detection of surfaces and three-dimensionality, the perception of color, and the encoding of motion. Computer models will be evaluated in terms of their efficiency, veridicality, and relation to biology.

## **456 Oculomotor Systems (2)**

Prerequisite: Completion of core or consent of instructor. The intra- and extraocular muscle systems illustrate the role of visual and other sensory information in feedback control systems. Topics include the control of eye movements, accommodation and pupil size, and their synkinetic relationship in the near triad. The anatomy, physiology, and pharmacology of the muscles, kinematics, methods of measuring eye movements, neurophysiology of eye movements, and perceptual phenomena are also discussed.

# Optometry

## 457 Comparative and Evolutionary Aspects of Vision (2)

Prerequisite: Completion of core or consent of instructor. This course explores the evolution of visual systems by examination of structural and functional aspects of vision in vertebrate and invertebrate species. Topics include photosensitivity and photoreception; structure of the eye in vertebrates and invertebrates; discrimination of form, motion, and color; visual reflexes, parallel processing; elaboration of central visual pathways; binocular vision; and stereopsis. Structural and functional adaptations to selective pressure will also be discussed.

## 458 Noninvasive Assessment of the Visual System (2)

Prerequisite: Completion of core or consent of instructor. This course reviews historical topics and emphasizes current topics in the noninvasive clinical and laboratory assessment of the normal and diseased human visual system. Topics will range from delineation of disease mechanisms (such as retinal and choroidal disorders, cataract, corneal disease, glaucoma, strabismus, and amblyopia) to the design and assessment of new techniques and technology for evaluating the function of the visual system (e.g., advances in imaging techniques, fluorophotometry, perimetry, laser interferometry, psychophysics, etc.).

## 459 Introduction to Computer Programming for Vision Research (3)

Prerequisite: Graduate standing in Physiological Optics or consent of instructor. This course will expose the student to fundamental concepts of computer programming. The Prograph programming language will be used on the Macintosh computer to illustrate procedural and object-oriented programming philosophies. Examples and assignments will focus upon research applications in vision science.

## 470 Individual Studies in Physiological Optics (2)

Prerequisite: Consent of instructor. This course designation can be used to cover a variety of topics in visual science. In general, very specific topics of limited interest will be presented as individual studies. Individual studies and advanced topics enable the student's course of study to be sharply tuned to his or her major area of interest.

## 490 Graduate Research in Physiological Optics (1-15)

Prerequisite: Consent of instructor. Research in an area selected by the student in consultation with faculty members. May be taken to a maximum of 10 hours for the M.S. and 15 hours for the Ph.D.

*The following 500-level courses are taken in the Doctor of Optometry (O.D.) program.*

## 504 Neuroanatomy (4)

Detailed gross and microscopic anatomy of the human central nervous system with a special emphasis on the cranial nerves, nuclei, and the visual system.

## 505 Geometric Optics (4)

The principles of geometrical optics as applied to refracting and reflecting surfaces, thin lenses, thick lenses, and lens systems. The optics of various ophthalmic instruments and techniques will be examined.

## 506 Practice Management I (2)

An introduction to the contemporary practice of optometry, beginning with a consideration of the history of the optometric profession and concluding with the consideration of the present-day scope of optometric practice. The role of optometry in the total health care system will be evaluated along with future projections. Goal setting and financial advisement will also be discussed.

## 508 Human Anatomy and Physiology (6)

The general anatomy of the human body and the physiology of the major organ systems including the peripheral and autonomic nervous system, the cardiovascular, respiratory, endocrine, digestive, and reproductive systems will be presented. The anatomy of the head and neck will be emphasized and the histology of the basic tissue types and organs will be related to general human anatomy and physiology. (Five hours lecture, two hours laboratory/week.)

## 512 Biochemistry (3)

Basic concepts of general and cellular biochemistry. Study of nomenclature structure, and reactions of organic molecules. Some emphasis on visual system—tears, intraocular fluids, lens, and photochemistry.

## 513 Physical Optics and Photometry (3)

Radiometry and photometry. Physical optics including diffraction, interference, polarization, scatter, birefringence, and holography. Fundamentals of photography.

## 514 Clinical Optometry I (2)

Selected tests for ocular health, to include perimetry, ophthalmoscopy, biomicroscopy, and tonometry.

## 515 Ocular Optics (3)

The eye as an image-forming mechanism, the schematic eyes, the optical role of the pupil, the retinal image and its evaluation. Nature, classification, and etiology of ametropia. Mechanism and optical aspects of accommodation.

## 516 Physiological Optics Laboratory (1)

Experiments designed to accompany Optometry 515 and Optometry 517.

## 517 Ocular Motility (3)

The anatomy, physiology, neurology, measurement, characteristics, and control of the intra- and extraocular system.

# Optometry

## 518 Anatomy and Physiology of the Eye (5)

Vegetative anatomy and physiology of the eye, optic nerve, orbit, and adnexa will be discussed. This includes discussion of embryology and the dynamics of ocular fluids and includes a two-hour laboratory.

## 520 Ophthalmic Optics (3)

History of ophthalmic materials; physical characteristics of lenses, aberration theory and its application to lens design, ophthalmic prisms, lens specifications, special lenses, multifocal lenses, unique designs, low vision aids, aniseikonic lenses, protective eyewear.

## 521 Clinical Optometry II (5)

Continuation of clinical optometry. Essentials of the case history, patient care in the areas of refraction, binocular integration, and visual performance.

## 522 Systemic Disease (4)

Principles of health and disease. A survey of disease, disease processes, and disease manifestations. A study of tissue changes in inflammation, tumor formation, allergies, disturbances of metabolism and circulation, and injuries.

## 524 Monocular Sensory Processes (5)

Monocular sensory mechanisms of vision, photoreception, visual neurophysiology, spatial and temporal effects, visual acuity and resolution, adaptation, brightness discrimination, and color vision. Topics include a consideration of both the psychophysical aspects and neurophysiological bases of these mechanisms.

## 530 Ophthalmic Dispensing (2)

Physical characteristics of frames, lens and frame specifications, fabrication and verification, fitting and dispensing concepts and procedures.

## 531 Clinical Optometry III (5)

Correlation and analysis of optometric data. Emphasis on diagnosis, prognosis, and therapy of visual problems.

## 532 Binocular Vision and Space Perception (4)

Binocular vision and space perception. Visual direction, theory of correspondence, fusion, rivalry, ocular dominance, and stereopsis. Developmental aspects and neurophysiological mechanisms.

## 533 Ocular Disease I (4)

Prerequisite: Optometry 522. The etiology, epidemiology, symptoms, signs, and course sequelae of ocular disease and anomalies. Disease and anomalies of lids, orbit, conjunctiva, cornea, sclera, iris, ciliary body, lens, vitreous, retina, choroid, and optic nerve.

## 535 Epidemiology (2)

A review of descriptive statistics, probability sampling, correlation, and prediction. The essentials of epidemiological study procedures and a discussion of the epidemiology of vision disorders.

## 541 Practice Management II (2)

Prerequisite: Optometry 506. Principles of human interpersonal relationships. The development of patient-doctor relationships. Emphasis will be on preparing the student to understand and deal with the many human interpersonal relationships necessary in the practice of optometry.

## 550 General Clinic I (6)

The clinical examination and care of general clinic patients, along with the fitting and dispensing of lenses and frames.

## 553 Contact Lenses I (3)

Historical development of the contact lens and its use. Basic lens terminology, specifications, physiochemical characteristics, optics, fabrication, and verification. Preliminary patient evaluation, indications and contraindications for contact lenses. Basic fitting philosophies for all lens types. Corneal topography and physiology. Patient and practice management considerations. Limited clinical experience.

## 554 Binocular Vision Anomalies (4)

The etiology, epidemiology, symptoms, signs, and course sequelae of the obstacles to binocular vision—sensory, integrative, and motor. The detection, diagnosis, prognosis, and orthoptic treatment of such anomalies. Clinical care of aniseikonias.

## 555 General Pharmacology (3)

General pharmacological principles, methods of administration, various systemic drugs and their pharmacological action and side effects, with emphasis on those that affect the visual system. Agencies, laws, and drug abuse.

## 556 Ocular Disease II (4)

Prerequisite: Optometry 533. Ocular manifestations of systemic diseases and anomalies. The etiology, epidemiology, symptoms, signs, and course sequelae of visual and ocular neurological anomalies, lid and pupillary anomalies, paralytic strabismus, and visual field problems.

## 557 Advanced Clinical Assessment of Visual Processing (2)

The course deals with clinical aspects of visual performance, and their assessment by visual psychophysical and electrophysiological tests. The implications for a variety of routine visual skills will be discussed.

## 558 Geriatric Optometry (2)

Special examination and management considerations of the geriatric patient. Psychological, physiological, social, and demographic aspects of aging. Ocular changes associated with the aging process.

## 560 General Clinic II (6)

Same as General Clinic I.

## 561 Specialty Clinic I (2)

The clinical examination and care of patients in the optometric specialty areas.

## 563 Contact Lenses II (3)

Advanced contact lens fitting, theories, and clinical methods for aspheric, astigmatic, presbyopic, keratoconic, and aphakic designs. Special considerations including the application of lenses in high refractive errors, binocular vision training, low vision devices, color deficiency, orthokeratology, and extended wear. Use and fitting of haptic lenses, cosmetic shells, and prostheses. Patient and practice management considerations. Limited clinical experience.

## 564 Low Vision (3)

The etiology, epidemiology, symptoms, signs, and course sequelae of low-vision problems. Methods of testing, prognosis, selection of therapy, design of environmental and optical aids, problems of rehabilitation. Agencies, laws, public and social assistance for the partially sighted and blind.

# Optometry

## 565 Ocular Pharmacology (3)

Pharmacology, uses, doses, contraindications, adverse effect of drugs producing miosis, mydriasis, cycloplegia, accommodation, and corneal anesthesia. The pharmacology, use contraindications, and adverse effects of drugs commonly used in treating visual and ocular problems.

## 567 Pediatric Optometry (3)

Special examination and management considerations of the pediatric patient. Psychological, physiological, social, and demographic aspects of early visual development. Discussion of the optometric considerations of children with learning and reading disabilities.

## 568 Clinical Medicine (2)

Prerequisite: Successful completion of the first two years of the optometric curriculum or consent of the instructor. This elective course will describe medical treatment of patients with systemic diseases that have ocular manifestations. Co-management practice with family practitioners will be emphasized.

## 569 Ocular Photography (2) (elective)

Optical principles and clinical techniques in photographing the internal and external eye and its adnexa. Includes laboratory exercises on use of the most common types of clinical cameras. (One hour lecture, two hours laboratory)

## 570 Summer Clinic (1-6)

Same as General Clinic I.

## 580 General Clinic III (1-8)

Same as General Clinic I.

## 581 Specialty Clinic II (1-12)

Same as Specialty Clinic I.

## 582 Practice Management III (3)

Prerequisites: Optometry 506 and Optometry 541. The development and management of an optometric practice from a patient and community service point of view—office design, office routine, patient care administration, personnel management, and recall systems. The establishment, development, and management of an optometric practice from a business point of view. Legal developments, governmental relationships, legislation and the legislative process, malpractice, professional ethics, taxes, fee structures, insurance, and accounting methods.

## 583 Practice Management IV (2)

Prerequisite: Optometry 582. Further in-depth discussion in practice management.

## 584 Affiliated Clinic I (1-12)

The clinical examination and care of clinic patients in the School of Optometry's affiliated clinics. These clinics offer unique patient populations.

## 587 Sports Vision (2)

Special examination and management considerations of the competitive athlete. This elective course includes a study of the special visual requirements and demands resulting from athletic endeavors.

## 588 Directed Research (elective) (3)

Credit is given for independent research. Projects may be laboratory, library, or clinically based research in any area of vision science. All projects must be undertaken under the supervision of a three-member faculty committee. This elective may be repeated once.

## 589 Directed Readings (elective) (1)

Credit is given for independent literature review of a specific topic in any area of basic or clinical vision science. Readings are to be supervised by a two-person faculty committee and at least one member of this committee must be selected from among the full-time regular faculty. Credit is awarded upon approval of a written paper regarding the selected topic. This elective may be repeated once.

## 590 General Clinic IV (1-8)

Same as General Clinic I.

## 591 Specialty Clinic III (1-12)

Same as Specialty Clinic I.

## 593 Clinic Seminar (1)

Presentation and discussion of interesting clinical patients. Additional clinical testing techniques and concepts. Further discussion of patient data analysis—the process of determining diagnosis, prognosis, and therapy. Further discussions in the optometric specialties.

## 594 Affiliated Clinic II (1-12)

Same as Affiliated Clinic I.

## 595 Computer Applications in Optometric Practice (2) (elective)

An introduction to microcomputers and computerized office management systems. This course is designed to demonstrate the value of computers, word processing, and microprocessor technology in an optometric office.

## 596 Public Health (2)

A review of local, state, and federal organizations involved in health care, comprehensive health planning, new trends in health care delivery, and the assessment of the quality of health care delivery. The relationship of vision care to these topics is emphasized.

## 598 Clinical Applications of Current Topics in Visual Science (2) (elective)

A seminar on the use of new discoveries in visual science in clinical optometry. Students will participate in selecting the topics, which will change from year to year, with the guidance of the instructor. The course will also include laboratory demonstrations of seminar topics.



# Pierre Laclede Honors College

The following courses fulfill the Humanities (H) breadth of study requirements: 30, 101, 102, 103, 201, 202.

The following courses fulfill the Social Sciences (SS) breadth of study requirements: 101, 102, 103, 203, 204.

The following course fulfills the Natural Sciences and Mathematics (SM) requirements: 205.

Depending on the nature of the topic, Honors 300, Advanced Honors Seminar, also fulfills specific breadth of study requirements.

## 10 Freshman Composition (3)

Prerequisite: Consent of the dean of the Honors College. Theory and practice of writing expository prose. Emphasis on individual tutorial. Assignments will be linked with topics discussed in Honors 101.

## 20 Contemporary Issues and Events Symposium (2)

Prerequisite: Consent of the dean of the Honors College. Open discussion of current and usually controversial issues relating to various disciplines. An assigned reading on the topic serves as the catalyst for an exchange of views between the class and a panel made up of students and a guest expert. Students are also required to attend and report on cultural events in the St. Louis area as part of this class.

## 30 Critical Analysis (30)

Prerequisite: Consent of the dean of the Honors College. An introduction to the forms and techniques of rational discussion. The emphasis is on improving skills in identifying, analyzing, evaluating, and formulating arguments. Topics include deductive and non-deductive reasoning, causal analysis, analogical arguments, logical fallacies, vagueness and ambiguity, methods of definition, and argumentative writing.

## 101 Western Traditions (3)

Prerequisite: Consent of the dean of the Honors College. A seminar based on the reading and discussion of a few major works of exceptional importance. The works discussed will cover all eras of Western civilization from ancient times to the present and will range over several fields of study. These works will convey diversity within Western traditions and will not represent any single perspective.

## 102 American Traditions (3)

Prerequisite: Consent of the dean of the Honors College. A seminar based on the reading and discussion of a few major works of exceptional importance. The works discussed will cover all eras of American history from the colonial era to the present and will range over several fields of study. These works will convey diversity within American traditions and will not represent any single perspective. This course satisfies the American history and government requirement.

## 103 Non-Western Traditions (3)

Prerequisite: Consent of the dean of the Honors College. A seminar based on the reading and discussion of a few major works of exceptional importance. The works discussed may represent a single region of the non-Western world, but they will cover all eras from the ancient times to the present and will range over several fields of study. These works will not represent any single perspective. This course satisfies the non-Euro-American studies requirement.

## 201 Inquiries in the Humanities (3)

Prerequisite: Consent of the dean of the Honors College. A seminar intended to introduce students to some of the particular methodologies by which various disciplines in the humanities approach their subjects and achieve their goals. This is demonstrated through the close examination of specific topics and issues as illustrated in key texts.

## 202 Inquiries in the Fine and Performing Arts (3)

Prerequisite: Consent of the dean of the Honors College. A seminar intended to introduce students to some of the particular methodologies by which

various disciplines in the arts approach their subjects and achieve their goals. This is demonstrated through the close examination of specific topics and issues as illustrated in key works of creative art. Students will also take part in various cultural activities (e.g., museum and gallery visits, concerts, theatrical performances).

## 203 Inquiries in the Social and Behavioral Sciences (3)

Prerequisite: Consent of the dean of the Honors College. A seminar intended to introduce students to some of the particular methodologies by which various disciplines in the social and behavioral sciences approach their subjects and achieve their goals. This is demonstrated by the close examination of specific topics and issues as illustrated in central texts, case studies, etc.

## 204 Inquiries in Business and Economics (3)

Prerequisite: Consent of the dean of the Honors College. A seminar intended to engage students in the discussion and analysis of some topics of special importance and interest in the fields of business and economics, with attention to the methodologies used to deal with these issues.

## 205 Inquiries in Mathematics and the Natural Sciences (3)

Prerequisite: Consent of the dean of the Honors College. A seminar intended to introduce students to some of the particular methodologies used by mathematicians and natural scientists to deal with their subjects and achieve their goals. This is demonstrated by an examination of theories and experiments.

## 300 Advanced Honors Seminar (3)

Prerequisite: Consent of the dean of the Honors College. This interdisciplinary seminar examines a specific topic from various perspectives and underscores the value of making connections between diverse areas of study. The course may be repeated for credit whenever the topic is substantially different.



# ROTC

## Military Science

### **101 Fundamentals of Leadership and Management I (1)**

Provides an overview of the organization and role of the U.S. Army and the Army ROTC. Initiates an appreciation of the military profession and its customs, traditions, and courtesies. Introduces the student to the responsibilities and obligations of an Army officer. Develops leadership and managerial abilities. Provides fundamentals of survival techniques and first aid principles.

### **102 Fundamentals of Leadership and Management II (1)**

Prerequisite: Military Science 101, equivalent, or consent of Professor of Military Science (PMS). Provides an introduction to theoretical and practical aspects of supervision. Emphasizes the need for proper motivation and cooperative attitudes as they pertain to both individual and group interaction. Introduces Military History. Continues development of leadership and managerial abilities and provides fundamentals of mountaineering and orienteering.

### **201 Applied Leadership and Management I (2)**

Prerequisite: Military Science 101, Military Science 102, equivalent, or consent of Professor of Military Science (PMS). Provides basic background in the skills necessary for military map reading and land navigation to include: (1) military grid reference system; and (2) map scale, distance, elevation, and relief. Continues development of leadership and managerial skills. Provides fundamentals of orienteering. Introduces the student to basic communication skills and develops basic awareness on how these skills affect other people.

### **202 Applied Leadership and Management II (2)**

Prerequisite: Military Science 201, equivalent, or consent of Professor of Military Science (PMS). Develops principles and techniques of applied leadership through discussion of some of the processes and procedures used by the leader to accomplish organizational objectives to include: (1) decision making; (2) communication; and (3) counseling. Provides practical experience in leadership of small units in the military environment. Examines principles and techniques of small-unit military tactical patrolling operations with emphasis on development of pre-planning and execution concepts. Applies concepts practiced through in-class map exercises and field training practicum. Provides an overview of the Army ROTC advanced course. Continues development of leadership and managerial abilities. Provides fundamentals of marksmanship.

### **301 Advanced Leadership and Management I (3)**

Prerequisite: Military Science 101 through Military Science 202 or equivalent and selection by Professor of Military Science (PMS). Covers the functional roles of the military leader and basic principles of management with emphasis on problem analysis and decision making, span of control, delegation of authority and responsibility, planning and coordinating. Provides fundamentals of effective methods of instruction and includes practical exercises where each student plans, prepares, and presents part of instruction. Continues to develop the student's ability to communicate orally and in writing. Provides additional insight into areas of Army officer specialization. Stresses practical application in the development of leadership abilities in that students are placed in positions of leadership within the ROTC student structure.

### **302 Advanced Leadership and Management II (3)**

Prerequisite: Military Science 301. Provides a review of basic military land navigation and map-reading techniques. Examines more advanced principles and techniques of small unit military offensive and defensive tactical operations with concentrated study of such factors as command and control, communications, weapons systems, and military geography. Continues emphasis on practical application exercises to develop students' leadership abilities. Solidifies student's preparation for attendance at the ROTC advanced camp during the upcoming summer.

### **401 Seminar in Leadership, Management, Theory, and Dynamics of the Military Team I (3)**

Prerequisites: Military Science 301 and Military Science 302. Explores the practical aspects of military law. Examines the organization, responsibilities, and management of the military unit staff. Provides a working knowledge of proper staffing procedures. Continues development of leadership and managerial abilities through placement of students into key leadership positions within the ROTC student organizational structure. Students plan and conduct the majority of leadership practicum for all ROTC students.

### **402 Seminar in Leadership, Management, Theory, and Dynamics of the Military Team II (3)**

Prerequisite: Military Science 401. Examines military professional ethics and the ideal American values as a basis for military values. Examines techniques of resource management with particular emphasis on the military environment. Teaches proper application of tactical military doctrine at the company/team level and the planning necessary between elements of the team. Reviews the various roles of the newly commissioned Army officer. Culmination ROTC training to develop leadership and managerial skills. Students continue to be assigned positions of leadership within the ROTC student organizational structure.

## AFROTC

These courses are taught at Parks College, St. Louis University, Washington University, or University of Missouri-St. Louis. Students should check the *Schedule of Courses* each semester for locations.

### Aerospace Studies

#### 101 The Air Force Today (2)

Introduction to contemporary military issues and overall Air Force structure. Professionalism, human rights, and civilian-military relationships are stressed. Leadership Laboratory activities designed to develop leadership potential include military customs and courtesies, drill and ceremonies, and base visitations.

#### 102 The Air Force Today (2)

Continuation of AERO 101. Includes strategic offensive and defense forces, general purpose forces, aerospace support forces, and relationships with U.S. Army forces. Individual communicative skills emphasized.

#### 201 The Development of Air Power (2)

Study of the development of air power from balloons and dirigibles through WWI and WWII. Leadership Laboratory activities, designed to develop each student's leadership potential, are included. Classroom activity, one hour per week; Leadership Laboratory, one hour per week.

#### 202 The Development of Air Power (2)

Continuation of AERO 201 to include the history of air power in Korea, Vietnam, and the peaceful employment of United States air power in relief missions. Classroom activity, one hour per week; Leadership Laboratory, one hour per week.

Aerospace Studies courses AERO 301 through AERO 402 are advanced courses designed to improve the communicative and management skills required of Air Force officers. Credit hours for these courses may be included in the 120 hours needed for graduation at the discretion of individual departmental chairpersons.

#### 301 Air Force Management and Leadership (3)

Integrated management course emphasizing the individual as a manager in Air Force milieu. Motivational and behavioral processes, leadership, communication, and group dynamics are covered for the development of the junior officer's professional skills as an Air Force officer. Basic managerial processes involving decision making, utilization of analytic aids in planning, and organizing and controlling in a changing environment are emphasized as professional concepts. Classroom activity, three hours per week; Leadership Laboratory, one hour per week.

#### 302 Air Force Management and Leadership (3)

Continuation of AERO 301; includes organizational and personal values, management of forces in change, organizational power, politics, and managerial strategy, and tactics within context of the military organization. Actual Air Force cases are used to enhance learning and communication processes. Classroom activity, three hours per week; Leadership Laboratory, one hour per week.

#### 401 National Security Forces in Contemporary American Society (3)

The Armed Forces as an integral element of society; American civil-military relations; environmental context in which U.S. defense policy is formulated and implemented; societal attitudes toward the military leader-manager in a democratic society; fundamental values and socialization processes associated with the Armed Services. Individual and group oral and written reports. Classroom activity, three hours per week; Leadership Laboratory, one hour per week.

#### 402 National Security Forces in Contemporary American Society (3)

Continuation of AERO 401. Requisites for maintaining adequate national security forces; political, economic, and social constraints on the national defense structure; impact of technological and international developments on strategic preparedness; formulation and implementation of national security policy. Classroom activity, three hours per week; Leadership Laboratory, one hour per week.

# Video Instructional Program

The Video Instructional Program offers flexible, self-paced learning for students who are far from campus or whose schedules make it difficult to attend regular classes. Video lessons for various courses are available for viewing over cable television stations. Tapes are available in UM-St. Louis libraries.

## St. Louis Area Cable Stations

Cencom I, II, and III, Continental Cable, American, and United Video in St. Louis County; STL Cable and City Cable in the city will air courses over the Higher Education Channel (HEC). Some courses also air in St. Charles, St. Peters, and Jefferson County. For complete cable information, call 553-5370.

## Course Listings

The following courses from the UM-St. Louis curriculum are offered:

## History

### 100 Topics in History: Science and Culture in the Western Tradition (3)

This course deals with history, philosophy, religion, art, architecture, mathematics, technology, and other topics to explain the unique contributions of science to Western civilization. The BBC programs, "The Day the Universe Changed," have received international acclaim. The series' host is James Burke, Emeritus Professor of History, UCLA. Discussion programs are hosted by Benjamin Dunlap with content consultants expanding on the concepts and issues presented by Burke. Programs identify key figures and describe their contributions to the development of Western Civilization; social and cultural conditions during periods; prevalent ideas, attitudes, and views; related factors that contributed to the development of new knowledge, discoveries, and technologies; and significant turning points in the development of science and knowledge in Western culture.

## Philosophy

### 210 Significant Figures in Philosophy (3)

This course offers a survey of the development of philosophy through a study of seven major thinkers: Plato, Aristotle, Aquinas, Descartes, Locke, Kant and Nietzsche. Each author is considered not only a product of his own time and culture, but also the creator of ideas of enduring relevance. Topics include Plato's theory of forms and his delineation of an ideal state, Aristotle's formulation of an all-embracing scientific and metaphysical view, Aquinas' adaptation of Aristotle to a Christian framework, Descartes' inauguration of a new approach to philosophy, Locke's attempt to base all our ideas in experience, Kant's attempt to redeem philosophy from the extremes of dogmatism and skepticism, and Nietzsche's radical rejection of the values that had prevailed until his time.

### 290 Philosophical Issues in Other Disciplines: Humanities in the Arts (3)

An examination of selected philosophical issues in film, drama, music, literature, painting, sculpture, and architecture. The historical development of each of these art forms is presented, and then excerpts and examples are provided, together with analysis and interpretation. For each art form, there is a program on critical evaluation in which the series host and established artists and critics apply their particular areas of expertise. The series also includes an introduction, which explains the approach taken by the academic designers, and an epilogue that retrospectively examines the knowledge acquired.

## Political Science

### 11 Introduction to American Politics (3)

Introduction to basic concepts of government and politics with special reference to the United States, but including comparative material from other systems. Course fulfills the state requirement.

## Psychology

### 245 Abnormal Psychology (3)

Ten of the 13 programs feature specific disorders, including anxiety disorders, personality disorders, the schizophrenias, sexual disorders, substance abuse, and the disorders of childhood. The first program concerns assessment, while the last two provide information on treatment and prevention. The telecourse introduces the major theoretical models for explaining and treating disorders—psychodynamic, behavioral, cognitive, and biological. This approach serves the introductory abnormal psychology student, while allowing individual faculty latitude to underscore the approach to which they subscribe.

## Education

### 308 Graduate Institute, Foundations of Adult Basic Education (3)

This course considers problems which are characteristic of the adult learner, needs and interests, physiological factors affecting the adult learner, and interpersonal relations and communications. The video demonstrations, produced by Maryland Public Television, focus on modern teaching practices in adult basic education. The course will focus on topics in teaching basic reading, word recognition, comprehension, writing from the point of view of the student's needs, selection and use of materials, learning contracts, learning styles, and other methods to individualize instruction. Methods are presented to develop basic and intermediate mathematics skills, recruit and retain students, and manage corporate classrooms.

## Video Instructional Program

### **340 Selection and Utilization of Educational Media (3)**

This telecourse trains teachers in the selection and use of media for learning. It includes all forms of media, with on-location segments showing the proper use for each. Topics include an introduction to media, discussion of learning and communications, learning management, instructional environments, and trends in instructional technology. Graphic design, graphics utilization, and lettering are covered. Specific instructional media covered include overhead transparencies, display devices, photography, audio, planning and producing multimedia programs, film and video, motion picture, TV, models, demonstrations, game simulations, computers, print, copyright, and community resources.

### **341 Teaching Science in the Elementary School (3)**

Prerequisites: Completion of science requirements in general education, ED FND 111, and consent of instructor. In this course, students will apply the methods, materials, and strategies for teaching science in the elementary classroom. Science is presented as a dynamic process developing knowledge about observable phenomena. Piaget's work on the cognitive growth of learners is discussed and related to the need to teach science as a "hands-on" subject. In addition to a review of the psychological and philosophical bases for teaching science, methods for teaching inquiry science are explored—such as questioning techniques.

## **Nursing**

### **220 Health Assessment (3)**

This course includes a comprehensive review of anatomical and physiological characteristics of the area being presented, plus relevant questions on the health history of the physical assessment. Modules compare commonly noted abnormalities and normal findings. They also contain concise explanation of the recordings of these observations and findings. Videotapes show techniques of inspection, palpitation, percussion, and auscultation to give visually clear and identifiable approaches to specific aspects of the health assessment. Individual programs cover the eye, ears, nose, mouth, throat; breast and axillae; thorax and lungs; peripheral vascular; heart; abdomen, integument, head, and neck; pelvic area—female/male; neurological health assessment—cerebellum and spinal nerves; and back and extremities.



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