Courses of Instruction

Catalog Numbers
The catalog number indicates the student classification for which the course is primarily intended:
- 001–099: Noncredit courses
- 100–299: Undergraduate general program
- 300–499: Undergraduate advanced or specialized program

Within the College of Arts and Sciences, the alphabetical catalog-number suffixes -I and -O generally are not used. Other alphabetical suffixes have specific meanings:
- -H: departmental honors courses
- -J: junior-level composition courses
- -T: honors tutorial courses
- -X: study abroad courses

Credit
Credit for a course is indicated by the number or numbers in parentheses following the course title. It may be expressed (3), (1–3), or (2 or 3).

A course with one quarter hour of credit (1) is the equivalent of one recitation or two or more laboratory periods per week throughout a quarter.

In a course carrying variable credit, the credit may be expressed (1–4, max 8), indicating that one hour is the minimum and four hours the maximum amount of credit allowed for the course in one quarter. However, you may enroll in the course any number of times and for any number of credit hours within the quarter limit, provided the total registration for the course does not exceed the overall maximum.

Courses that satisfy one of the University General Education Tier I or Tier II requirements are indicated by a notation on the title line. Tier I courses are marked either (1E) for English composition or (1M) for quantitative skills; Tier II designations are (2A) applied sciences and technology, (2C) cross-cultural perspectives, (2H) humanities and fine arts, (2N) natural sciences and mathematics, and (2S) social sciences.

Courses that satisfy General Education Tier III requirements are grouped under the heading Tier III.

Prerequisites
Course prerequisites are indicated at the beginning of the course description, following the abbreviation “Prereq.” If you have any doubts about whether you have fulfilled prerequisites due to changes in the numbering system over the past several years, check the course titles and consult with your advisor and the office of the dean. Even if you have not met the prerequisites, you may add a course by obtaining the instructor’s permission. Once you have completed an advanced course, you may not subsequently enroll in a prerequisite course for credit.

Instructors
Unless otherwise indicated in italics following the quarter specification in the course description, the course may be taught by any member of the staff of the department.

Fees
When a course requires a private instructional fee, the amount is stated in the course description.

Rank
The minimum student rank or standing, when applicable, is indicated by the following abbreviations:
- Freshman: fr
- Sophomore: soph
- Junior: jr
- Senior: sr

Unless the prerequisite states that the course is not open to students above the stated rank (e.g., “fr only”), you can enroll if you are at or above that rank.

Lecture and Laboratory Hours
Lecture, laboratory, and recitation hours are respectively abbreviated “lec,” “lab,” and “rec.”

Schedule
A Schedule of Classes is available each quarter from the Registrar’s Office. Some courses may not be offered during the quarter which you intend to take them. Students should contact the department offering the course for more specific scheduling information.
Areas of Study
The following areas of study are included in this section. The course prefix follows each area.

Accounting (ACCT)
Accounting Technology (ATCH)
Aerospace Studies (AST)
African American Studies (AAS)
Anthropology (ANTH)

Art (ART)
Foundation Courses
Art Education
Ceramics
Graphic Design
Painting
Photography
Printmaking
Sculpture
General Courses
Additional Art Courses
Regional Campus Offerings

Art History (AH)
Aviation (AVN)
Biological Sciences
Biological Sciences (BIOS)
Biography (BIOL)
Business Administration (BA)
Business Law (BUSL)
Business Management Technology (BMT)
Chemistry (CHEM)
Classical Archaeology (CLAR)
Classics and World Religions (CLWR)
Classics in English (CLAS)
Communication Studies (COMS)
Communication Systems Management (COMT)
Comparative Arts (CA)
Computer Science (CS)
Computer Science Technology (CTCH)
Dance (DANC)
Deaf Studies and Interpreting (DSI)
Design Technology (DTCH)
Economics (ECON)
Education
Counselor Education (EDCE)
Curriculum and Instruction (EDCI)
Cultural Studies (EDCS)
Computer Technology (EDCT)
Early Childhood Education (EDEC)
Educational Administration (EDAD)
International and Comparative Education (EDIC)
Middle Childhood Education (EDMC)
Professional Laboratory Experience (EDPL)
Secondary Education (EDSE)
Special Education (EDSP)
Electronic Media (EM)
Electronics Technology (ETCH)
Engineering, Chemical (CHE)
Engineering, Civil (CE)
Engineering, Electrical (EE)
Engineering, Industrial and Systems (ISE)
Engineering, Mechanical (ME)
Engineering and Technology (ET)

English
English (ENG)
Humaities (HUM)

Environmental and Plant Biology (PBIO)
Environmental Engineering Technology (ETV)
Equine Studies (EOU)
Film (FILM)
Finance (FIN)
Foreign Languages and Literatures
Chinese (CHIN)
French (FR)
German (GER)
Greek (GR)
Indonesian/Malaysian (INDO)
International Literature in English: Linguistics (ILL)
International Literature in English: Modern Languages (MLL)
Italian (ITA)
Japanese (JPN)
Latin (LAT)
Modern Languages (ML)
Russian (RUS)
Spanish (SPAN)
Swahili (SWAH)
Geography (GEOG)
Geological Sciences (GEOG)
Global Learning Community (GLC)
Hazardous Materials Technology (HMT)
Health and Human Services (HS)
Health Sciences Environmental Health (EH)
Health Sciences (HS)
Industrial Hygiene (IH)
Hearing and Speech Sciences (HSS)
History (HIST)
Human and Consumer Sciences
Child and Family Studies (HCCF)
Food and Nutrition (HCFN)
General Education (HGE)
Interior Design (HID)
Retail Merchandising (HCMR)
Human Resource Management (HRM)
Human Services Technology (HST)
Industrial Maintenance Technology (IMT)
Industrial Technology (IT)
International Studies (INST)
Journalism (JOUR)
Law Enforcement Technology (LET)
Linguistics (LING)
Management (MGT)
Management Information Systems (MIS)
Marketing (MKT)
Mathematics (MATH)
Medical Assisting Technology (MAT)
Military Science (MSC)
Music (MUS)
Applied Music
Music Education
Music History and Literature
Independent Studies in Music
Music Theory and Composition
Music Therapy
Nursing Associate's Degree Program (NURS)
Baccalaureate Program for RNs (NRSE)
Office Technology (OTEC)
Ohio Program of Intensive English (OPIE)
Operations (OPN)
Philosophy (PHIL)
Physical Therapy (PT)
Physics and Astronomy
Astronomy (ASTR)
Physics (PS)
Physics (PHYS)
Accounting (ACCT)

101 Financial Accounting (4)  
Prereq: Tier I math or higher placement. (fall, winter, spring, summer) Introduction to the accounting process and general financial reporting. Introduc- tion to compound interest concepts.

102 Managerial Accounting (4)  
Prereq: 101, ECON 103. (fall, winter, spring, summer) Uses of accounting information for making managerial decisions. Study of cost behavior, overhead costs allocation, basic cost accumulation systems, external versus internal budgeting, master and flexible budgets, and cost control.

298 Internship (1)  
Prereq: perm. Internship experience that provides on-site exposure to general business operations and procedures. Intended for experiences follow- ing the freshman year.

303 Intermediate Accounting I (4)  
Prereq: 102. (fall) In-depth study of conceptual framework of accounting, disclosure standards for general and external financial statements, measurement standards for cash, receivables, inventories, and associated revenues and expenses, including application of compound interest techniques. Required for accounting major.

304 Intermediate Accounting II (4)  
Prereq: 303, and perm. (winter) Measurement and reporting standards for tangible and intangible operating assets, investments, liabilities, contingencies, stockholders' equity, and special problems in governmental and for-profit organizations. Financial reporting, fund accounting, budgeting and control.

305 Intermediate Accounting III (4)  
Prereq: 304. (spring) Measurement and reporting standards for pensions, capital leases, interperiod tax allocation, dilutive securities and earnings per share; accounting changes and error correction; statements of cash flows; financial statement analysis; special disclosure standards; financial reporting and changing prices. Required for accounting major.

310 Cost Accounting (4)  

311 Industrial Accounting (4)  
Prereq: 101, 102, jr. Primarily for nonaccounting majors. Explains how accounting data can be interpreted and applied by management in plan- ning and implementing business activities. Shows how accounting data can help solve problems confronting management. Attention also given to use of accounting data by investors, potential investors, and lenders. Concentration on use of data rather than collection and presentation.

312 Accounting for Health Care Organizations (4)  
Prereq: 101, 102, jr. Introduces student to use of accounting data in planning and controlling health care organizations. Basic cost accounting theory and application stressed as aids to fee setting, budgeting, asset acquisition functions.

317 Federal Income Taxes (4)  

318 Advanced Financial Accounting (4)  

345 Accounting Systems and Internal Control (4)  
Prereq: 303 or perm. Computer technology as it relates to accounting, implementation, and opera- tion of accounting information systems. A major portion of the course devoted to internal control procedures. Required for accounting major.

347 Tax Research (4)  
Prereq: 317. Jr. Advanced tax problems of individuals, partnerships, and corporations with emphasis on tax research and research methodol- ogy.

Accounting Technology (ATCH)

398 Internship (1–4)  
Prereq: perm. Internship experience that provides opportunities to learn by participating in day-to-day activities of a business system for at least four consecutive weeks. Intended for experiences follow- ing the sophomore year.

406 Advanced Accounting (4)  
Prereq: 305. Business mergers, consolidated financial statements, partnerships, international operations, corporate bankruptcy, and branch office accounting.

407 Seminar in Current Topics (4)  
Prereq: 305. Research in current accounting issues, including written and oral reports of findings.

413 Governmental and Nonprofit Theory and Practice (4)  
Prereq: ACCT major, 303 or perm. Accounting theory for government and nonprofit organiza- tions: financial reporting, fund accounting, budgeting and control.

451 Auditing Principles (4)  
Prereq: 305 or perm. (fall) Basic concepts and applications in external, internal, and governmen- tal auditing. Includes an introduction to current audit technology. Required for accounting major.

452 Advanced Auditing (4)  
Prereq: 451. Auditing principles and practice with emphasis on current issues, professional standards, ethics, legal liability, special reports, special industries, and advanced auditing techniques.

457 Advanced Tax (4)  
Prereq: 317 or perm. Tax aspects of corporate organizations; distributions; reorganizations and liquidations; partnerships; Sub S corporation; estates and trusts.

491 Seminar (3, 4, or 5)  
Prereq: perm. Selected topics of current interest in accounting area.

497 Independent Research (1–15)  
Prereq: perm. Research in selected fields of account- ing under direction of faculty member.

498 Internship (1–4)  
Prereq: perm. (fall, winter, spring, summer).

Aerospace Studies (AST)

Air Force ROTC

The Department of Aerospace Studies offers various programs, all of which can lead to a commission as a second lieutenant in the United States Air Force.

The three and four-year program is designed for students who can begin Air Force ROTC in their freshman or sophomore year and complete aerospace studies requirements by their date of graduation.

The two-year program is designed for students entering AFROTC in their junior year. It is similar to the last two years of the four-year program. Consult the chair of the Department of Aerospace Studies for further information. Graduate students may also be able to enter the program.

Entry into the Professional Officer Course (AST 300 and 400 series) is based upon the needs of the Air Force.

Upon graduation and commissioning, you are normally required to serve four years active duty as an officer with the United States Air Force. For further information contact the chair of the Depart- ment of Aerospace Studies, Lindley Hall 233.

101 Introduction to the U.S. Air Force (1)  
(winter) Role of officer and subordinate, commu- nication, and general organization of the United States Air Force.

101L Leadership Laboratory (1)  
Prereq: Concurrent with 101. Provides a progression of experience to aid each individual’s understanding of the Air Force and to develop teamwork, fellowship, and leadership skills.

102 Air Force Missions (1)  
(fall) The mission of major Air Force command hand. An integrated general ledger program and an electronic spreadsheet program are used.

205 Manufacturing Accounting I (4)  
Prereq: 105, MATH 113. (winter) Study of cost behavior; data collection procedures and reports for manufacturing firms, job order costing; process costs; standard costs; overhead allocation methods.

206 Manufacturing Accounting II (4)  
Prereq: 205. (spring) Continuation of 205.

209 Business Statistics (4)  
(winter) Basic statistics demonstrated and applied through problems typical of actual business situations. Procedures and applications of statistical analysis and inference as they relate to business activity.

225 Federal Income Tax Procedures (4)  
Prereq: for credit; 203, for noncredit, perm. (fall) Comprehensive course in fundamentals of federal income taxation and preparation of individual, partnership, and corporation tax returns.

233 Accounting Information Systems (4)  
Prereq: ATCH 105 or ACCT 102. Fundamental accounting principles and practices using data accumulation and working paper techniques employed by professional accountants in reporting on merchandising, manufacturing, and service companies. Application of generally accepted accounting principles to preparation of general purpose financial statements for internal and external use. Accounting software will be emphasized.

241 Auditing Procedures (4)  
Prereq: 203. (spring) Study of purposes and scope of audits including audit objectives, professionalism, ethics, audit files and working papers, legal respon- sibilities, internal control, tests of transactions, audit procedures and disclosure requirements, and preparation of audit reports.

299 Independent Study (1–5, max 10)  
Prereq: perm. Supervised independent study projects in accounting technology.

Courses / Aerospace Studies
organizations, base services, professions, and an introduction to flight.

102L Leadership Laboratory (1) Prereq: Concurrent with 102. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

103 Leadership Laboratory (1) Prereq: Concurrent with 103. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

201 History of Air Power (1) (fall) History and development of air power in the U.S.

201L Leadership Laboratory (1) Prereq: Concurrent with 201. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

202L Leadership Laboratory (1) Prereq: Concurrent with 202. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

203L Leadership Laboratory (1) Prereq: Concurrent with 203. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

204 Field Training (3) (summer) Field training experience at various U.S. locations for military training and indoctrination through practical applications of common military customs and courtesies.

301 Management-Concepts and Practices I (3) (fall) Military professionalism and leadership theories: strengths and weaknesses of various leadership styles; review of responsibilities, authority, and functions of Air Force officers. Development of communication and leadership skills.

301L Leadership Laboratory (1) Prereq: Concurrent with 301. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

302 Military Professionalism and Leadership Theory (3) Prereq: 301 or perm. (winter) Review of selected concepts, principles, and theories of management as applied in the Air Force. Continued development of communication and leadership skills.

302L Leadership Laboratory (1) Prereq: Concurrent with 302. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.

303 Management-Concepts and Practices II (3) Prereq: 302 or perm. (spring) Development of communication skills in the Air Force style and format. Emphasis on basic writing and briefing techniques; counseling fundamentals of the Air Force and the officer promotion system are also reviewed.

303L Leadership Laboratory (1) Prereq: Concurrent with 303. Provides a progression of experience to aid each individual's understanding of the Air Force and to develop teamwork, followership, and leadership skills.
or topic. Course will vary from qtr to qtr; thus students should check departmental brochure to ascertain topic any given qtr.

315 Literature of West Africa (4) Prereq: jr or sr. Intensive examination of representative works, authors, and movements. Using cultural and sociopolitical perspectives, course seeks to define style, structure, and mode and to indicate how they interrelate, help to determine meaning, form, etc. Authors like Achebe, Armah, Senghor, Soyinka, Laye and Oyono, Mongo Beti and Kofi, and Ama Ata Aidoo consid-
ered, to analyze, e.g., Negritude, phases in West African writing during last 30 yrs. Essays and critical literature given some attention.

316 Literature of South Africa (4) Explores development of South African literature since 1940s and, while confining itself to writings of black writers, examines how this literature reflects conditions of life of the majority of South African population. Course entails vast landscape of structured background reading on history, politics, economics, and demography of South Africa and on aesthetics of particular cultures.


341 African American Personality (4) Examination of organization and structure of African American personality within American and African sociopsychological contexts. Special emphasis on various forces which shape African American personality.

345 The Black Woman (4) Prereq: soph and perm. Roles of black women in education, social development, and stabilization of their families. Impact of history of oppression and struggle on social psychology of black women.

350 African American Arts and Artists (4) (2H) Intensive study of African American artists, aesthetic principles, and African American arts movements from the late 19th century to present. Development of black professional artists, artists of Harlem Renaissance, black cultural nationalist art, modernist African American artists, social protest, and street murals among topics covered.

352 Blacks in Contemporary American Cinema (4) (2H) Prereq: 150. This course explores the representa-
tion of African Americans in contemporary Amer-
ican cinema since the 1970s. It also examines the contributions of African Americans on both sides of the camera, as well as various themes conveyed in the films of the period.

353 Survey of Black Independent Cinema (4) Prereq: 150. Examines the history and current status of independent black filmmaking. Independents have often served as a counter to Holly-
wood's limited portrayal of African Americans. The impact, relevance, and aesthetic of films from the black voice will be studied.


360 Black Politics in the United States (4) Examines American political system from perspec-
tive of black political behavior and relationship of blacks to political system. National, state, and local levels. Includes analysis of civil rights movement as well as sociopolitical movements associated with ideologies of black nationalism and black liberation.

364 Comparative Study of Justice (4) Comparative analysis of different approaches to civil and human rights in selected developed and developing countries. Review of theory of justice and political consequences in chosen countries.

368 Black Political Thought (4) Analysis of basic tenets of black thought in U.S. Emphasis on theoretical dimensions of pre- and post-war black social and political thinkers.

370 Urban Violence (4) Systematically examines empirical and theoretical literature on urban violence, particularly riots during 1960s.

380 Seminar in African American Education (4) Prereq: 8 hrs of education or social sciences. An examination of major issues in contemporary society that affect the education of African Ameri-
cans. Topics to be explored include status and preparation of teachers, curriculum development, educating black children for the 21st century, multicultural education, impact of computer technology and scientific developments as they affect African American students, teachers, and parents.

381 Special Topics in African American Studies (4) Special topics of interest to small groups of students will be selected and studied in depth, such as African American cultural expressions and strategic social change.

411 Literature Seminar (4) Subject varies. May be repeated as subject changes.

430 Social Theories of Underdevelopment (4) Systematic review of problems of social change in developing areas from multidisciplinary point of view. Due attention given to problems of agrarian reform, urbanization process, regional disparities within framework of single nation/state inter alia. Comparative analysis of problems of social development undertaken typologically.

432 Third World National Movements (4) Comparative study of causes of national oppres-
sion. Question of ethnocentrism, clerical nationalism, and other forms of response to oppression reviewed. Due attention given to various notions of Pan-Africanism and Black Nationalism in U.S., Africa, and Latin America.

440 The Black Child (5) Entails in-depth analysis of black child, impact and effects of growing up black in America. Specifi-
cally, seeks to determine effects and role of family, school, neighborhood, economic status, and society at large on sociological and psychological development of black child.

446 Social Processes: Third World Urbanization (4) Deals with laws of development of urbanization as it relates to anatomy of civil society. Special focus on how current urban crisis related to struc-
tural, cyclical, and general crisis of modern society. Political economy of urban ghetto both in U.S. and Third World singled out for special inquiry. New thought given to suburbanization process so-called "Post City Phenomenon," etc. Due focus on connection between urban crisis, social relations, and African American apartheid. Urbanization as social process in Africa, Asia, and Latin America studied comparatively.

482 The Black Family (4) Black family in America and its important role in development of ethnic differences, strengths, and strategies.

490 Independent Study (1—5) Prereq: perm. Primarily for students interested in concentrated study in specific area in cooperation with advisor.

Anthropology (ANTH)

101 Introduction to Cultural Anthropology (5) (2C) Basic concepts; introduction to various world cultures; nature of cultural diversity; evolution of sociocultural systems. Qualifies as Tier II Third World Cultures course.

201 Introduction to Biological Anthropology (5) (2N) Evolutionary theory; primates; fossil record of human evolution; mechanics of evolution; human variation.

202 Introduction to World Archaeology (5) (2C) Basic concepts; how archaeologists reconstruct societies and their cultural evolution.

301 Anthropology and Film (5) Prereq: 101. The use of film as a medium for recording cultural information; as a technique for observation, analysis, and interpretation of cultural information; and as a means for presenting information about cultures, human adaptation, human evolution, and anthropological research itself.

345 Gender in Cross-Cultural Perspective (4) Prereq: 101 and soph. Considers the range of cultural diversity in defining gender roles; comparative approach towards understanding the behaviors and perceptions associated with gender.

346 Introduction to Human Osteology (4) Prereq: 201 or LET 140 or BIOS 171. This course focuses on the identification, study and analysis of human skeletal remains. Students will learn the microanatomy and macroanatomy of human bone and how skeletal remains are analyzed.


349 Life History: The Individual and Culture (4) Prereq: 101. Survey of ways of growing up in various cultures; focusing the relationship between the individual and culture.

350 Economic Anthropology (4) Prereq: 101. Survey of economic arrangements found in various types of cultural systems; economic exchange systems in non-Western cultures; anthropological analysis of economic life.

351 Political Anthropology (4) Prereq: 101. Anthropological exploration of vari-
ous political systems around world; cross-cultural examination of political leadership, political power, conflict, etc. Emphasis on non-Western, non-
industrialized cultures.

355 Medical Anthropology (4) Prereq: 201. Non-Western medical systems and theories of health and disease causation; social basis for diagnosis and cure; curing rituals; sym-
bolism of health and illness. Ecological factors in health and nonhealth; systemic connections between health concepts, culture, and environmen-
tal situation.

356J Writing in Sociology and Anthropology (4) (1J) Prereq: jr or sr. Sociology and anthropol-
y. J-level composition course for sociology and anthropology majors and students in related fields. Combines writing instruction with consideration of substantive social science topic. Students will try various genres of social science writing (book reviews, grant proposals, field notes, interviews, etc.).

357 Anthropology of Religion (4) Prereq: 101. Anthropological consideration of ritual and myth in various cultures; shamanism, trance, taboo, etc., in social systemic, symbolic,
Courses / Anthropology

structuralist, and ecological perspective. Comparison of different anthropological frameworks for understanding religious phenomena in an objective, social scientific way.

361 North American Prehistory (4)

363 Gender in Prehistory (4)
Prereq: 101, 202, and soph. Examines the application of gender studies as an analytic tool for archaeological reconstructions. Considers evolving gender roles within a wide range of past cultural settings.

364 Near East Prehistory (4)
Prereq: 202. Scrutiny of the archaeological data and consequent reconstruction of the evolutionary process affecting cultures in the Near East. Analysis begins with the earliest occupation of the region and ends with the establishment of various state systems.

366 Cultures of the Americas (4)
Prereq: 101, 202. Survey of past and/or present cultural diversity present in North, South, or Mesoamerica or the Caribbean with emphasis on application of anthropological method and theory to an understanding of particular sociocultural systems. Emphasis varies by instructor.

367 South American Prehistory (4)
Prereq: 202. Reconstruction, analysis, and interpretation of the process of cultural evolution as expressed by the ancient societies of South America.

370 Mexican/ Central American Prehistory (4)
Prereq: 202. Reconstruction, analysis, and interpretation of the process of cultural evolution in pre-Hispanic Mexico and Central America. No credit if 368 taken.

371 Ethnology (4)
Prereq: 101. In-depth consideration of topics covered in 101; anthropological theory and frames of analysis.

372 Cultures of the World (4)
Prereq: 101. Ethnographic sampling of similarities and differences in cultural systems found around the world and through time. Ethnographic focus varies. May be taken twice for credit.

373 Perspectives in Anthropology (4)
Prereq: 101, 201, 202. Includes topics from the following areas of anthropological concern: nature of scientific inquiry, ethnology, linguistics, archaeology, biological anthropology.

375 Culture and Personality (4)
Prereq: 101; psychology recommended. Interrelations between personality systems and cultural systems.

376 Culture Contact and Change (4)
Prereq: 101. Impacts of cultures upon one another; immediate and subsequent cultural adaptations; theory of change.

377 Peasant Communities (4)
Prereq: 101. Focuses on folk component of state societies.

378 Human Ecology (4)
Prereq: 101 or 202. Analysis of mutual and reciprocal relations between sociocultural systems and other systems in their environment; ecosystems and biotic communities in which human populations are included.

381 Cultures of Sub-Saharan Africa (4)
Prereq: 101. Survey of cultural diversity present in Sub-Saharan Africa with emphasis on application of anthropological theory and method to understanding of particular sociocultural systems.

383 Cultures of Latin America (4)
Prereq: 101. Survey of cultural systems in Latin America with focus on application of anthropological theory.

385 Cultures of Southeast Asia (4)

386 Problems in Southeast Asian Anthropology (4)
Prereq: 101. Selected topics of current theoretical concern relating to Southeast Asia; comparison of different frames of analysis.

387 Pacific Island Cultures (4)

388 Cultures of the Middle East (4)
Prereq: 101. Survey of sociocultural systems in Contemporary Middle East and North Africa with applications of anthropological theory to analyze cultural similarities and differences. (Usually Zanesville campus only.)

391 Primate Social Organization (4)
Prereq: 101, 201. Exploration of nonhuman primate social behavior and social organization from anthropological perspective, with special focus on development of human cultural behavior.

399 Readings in Anthropology
Prereq: 101, 201, 202, and soph. Includes topics from the following areas of anthropological concern: nature of scientific inquiry, ethnology, linguistics, biological anthropology.

447 Forensic Anthropology (4)
Prereq: 201 or LET 140 or BIOS 171. Forensic anthropology, deals with the identification of human remains in situations which generally result in litigation. The recovery and analysis of remains unrecognized by conventional methods is covered.

448 Blood, Bones, and Violence (4)
Prereq: 447 or LET 140 or BIOS 171. The identification, study and analysis of fauna and how it affects the human skeleton.

452 Anthropological Archaeology (4)
Prereq: 202 and one 300-level course in archaeology or perm. Explores contemporary archaeology in which goals, methods, and theory are considered within the framework of science.

455 Seminar in Methodology and Field Research (4, max 8)
Prereq: 20 hrs ANTH. Practical training in application of methods to data in one of the following subfields: archaeology, ethnology, or biological anthropology.

456 Kinship
Prereq: 20 hrs ANTH. Theoretical framework and ethnographic work on kinship systems of various world cultures; non-Western family systems; kinship terminology; social change in kinship systems.

465 Field School in Ohio Archaeology (5-10)
Prereq: one 300- or 400-level ANTH course. Actual archaeological investigation of prehistoric Indian sites in Ohio. Involves survey, excavation, and laboratory analysis of materials, as well as lectures on anthropological archaeology as they pertain to Ohio.

472 History of Anthropological Thought (4)
Prereq: 20 hrs ANTH. In-depth examination of schools of anthropology as they have developed within various subfields at different times and places.

490 Independent Research in Anthropology (1-10, max 10)
Prereq: 20 hrs ANTH. Individual research in anthropology in specific problem areas in which student has demonstrated ability and interest.

492 Human Evolution (4)
Prereq: 201, jr. In-depth examination of evidence for biological macro-evolution of human kind. Hominoid and hominid fossil record; speciation; interpretation of fossil remains; and “fit” between paleontological and immunological approaches.

494A Seminar in Cultural Anthropology (4)
Prereq: 2 cultural ANTH courses at 300 level or above. Advanced course dealing with topics of current research interest in cultural anthropology. Topic varies according to individual course.

494B Seminar in Biological Anthropology (4)
Prereq: 373 or 391 or 492 or 496; jr. Advanced course dealing with topics of current research interest in biological anthropology. Topic varies according to individual course.

494C Seminar in Archaeological Anthropology (4)
Prereq: 201 or LET 140 or bios 171 or 101; jr. Advanced course dealing with topics of current research interest in archaeological anthropology. Topic varies according to individual course.

494D Seminar in Human Ecology (4)
Prereq: 2 ANTH courses at 300 level or above or perm. Advanced course dealing with topics of current research interest in human ecology. Topic varies according to individual course.

495 Honors Thesis in Anthropology (1-5)
Prereq: Sr., 3.5 g.p.a., and perm. Thesis option for majors.

496 Human Diversity (4)
Prereq: 201, jr. Exploration of human biological diversity/variability with emphasis on the populationist approach, namely anthropological genetics and demography.

Archaeology

Classical Archaeology, see Classics and World Religions. Anthropological Archaeology, see Anthropology.

Art (ART)

Foundation Courses

110 Seeing and Knowing the Visual Arts (4) (2H)
Introduction to perceiving and understanding meanings and organizational systems in traditional and contemporary visual arts in context of their social and cultural backgrounds.

112 Foundations Photography (4)
This studio/lecture course explores the photographic image as the basis for addressing issues related to all media from historical, critical, and diverse aesthetic perspectives.

113 Three-Dimensional Studies (4)
Studio projects in 3 dimensions exploring ordered and dynamic interactions of mass, plane, volume, and space. Introduction to processes and media. Not open to jr or sr art majors.

116 Descriptive Drawing (4)
Fundamental issues and concepts of drawing. Varies projects to develop the ability to perceive, interpret, and record information through an awareness of the conceptual and technical basis of drawing.

117 Drawing: System and Color (4)
Prereq: 116. Investigation of drawing concepts and methods with emphasis on design systems and principles. Studio activities include creative problem solving and research involving color theory, function, and applications in the making of art.

118 Drawing: Process and Synthesis (4)

211 Studio Concepts (4)
Prereq: 112, 113, 116. A studio course with an emphasis on the conceptual activity of art making. Introduction to a variety of methodologies for developing and executing ideas including research, assessment, analysis, and critical thinking. Particular attention given to conceptual structures and decision making processes.

Art Education

260 Foundations of Art Education (4)
Explores the history, philosophy, and curriculum for teaching art.
developments in art education. Intended for prospective majors in art education.

360A Visual Art Media for the Elementary Teacher (3)
Prereq: jr. Introduction to the visual arts through media processes, and developing critical skills in description, interpretation, and analysis of art works.

360B Visual Art Methods for the Elementary Teacher (3)
Prereq: jr. 360A or concurrent. Development of appropriate teaching methodologies and cross-disciplinary curriculum planning.

363 Technology in Art Education (5)

251 Typography (5)
Prereq: 250. Introduction to the use of typography as symbolic form. Study of typography history, nomenclature, and meaning generation through letterform construction and digital composition.

254 Letter Form (5)
Prereq: 112, 113, 116. Lettering as design and communication element. History and techniques of lettering and calligraphy.

255 Form and Content (5)

351 Graphic Design: Junior Studio (5)
Prereq: 10 hrs 200-level graphic design, portfolio review, and perm. Integrative use of digital design technologies to explore concepts of color, page layout, image construction, typography, problem solving, and meaning.

352 Graphic Design: Junior Studio (5)
Prereq: 351. Emphasis on typography as visual form and communication. Creation of multi-paged formats that study sequence, repetition, flow, graphic and semantic content, and the context of meaning.

353 Graphic Design: Junior Studio (5)
Prereq: 352. Emphasis on design and application of symbolic form, including logos, marks, icons, logotype and their use in the creation of meaning in design systems. Concepts of branding, manipulation, metaphor, and context will be explored.

450 Senior Studio Thesis Project (3)
Prereq: sr only, art major. Preparation for senior presentation and portfolio (not a studio course).

451 Graphic Design: Senior Studio (5)
Prereq: sr graphic design major and perm. Emphasis on meaningful communication through personal voice,” exploration of experimental image making and typographic design. Examination of the publication in the presentation of graphic design solutions.

452 Graphic Design: Senior Studio (5)
Prereq: 451 or perm. Design problems carried through all professional stages. Examination of design in context of various applications.

453 Graphic Design: Senior Studio (5)
Prereq: 452 or perm. Emphasis on individual problems and individual professional orientation. Portfolio preparation and presentation. Production of brochure and preparation of resume.

459 Graphic Design Topics (3)
Prereq: 451 or concurrent. Lecture/seminar course intended as a historical review relating to the discipline. Theory and practice of the graphic design profession (not a studio course).

Painting Studio Courses
275A Basic Painting I (5)

276A Basic Painting II (5)
Prereq: 275A. Problems in painting, investigating recent developments and formal concepts.

278 Watercolor and Expanded Media I (5)
Prereq: jr or sr; 116 or concurrent. Techniques of transparent/watercolor painting.

279 Watercolor and Expanded Media II (5)
Prereq: 278. Continuation of 278.
ic stencils, and multicolor printing. Emphasis on application of techniques to image making.

341 Prints (5, max 15)
Prereq: 5 hrs of 200-level printmaking courses. Supervised studio experience in printmaking media of student’s choice (intaglio, lithography, relief, and/or serigraphy); includes demonstrations and lectures on related topics. Emphasis on development of techniques and concepts of printmaking.

345 Papermaking (5)
Prereq: ART 118. Papermaking language, history, and application as it relates to two-dimensional art works, books, and three-dimensional constructions.

346 Art on Computers (5)
Prereq: ART 118, jr or sr. Introduction of the Macintosh computer, providing experience in the computer’s capability to design and to generate visual art images.

347 Print Topics (5, max 15)
Prereq: perm. In-depth view of historical topics and activities involving contemporary issues in the field of printmaking.

441 Prints (5, max 15)
Prereq: 15 hrs, 300L. Emphasis on personal and professional development in printmaking.

442A Print Workshop (5, max 10)
Prereq: 441. Emphasizes the studio development of the individual student and the student’s preparation of a professional portfolio.

Sculture Studio Courses

231A Sculpture I (5)
Prereq: 112, 113, 116. Exploration of traditional and contemporary concepts of sculpture through lectures, projects, and critical discussions.

231B Sculpture II (5)
Prereq: 112, 113, 116. The second course for prospective sculpture majors with emphasis on basic sculpture skills.

232E Sculpture: Figure (5)
Prereq: 112, 113, 116. Introduction to sculpture, based upon human figure; includes slide presentations; expression through form and gesture emphasized.

233E Sculpture: Modeling (5)

234E Sculpture: Casting (5)
Prereq: 112, 113, 116. Introduction to techniques of sculpture concentrating on bronze casting and its historical and aesthetic development.

235E Sculpture: Reductive (5)
Prereq: 112, 113, 116. Basic approaches to carving techniques in various materials.

331A Sculpture III (5)
Prereq: 231B; acceptance into a major area in the School of Art. Designed for development of the sculptural idea as a major. Not repeatable for credit.

331B Sculpture IV (5)
Prereq: 331A. Emphasis on the nontraditional aspects of sculpture making and individual development. Not repeatable for credit.

331C Sculpture V (5)
Prereq: 331B. Emphasis on aesthetic development; projects based on individual student interest. Not repeatable for credit.

431A Sculpture VI (5)
Prereq: 331C. For sculpture majors, focusing on contemporary issues in sculpture. Not repeatable for credit.

431B Sculpture Workshop (5, max 10)
Prereq: 431A. Emphasizes each student’s development as an artist.

General Studio Courses

Drawing Sequence (drawing is not a major)

218 Figure Drawing I (5)
Prereq: 118. (not offered every quarter) Drawing from model. Proportion, structure, and form. Various media.

311 Drawing Media (4)
Prereq: 218. An exploration of traditional and nontraditional techniques and media.

318 Figure Drawing II (5)
Prereq: 218. (not offered every quarter) Approach to personal imagery in drawing. Individual response to traditional and modern drawing attitudes.

319 Intermediate Drawing (5)
Prereq: 318. (not offered every qtr) Continuation of 318.

418A Advanced Drawing (5)
Prereq: 319. (not offered every qtr) Continuation of 319.

Design Sequence

392D Letterpress and Bookmaking (5)
Prereq: adm to major area School of Art. An introduction to handprinting techniques utilizing the letterpress with emphasis on the design and making of the handmade book.

393D Text and Image in Graphic Design (5)
Prereq: adn to major area School of Art. Concentration on text as it relates to graphic design imagery. This course will identify the individual's perception of typography as text and further enhance that level through customized exercises related to the individual's discipline.

395D Media (5)
Prereq: art major or perm. Time-based study of motion, light, and sound with emphasis on Web communication and design. Development of working methodologies specific to the non-linear construction of information for Web-based media technologies.

Additional Art Courses

300J Criticism in the Visual Arts (4) (1J)
Prereq: AH 211, 212, 213 or perm. Tier I composition class designed to encourage understanding of historical perspectives in critical writings on visual arts. Students will read and examine written criticism; develop research, grammar, and editing skills; and write analytical descriptive essays on appropriate visual arts subjects.

393A Autopictorial Art (3)
This nontraditional course provides the University student with a unique experience in understanding and developing aesthetic alternatives.

490A Seminar in the Visual Arts (3)
Prereq: sr and perm. Interdisciplinary course designed to deal with the examination of issues beyond those pertinent to specific media, to enrich experience in various areas and professional levels, and to permit exchange of information on current topics in the art world. Not repeatable for credit.

491A Art in Your Life (3)
Nontraditional course designed to provide an alternative approach to the thinking and making of art.

496A Studio Practicum (3)
Prereq: sr art major. Preparation for senior presentation and portfolio. Requirement for all studio majors.

496B Studio Project (3)
Prereq: sr art major. Completion and installation of BFA Exhibition. Requirement for all studio majors.

497 Independent Study—Projects
(1–5, max 5)
Prereq: art major, sr, and perm. Projects, ideas, or explorations that cannot reasonably be made within regular course structures. Requires permission of faculty member prior to registration. Credit as non-studio elective only.

498 Independent Study—Readings
(1–5, max 5)
Prereq: art major, sr, and perm. Reading and research to studio investigations. Intended for work that is not a reasonable part of regular studio courses. Credit as elective only.

Regional Campus Offerings

115A Introduction to Painting (4)
Enrollment at regional campus only. Credit as free elective only, not studio.

125 Introduction to Ceramics (4)
Enrollment at regional campus only. Credit as free elective only, not studio.

141 Introduction to Printmaking (4)
Enrollment at regional campus only. Credit as free elective only, not studio.

151 Introduction to Graphic Design (4)
Enrollment at regional campus only. Credit as free elective only, not studio.

Art History (AH)

211 History of Art (4) (2H)
Survey of Western painting, sculpture, and architecture from prehistoric through early Christian. Students advised but not required to enroll in 211, 212, and 213 in sequence. No credit to those with credit for CA 211.

212 History of Art (4) (2H)
Continuation of 211 from early Medieval art in Europe through Renaissance. Students advised but not required to enroll in 211, 212, and 213 in sequence. No credit to those with credit for CA 212.

213 History of Art (4) (2H)
Continuation of 212 from Baroque to present. Students advised but not required to enroll in 211, 212, and 213 in sequence. No credit to those with credit for CA 213.

214 History of Non-Western Art (4) (2C)
Survey of non-western traditions from Asia, the Americas, Africa, and the pacific region from ancient times to present.

237 Photo History Survey (4)
Historical development of photography from its inception to present including the visual study of artistic and technical development of major photography movements.

320 Greek Art (4)
Prereq: jr or perm. Art of ancient Greece.

321 Roman Art (4)
Prereq: jr or perm. Art of ancient Rome.

322 Medieval Art (4)
Prereq: jr or perm. Art of Europe from age of Constantine to art of Giotto.

323 Italian Renaissance Art (4)
Prereq: jr or perm. Art of 15th century Italy.

324 Northern Renaissance Art (4)
Prereq: jr or perm. Art of Northern Europe in 15th and 16th centuries.

326 Baroque and Rococo Art (4)
Art of Europe in 17th and 18th centuries.

327 Art of the 19th Century (4)
Prereq: jr or perm. European painting and sculpture from French Revolution through Symbolism.

329 American Art History (4)
Prereq: jr or perm. Art in U.S. from Colonial period.

330 Asian Art History (4) (2C)
Prereq: jr or perm. Art of India, China, and Japan.

331 Pre-Columbian Art (4) (2C)
Prereq: jr or perm. Pre-Columbian art of Mexico, Central and South America.

332 West African Art (4)
Prereq: jr or perm. The visual art traditions, including sculpture, ceramics, textiles, and architecture, of the forest and savanna zones of West Africa.

334 Ancient Near Eastern Art (4)
Prereq: jr or perm. Motifs and monuments of Egypt, Mesopotamia, Assyria, and Babylonia.

336 Modernist Theory and Criticism (4)
Prereq: 211, 212, 213. An overview of the major theoretical and critical positions on the visual arts in modernism, especially from the late 19th century to the later 1970s. Topics include formalism, expressionism, and the relationship of art to nature and society.
1945. Criticism (4) and Man nerism (4)
Architecture (4) only.

Arts, such as interdisciplinary topics, cross-cultural and contemporary culture. Topics include semiotics, theories of cultural and ethnic difference.

Poststructuralism, feminism, simulation, and recent stylistic trends.

Overview of Chinese history, general aviation, types of air carrier aircraft, and the importance of the air transportation industry. Develops understanding of an airline flight from takeoff to landing.

Basic Aeronautics (4) (fall, winter, spring) 40 hrs ground instruction covering air navigation, meteorology, FAA regulations, communications, aircraft construction, and performance data to meet requirements of private pilot's written exam. 2 lec, 6 lab.

Course fee.

Overview of aviation history, general aviation, navigation, weather, aircraft construction and performance, aerodynamics, and FAA regulations.

Instrument System Regulations and Procedures (4)
Preprq: 110. (fall, spring) 40 hrs of ground instruction covering various navigation systems and procedures, aircraft radios and communications, instrument flying, and air traffic control procedures. Includes functions of ATC: approach control, towers, and flight service stations. FAA regulations included. Meets all requirements for instrument pilot written exam. 2 lec.

The National Airspace System (4)
Preprq: 110. (winter only) Covers topics such as procedures used to separate aircraft, flow control, ATC phraseology, and navigation in the national airspace system.

Airline Operations and Management (4)
Preprq: 110. (fall) To give a broad understanding of the air transportation industry and the major management functions with an airline. Topics cover economics of airlines; managerial aspects; international aviation; career planning; and general aviation.

Instrument Flight (4)
Preprq: Private pilot cert. and FAA written passed. Instruction in flight by sole reference to instruments. Preparation for instrument rating. 1 lec, 6 lab. Course fee.

Advanced Cross Countries (4)
Preprq: 400. 46 hours of flight instruction consists of dual and solo cross-countries and review of commercial maneuvers plus 8 hours of FTD. 1 lec, 6 lab. Course fee.

Fundamentals of Aviation for Teachers (4)
Preprq: 310. Comprehensive course covering aeronautical knowledge required of private pilot: navigation, weather, federal regulations, theory of flight, aircraft performance, radio communications and navigation, and fundamentals of instruction for teachers of aviation ground instruction courses.

Instrument Proficiency Check (1)
Preprq: Instrument Rating. Provides review of instrument procedures and FTD training to meet FAA current requirements. Course fee.

Commercial Flight (4)
Preprq: 405 and FAA written passed. Flight instruction including 10 hrs in complex airplane. Preparation for single commercial certification. 1 lec, 6 lab. Course fee.

Multi-Engine Flight Course (4)
Preprq: pilot's certificate and perm. 10 hrs of procedures with both engines operating. Prepares 1-engine inoperative (feathered), single engine speeds, effects of airplane configuration on engine-out performance. Enroute operations, single engine approaches and landings. 1 lec, 4 lab. Course fee.

Flight Engineer (4)
Preprq: Commercial pilot's certificate. Comprehensive course covering aeronautical knowledge acquired for the flight engineer rating, including federal aviation regulation, aerodynamics, meteorology, aircraft manuals, and aircraft systems.

Flight Instructor Ground Instruction (4)
Preprq: commercial pilot's certificate or perm. (spring) 40 hrs ground instruction on FAA regulations and publications, weather, advanced flight computer operations, radio navigation, advanced aircraft and engine performance, and fundamentals of instructing. Covers requirements for flight instructor written exam. 2 lec.

Flight Instructor Course (4)
Preprq: FAA written passed, commercial pilot's certificate. Review of commercial course with emphasis on how to instruct and analysis of flight training. Topics include 10 hrs instrument flying. Covers requirements for instrument written exam. 2 lec.

Instrument Instructor Ground Instruction (3)
Preprq: 350. 30 hrs review of instrument course with emphasis on how to instruct instrument flying. Covers requirements for instrument written exam. 2 lec.

Astronomy
See Physics and Astronomy.
455 Instrument Instructor
Flight Course (4)
Prereq: FAA written passed, flight instructor certificate. Review of instrument course with emphasis on how to instruct on instruments. 1 lec., 3 lab. Course fee.

460 ATP Ground Instruction (4)
Prereq: FAR 61.153. Forty hours advanced course covering the rules and responsibilities of flight instructors. Laboratory exercises to improve communication and network skills. 1 lec., 2 lab. Course fee.

462 Multi-Engines Cross Countries (1)
Prereq: 430 and major. Multi-engine cross country flight in various controlled airports using CRM techniques. Course fee.

465 Flight Instructor Operations—
Multi-Engine (2)

470 ATP Multi-Engine Flight Course (2)
Prereq: FAA commercial pilot's certificate with multi-engine and instrument ratings, FAA ATP written passed, and permit. Comprehensive course covering aircraft systems, weight and balance, FARs, and multi-engine aerodynamics. Flight including proficiency maneuvers and instrument procedures. Course fee.

475 Internship in Aviation Operations (1-15)
Prereq: Written perm of dept. chair. (fall, winter, spring, summer) Internship program in selected fields of aviation under direction of faculty member. Course fee.

480 General Aviation Operations and Management (4)
Prereq: 110. (spring) A comprehensive study of general aviation. Provides overview of general aviation history and scope, general aviation marketing, FBO operations and management, and an in-depth study of corporate and business aviation. Course fee.

485 Advanced Aircraft and Flight Crew Operations (5)
Prereq: AVN 400, AVN 420, AVN 430. (spring) Advanced discussion of flight crew concepts and procedures with emphasis on professional pilot development, safety standardization, and crew resource management (CRM) techniques. Selected technical subjects include turbine aircraft systems training, high altitude pressurized aircraft certification, current state of knowledge, and oriented flight training (air carrier instrument approach procedures, interview and training/qualification simulator profiles, and Line-Oriented Flight Training—LOFT). The course includes approximately 40 hours of lectures, 1 hour of flight instruction in turbine aircraft, and 12 hours of simulator instruction. Course fee.

486 Principles of Corporate Flight Operations (4)
Prereq: AVN 485. Corporate pilot standards and practices with in-depth review of safety, standardization, and CRM concepts and as applied to corporate flight operations. The course will also cover aircraft systems, preflight, performance calculations, weight and balance, and emergency procedures in various piston and turbo-prop aircraft.

487 Corporate Flight Operations Internship (2-6)
Prereq: AVN 486; written perm. of dept. chair. This course is an internship working for Ohio State University Air Transport Service (A.T.S.). Duties include flying as co-pilot in corporate flight operations in turbo-prop multi-engine aircraft, as well as ground duties as part of a corporate flight management team.

489 Transition to Aviation Industry (2)
Prereq: AVN 460 major; jr or sr. (winter) Discussions and exercises to improve communication and networking skills while increasing knowledge of student's area of focus in the aviation industry. Topics include resume writing, interviewing, goal setting, report writing, presentation skills, public relations, and professional responsibilities.

Bacteriology
See Biological Sciences.

Behavior
See Biological Sciences or Psychology.

Biological Sciences

Biological Sciences (BIOS)

100 The Animal Kingdom (4) (2N)
S. Moody, M. Nossek. Designed for non-science majors. A broad survey of all of the major groups of animals. Aspects of the biology, reproduction, ecology, and evolution of the animal phyla. Credit not allowed for both 100 and 173.

103 Human Biology I: Basic Principles (5) (2N)
Staff. Designed for non-science majors. Humans as biological organisms: our origins, ecology, and inheritance; and functioning of our body systems. 5 lec.

109 Readings in Biology (2)
Prereq: concurrent enrollment in BIOS 170, 171, or 172. L. DiCapiro, S. Simon Westendorf. Small-group study and discussion of topics only peripherally covered in the BIOS 170 series. Taken concurrently with introductory biology, it provides an informal forum to read about topics and present topics that go beyond the textbook.

110 Student Learning Community for BIOS 170 (1)
Prereq: concurrent enrollment in BIOS 170. S. Simon Westendorf. Small groups of students meet with a peer mentor to work on problem sets, readings, team-based learning projects to master the material in BIOS 170 and the scientific reasoning it requires.

130 Principles of Human Anatomy and Physiology I (5) (2N)
(Chillicothe, Lancaster, and Zanesville campus only) Introduction to the structure and function of the human body in the study of cells, tissues, and the integumentary, skeletal, and muscular systems. Cat used for dissection. 3 lec., 4 lab.

131 Principles of Human Anatomy and Physiology II (5) (2N)
Prereq: BIOS 130. (Chillicothe, Lancaster, and Zanesville campus only) Introduction to the structure and function of the human body in the study of the digestive, urinary, reproductive, cardiovascular, lymphatic, respiratory, endocrine, and nervous systems. Cat used for dissection. 3 lec., 4 lab.

170 Introduction to Zoology (5) (2N)
Prereq: minimum ACT composite score 23 or SAT total 1060 or (MATH PL 2 and CHEM 151 placement) or C- or better in CHEM 121 or CHEM 151. R. Colvin, L. DiCapiro, S. Simon Westendorf. Cellular and molecular biology. Designed for science majors and preprofessional students. Introduction to the chemistry of life, cell structure and function, and the principles of inheritance. Laboratories enhance lecture coverage of major topics with emphasis on experimental design and critical analysis. Credit not allowed for both 170 and any of the following: BIOS 101, PBIO 110, PBIO 114. 4 lec., 3 lab.

171 Introduction to Zoology (5) (2N)
Prereq: C- or better in BIOS 170 or PBIO 110 or 114. H. Hurston, L. DiCapiro, S. Edringer, D. Kurijaka. Animal organ systems. Designed for science majors and preprofessional students. Introduction to multicellular life, organ systems, anatomy, physiology, and animal development; emphasis is on comparative strategies within the animal kingdom. Laboratories enhance lecture coverage of major topics with dissections and microscopy 4 lec., 3 lab.

172 Introduction to Zoology (3) (2N)

173 Introduction to Zoology I (2N)
Prereq: BIOS 171, C or better; or PBIO 110 or 211. M. Nossek. Laboratory exercises to reinforce the major phyla of the animal kingdom to reveal evolutionary relationships and structural and functional characteristics. Credit not allowed for both 100 and 173. 2 lab. Laboratory includes microscopy and dissection.

201 Elementary Microbiology (4) (2N)
Prereq: one qtr CHEM and PBIO or PBIO. (Chillicothe and Zanesville campus only) Spring) Medical microbiology; topics include microbial and fungal growth, metabolism, and genetics; antimicrobial chemotherapy; immunity; virology; immunology, microorganisms, and infectious diseases. 3 lec., 2 lab.

202 Sex Differences and the Brain (4) (2N)
Genetic, hormonal, and environmental influences that affect the development of brain structure and function in male and female humans. Lecture, discussion, and group report formats. (Eastern Campus only)

203 Human Biology II: Essentials of Anatomy and Physiology (4) (2N)
Prereq: BIOS 103 or 171. E. Rowe. For non-majors. Introduction to functional anatomy of the human body for nonmajors. Emphasis is on the musculoskeletal and nervous systems, and their control by the nervous system. Students will learn how the skeleton, major muscle groups, and nervous system work together during behaviors such as posture, locomotion, control of the hands, respiration. 4 lec.

204 Human Biology II Laboratory: Functional Anatomy (1) (2N)
Prereq: BIOS 203 or concurrent. For non-majors. Laboratory introduction to functional human anatomy. Emphasis is on the musculoskeletal and nervous systems, circulatory, respiratory, and gastrointestinal systems. Students will explore the major patterns of the musculoskeletal and other organ systems through practical exercises with joint-muscle and tissue relationships using articulated skeletons, surface anatomy, and dissection. 3 lab.

205 Human Biology: Sex and Reproduction (3) (2N)
S. Simon Westendorf. Designed for non-majors. Development, structure, function, and reproductive biology of male and female human reproductive systems from conception to death, including behavior. Emphasis is placed on the relevance to topical health and social issues. Lecture and discussion format. 3 lec.

220 Conservation and Biodiversity (4) (2A)
Credit not allowed for both BIOS 220 and 481. M. Gurien, D. Miles. Designed for nonmajors. Introduces the student to the modern field of conservation biology and the role of genetics, ecology, life history, and biogeography in the preservation and maintenance of biodiversity. Case studies of endangered animal and plant species will be highlighted. 4 lec.

221 Microbes and Humans (4) (2A)
Staff. For non-majors. Prereq: one qtr PBIO or PBIO or chemistry or perm. E. Rowland, K. Mannmon. Natural microbial activities, their function in waste and pollution reclamation and disposal, water purification, food production and spoilage, and in public health. 4 lec.

222 Microbes and Humans, Laboratory (2) (2A)
Prereq: BIOS 221 or concurrent. J. Cunningham. Characteristics and activities of special relevance to humains' welfare and those affecting maintenance of environmental quality. 4 lab.

225 Genetics in Human Society (4) (2N)
Prereq: for non-majors; no credit if BIOS 325. L. Knight. Basic principles of genetics for humans. Normal and abnormal chromosomal constitutions, gene-protein interrelationships, and factors that cause mutations of genes and chromosomes.
Courses / Biological Sciences

275 Ecology in the 21st Century (4) (2N) S. Reilly. Introductory study of the natural environment and relations of organisms to each other and their surroundings. Individual, population, community and global dynamics are considered in natural and human influenced environments to improve ecological literacy about how the natural world works. Credit not allowed for both 275 and 375. 4 lec.


300 Anatomy and Histology (6) Prereq: BIOS 171, C or better, or perm; not open to fr.; may be taken concurrently with 345. R. Hikidi. Gross and microscopic structure of the basic tissues and organs systems of the human body. Lab incorporates microscopy and dissection. 4 lec, 4 lab.

301 Human Anatomy (6) Prereq: C or better in BIOS 171; not open to fr.; no credit if 302. J. Zook. Structure and function of all body systems with emphasis on human muscular system. Lab incorporates dissection and prosection with emphasis on human structure/function relations. 3 lec, 6 lab.

302 Comparative Vertebrate Anatomy (6) Prereq: C or better in BIOS 172, 173, not open to fr. R. Carr. Comparative study of the anatomy of vertebrates. Structure, function, and evolution of the vertebrate body forms and organ systems are compared. Extensive lab work covers each of the major classes of vertebrates and includes dissection. 4 lec, 6 lab.

311 Computer Simulation in Biology (4) Prereq: MATH 247 or 266A. W. Holmes. Introduction to computer modeling and simulation in biological research. Designed to illustrate the power and limitations of computer simulation by having students code (in MATLAB) simulation programs for a number of different biological phenomena. Quantitative models used include models of enzyme kinetics, population biology, population genetics, diffusion models, and compartmental models in physiology. 3 lec, 2 lab.

316 Biogeography (4) Prereq: BIOS 173 or GEOG 101, no credit if GEOG 316 taken. J. Dyer. An examination of historical, environmental, and biotic influences that shape spatial patterns of plant and animal distributions and community structure in the contemporary landscape. (Cross listed with GEOG 316). 4 lec.


321 General Microbiology (5) Prereq: 10 hrs BIOS, PBIO. J. Cunningham, L. LaPierre. Overview of bacteria, protozoa, viruses and their relationship to us and our environment. Lab training in common microbiological methods. 3 lec, 4 lab.

322 Animal Cell Biology Laboratory (2) Prereq: 320 or concurrent. J. Duerr. Laboratory exercises designed to develop the material covered in BIOS 320. 2 lab.

325 General Genetics (5) Prereq: C or better in BIOS 172 and 173, or PBIO 111 and BIOS 320 concurrent, credit not allowed for both 225 and 325. S. Tanda. M. White. Principles and concepts of genetics as revealed by classical and modern investigation. 5 lec.

326 Laboratory Genetics (3) Prereq: C or better in BIOS 325. D. Holasz. Experiments in basic bacterial, yeast, and Drosophila molecular genetics. Experiments include site-directed mutagenesis, yeast 2-hybrid analysis, and transposon mutagenesis in Drosophila, 342 or concurrent DNA techniques designed to familiarize the student with current laboratory procedures in molecular genetics. 6 lab.

330 Principles of Evolution (4) Prereq: C- or better in BIOS 325. G. Svendsen. Study of the microevolutionary and macroevolutionary processes, and patterns that explain and characterize the history and diversity of life on earth. 4 lec.

333 Neural Basis of Behavior (3) Prereq: C or better BIOS 172, 173. R. DiCaprio, S. Hooper. Overview of how animal nervous systems generate behavior. The first half introduces brain and neuronal physiology and anatomy, sensory and motor systems, sensory-motor integration, and motivational states. The second half uses exemplar neuroethological case studies to integrate this information. 3 lec.

342 Principles of Physiology I (3) Prereq: PHYS 202 or 252 or 262 concurrent, CHEM 153; C or better in BIOS 171. Staff. Function of animal cells and organisms emphasizing the physical and chemical principles underlying physiological processes. Focus on chemical messengers, metabolic processes, membrane properties of excitable and nonexcitable cells, and muscle function. 3 lec.

343 Principles of Physiology II (3) Prereq: C or better in BIOS 342, Staff. Physiological processes underlying circulation, gas exchange, water and solute balance, and temperature relations. 3 lec.

345 Human Physiology (4) Prereq: BIOS 300 or 301 or 302 or concurrent; not open to fr. R. Gilders, C. Schwirian, D. Kunijaka. Covers basic cell physiology through most organ systems, focusing on humans. Emphasis on physiological regulation and physiological responses to various stresses. 4 lec.

346 Human Physiology Laboratory (3) Prereq: BIOS 345 or concurrent. J. Dyer, M. Chamberlin. Lab experiences designed to complement material covered in 345. Lab introduces students to physiology-related skills and techniques used in both research and clinical settings. 6 lab.

352 Biomechanics (4) Prereq: BIO 301 or 302. J. Bullard. Analysis of human motion based on anatomical, physiological, and mechanical principles. 3 lec, 2 lab. Credit not allowed for both 352 and PESS 302.

354 Principles of Physiology Lab I (2) Prereq: BIOS 345 or concurrent. M. Chamberlin. Laboratory exercises designed to illustrate the experimental basis of principles covered in 342. 4 lab.

355 Principles of Physiology Lab II (2) Prereq: BIOS 343 or concurrent. M. Chamberlin. Laboratory exercises designed to illustrate the experimental basis of principles covered in 343. 4 lab.

364 Forensic Biology (4) Prereq: C or better in BIOS 171 and CHEM 351; forensic chemistry major. S. Moody. Provides experience in forensic techniques; identification of hair, fibers, and bones; identification and grouping of blood; entomological and anthropological techniques in forensics; and identification of semen. 2 lec, 4 lab.

375 Animal Ecology (4) Prereq: C or better in BIOS 172 or BIOS 111 or 211 and MATH 163A, 263A or concurrent. No credit for both this course and 375. W. Rosenburg. An exploration of empirical and theoretical aspects of how animals interact with their environment. This mechanism-oriented class will evaluate ecological processes at the individual, population, community, and ecosystem levels. 4 lec.

376 Field Ecology (4) Prereq: BIOS major; C or better in BIOS 172 and 173. G. Svendsen. Quantitative analysis of field problems in ecology; consisting of design of field experiments and hypothesis testing, graphic and statistical analysis of data; interpretation of results and report writing. 1 lec, 6 lab.

382A Clinical Laboratory Observation (1) Prereq: clinical laboratory science major. J. Cunningham. Gives student opportunity to observe activities characteristic of clinical lab. Observation made in hospital setting so that, along with other background information provided, student may be better able to evaluate lab work as career choice.

384 Bioethics: Bioethical Problems in Biology and Medicine (5) Prereq: 9 hrs in BIOS or PBIO. (Lancaster campus only) Ethical problems arising from rapid advances in biological and biomedical research. Topics include: human experimentation, fetal research, informed consent, death with dignity, euthanasia, reproductive advances, sex control, test tube babies, surrogate mothers, public policy and bioethics, health care delivery, mental health, and genetic screening. 5 lec.

385 Microbial Ecology (3) Prereq: BIOS 321. P. Caschigano. Examines the interactions of microorganisms with their biotic and abiotic surroundings, including interactions with plants, animals, other microorganisms, air, water, and soil. Additional topics include waste treatment, biodegradation, bioremediation. 3 lec.

390H Biology and the Future of Man (5) Prereq: perm. (Lancaster campus only) Course covers human sexuality, physiological effects of environmental pollutants, drugs of abuse, and introduction to advances in biological technology that influence future of humans. 5 lec.

392A Topics in Zoology for Nonmajors (1–3, max 8) Prereq: BIOS 170 or BIOL 101 or PBIO 110 or 114, perm of specific instructor. Individual or small-group study, under supervision of instructor, of topics not otherwise available to undergraduate students. Credit not applicable toward major and in minor in biological sciences or microbiology. Special registration with department secretary absolutely required.


403 Teaching Vertebrate Anatomy (3–4) Prereq: perm. R. Carr, J. Zook. Students receive advanced training in vertebrate anatomy via lectures and discussions and gain practical experience while assisting in teaching vertebrate anatomy courses. 1 lec, 6–8 lab.

407 Developmental Biology (4) Prereq: BIOS 325. S. Tanda. Mechanisms of animal development at tissue, cellular, and molecular levels of organization, with emphasis on experimental approaches. 4 lec.

413 Human Neuroscience (4) Prereq: C or better in BIOS 301 or 302; and C or better in BIOS 342 or 345 or perm. E. Peterson, M. Rowe. Basic structure and function of the mammalian nervous system. Special attention is given to the human brain and to human brain dysfunction. Students complete a human brain dissection in the laboratory component of the course. 3 lec., 2 lab.

414 Molecular and Cellular Neuroscience (4) Prereq: C or better in BIOS 342 or 345; and Math 263A or 268B. R. Calvin. Introduction to the molecular and cellular basis of the functioning of the nervous system. Topics include morphology, excitable properties of neurons, neurochemical synaptic function, molecular biology, signal transduction, gene expression, and neuromodulation. 4 lec.

415 Neural Basis of Sensation and Movement (4) Prereq: C or better in BIOS 414 or perm. E. Peterson, M. Rowe. Sensory system function and the neural control of movement in vertebrates; how molecules, cells, and circuits of nervous
systems give rise to sensation (vision, hearing, touch, smell, etc.) and to basic behaviors (locomotion, posture, orientation of head and eyes toward sensory stimuli, etc.). In each class, students hear a lecture and discuss assigned articles from the research literature. A major goal of the course is to provide a critical analysis of primary journal articles. 4 lec.

417 Cognitive Neuroscience (4)
Prereq: C or better in BIOS 415 or perm. E. Peterson, M. Rowe. Neural basis of higher-order processes in vertebrates: learning and memory, perception, attention, emotion, consciousness. Topics are considered at behavioral, cellular, and molecular levels. Students are encouraged to understand cognitive processes by integrating research results from different levels, in each class. Students discuss original journal articles and recent scholarly reviews of topics in cognitive neuroscience. A major goal of the course is to provide an effective presentation of research literature and leadership of group discussions. 4 lec.

418 Methods in Computational Neuroscience (4)
Prereq: BIOS 414 and MATH 263B or 266. W. Holmes. Lecture, discussion, and computer lab. Introduction to mathematical and computational techniques for modeling single neuron and networks of neurons. Cable theory; Rall's model; compartmental models; introduction to available software for simulating neurons and networks of neurons; modeling of action potentials, Hodgkin-Huxley equations, synaptic conductances, and voltage-dependent conductances; Hebbian synapses; synaptic modification rules; quantal analysis of neural networks. Students apply these techniques to complete a simulation project using one of the available software packages. 3 lec, 2 lab arr.

422 Microbiological Techniques (5)
Prereq: BIOS 321 or perm. J. Cunningham. Semi-independent course gives the microbiology and clinical lab science student extensive experience in the use of standard microbiological equipment and techniques. Experience will be gained in media preparation, bacterial identification procedures, eucaryotic tissue culture, anaerobic methods, protein and DNA isolation and quantitation; all with an applied emphasis. 2 lec, 6 lab.

423A Pathogenic Bacteriology (3)
Prereq: C or better in BIOS 321. J. Cunningham. Microorganisms in relation to disease. Disease manifestations; diagnostic and control methods; some aspects of immunity. 3 lec.

423B Pathogenic Bacteriology Laboratory (2)
Prereq: BIOS 423A or concurrent. J. Cunningham. Pathogenic and clinical diagnostic bacteriological techniques. Complements the lecture material in 423A. 2 lab.

424A Virology (3)
Prereq: C or better in BIOS 320 and 325. L. LaPierre. Course intended to familiarize students with the principles of virology and behavior, focusing on human and animal viruses. Emphasis is placed on the molecular events following virus-cell interaction, which are critical to viral replication and pathology. Topics also include viral evolution, novel infectious agents, events following virus-cell interaction, which are critical to viral replication and pathology. Topics also include viral evolution, novel infectious agents, and potential therapeutic targets. 3 lec.

424B Virology Laboratory (2)
Prereq: A or concurrent; perm. Staff. Limited to microbiology majors, others by perm if seats available. 4 lab.

425 Evolutionary Genetics (4)

426 Molecular Genetics (3)
Prereq: C or better in BIOS 325. BIOS 321 recommended. D. Holzschu. Topics will emphasize the interaction of microbial genetics with molecular biology and biotechnology. Genetics of selected bacteria, their bacteriophages, and yeast are covered. Topics include the genetic elements of bacteria, bacteriophage and yeast; mutations and mutagenesis, mitochondrial genetics and prokaryotes and eukaryotes, mechanisms of gene transfer and recombination, regulation of gene expression and recombinant DNA. 3 lec.

427 Mechanisms of Gene Regulation (3)
Prereq: C or better in BIOS 325 and 4 or Jr. L. Lapierre. Class is intended for upper-level undergraduates and graduate students. An in-depth discussion of the molecular events that regulate eucaryotic gene expression. Topics also include gene regulation during differentiation and development, current transcription and disease, generation and utility of transgenic animals, and genomics-based analysis of gene expression. 4 lec.

429 Marine Biology (5)
Prereq: BIOS 172 and 173 or perm; 430 recommended. W. Currie. Biological processes in marine and estuarine habitats, and adaptations for life at sea; emphasis on environmental variables affecting distribution, abundance, and dynamics of marine plants and animals. Includes five-day field trip to temperate marine environment late in quarter; estimated cost $200 per student; limited to 20 students. 5 lec, 5 field trip.

430 Invertebrate Biology (6)
Prereq: BIOS 172 and 173 or perm. P. Hassett. The major taxa of marine and freshwater invertebrates: structure, function, development, evolutionary relationships, and ecological adaptations. 4 lec, 4 lab.

431 Limnology (5)
Prereq: BIOS 172 and 173, PBIO 111 or 211, CHEM 153, or eq. or perm. W. Currie. Physical, chemical, and biological processes in lakes and running waters. Emphasis on the collection and analysis of environmental data describing populations and communities. Lab includes field sampling of local habitats. 4 lec, 1 lab.

435 Entomology (6)

441A Parasitology (3)

441B Parasitology Laboratory (2)
Prereq: BIOS 441A or concurrent. E. Rowland. Laboratory survey of protozoan and helminth parasites with emphasis on life cycles and identification. 4 lec, 4 lab.

445 Physiology of Exercise (4)
Prereq: BIOS 343 or 345. R. Gilders, A. Loucks. Fundamental concepts and application of organ systems' response to exercise: special reference to skeletal muscle metabolism, energy expenditure, cardio-respiratory regulation, and training and environmental adaptations. 4 lec. (Same as PEAS 445.)

446 Physiology of Exercise Laboratory (3)
Prereq: BIOS 343 or 345; 445 concurrent. C. Schwerin. Lab experiences designed to complement 445. 6 lab. Introduces students to clinical, fitness, and research-related exercise physiology laboratory skills. (Same as PEAS 445.)

450 Principles of Endocrinology (4)
Prereq: C or better in BIOS 342 or 345 or perm. A. Loucks. Endocrine control of mammalian homeostasis and metabolism. 4 lec.

456 Advanced Topics in Physiology (4)
Prereq: B or better in BIOS 342, 343, 354, 355, or perm. M. Chamberlin. Lecture and discussion of current research in physiology. Topics include membrane, epithelial, cardiovascular, respiratory, excretory, nervous, and endocrine and metabolic physiology. The lab component will entail research projects designed and conducted by the students under the supervision of lab instructors. 4 lec.

457 Animal Systems (4)
Prereq: BIOS 325 and 477 or 478 or 479. Staff. Principles and methods of systematic zoology. Numerical methods and taxonomic, nomenclature, and systematic zoology, and biological diversity. Unmajors, substitution of any substance or other design. 4 lec.

458 Biology of Amphibians (3)
Prereq: BIOS 330 and 4 or Jr. or Sr; no credit if 472. S. Moody. Evolutionary origin, taxonomy and classification, anatomy and physiology, behavior and genetics of amphibians (caecilians, frogs and toads, salamanders and sirens). Field techniques of safe capture and monitoring for population persistence and abundance. Identification of Ohio species and North American genera and families. Field trips are an integral part of this course. 2 lec, 3 lab, and field trips.

459 Biology of Reptiles (3)
Prereq: BIOS 330 and 4 or Jr. or Sr; no credit if 472. S. Moody. Evolutionary origin, taxonomy and classification, anatomy and physiology, behavior and genetics of reptiles (turtles, lizards, chameleons, tuataras). Field techniques of safe capture and monitoring for population persistence and abundance. Identification of Ohio species and North American genera and families. 2 lec, 3 lab and field trips.

462 Animal Physiological Ecology (4)
Prereq: BIOS 343. And (275 or PBIO 209 or 425) and (MATH 163B or 263B or 266B). L. Crockett, K. Johnson, W. Rozenburg. Examines how physiological plasticity is affected by the physical environment. Comparative approaches explore the behavioral, physiological, and ecological responses to environmental factors. Current topics and methods are addressed in selected readings and discussions. 4 lec.

463 Cell Chemistry (4)

465 Ichthyology (6)
Prereq: BIOS 172. No credit if 468. Biology of fishes. Lectures emphasize anatomy, physiology, ecology, taxonomy, and conservation. Labs and field trips emphasize identification of Ohio species and include dissection. 4 lec, 4 lab.

470A,B,C,D Clinical Laboratory Science Internship
52-week clinical internship includes theoretical and practical coursework in all phases of clinical lab science at accredited school of clinical laboratory science. Required for certification as a clinical laboratory scientist.

471 Ornithology (6)
Prereq: 26 hrs BIOS. D. Miles. Bird biology, including discussions on anatomy, physiology, conservation biology, life histories, and role of ornithology in current ecological and evolutionary theory. 4 lec, 4 lab, and field.

473 Animal Behavior (5)
Prereq: BIOS 172, 173, Jr. or Sr. M. Morris. Ecological, physiological, and developmental aspects of animal behavior, interpreted from the perspective of evolutionary biology. 5 lec.

474 Mammalogy (6)
Prereq: BIOS 172, G. Svendsen. Mammals; their origin, evolution and adaptations, geographical distribution, ecology, and behavior. Emphasis on local fauna. 4 lec, 4 lab, and field.

475 Sociobiology (3)
Prereq: BIOS 414 or perm. G. Svendsen. Current understanding of how and why social behavior evolved, including spacing, mating, and parental behavior of solitary as well as social animals. Lectures, reading, and reports. 3 lec.

477 Population Ecology (4)
Prereq: BIOS 275 or 375 or 330 and (MATH 163B or 263B or 266B). K. Cuddington. Major theories and concepts in population and evolutionary ecology. Emphasis on models pertaining to growth and regulation of populations; population interactions, including predation and competition, distribution and abundance, and life history theory. 4 lec.

478 Community Ecology (4)
Prereq: BIOS 275 or 375 or 330 and (MATH 163B or 263B or 266B). D. Miles. This course will provide a theoretical and empirical examination of the description, structure, and organization of
communities. Emphasis will be placed on mathematical models that describe the biotic processes that mold community structure. Further consideration of null models in ecology and historical effects will be included. 4 lec.


481 Animal Conservation Biology (4) Prereq: BIOS 173; credit not allowed for both 220 and 481 nor 481H. The roles of population genetics, population and community ecology, biogeography, systematics, and paleobiology in the study of biodiversity, design of nature reserves, and the recovery of endangered species. Discussion of extinction as a process, the effects of human-induced habitat degradation on loss of species diversity, and the role of reserves in protection of species. 4 lec.

486A Immunology (3) Prereq: C or better in BIOS 321, K. Goodrum, M. Grijalva. Fundamental principles and concepts of immunity and the immune response. 3 lec.

486B Immunology Lab (2) Prereq: BIOS 486A or concurrent. J. Cunningham. Immunological methods, including identification and assessment of functional activities in immune cells and molecules and applied immunological methods with study in research, diagnosis, and therapy. 2 lab.

489 Microbial Physiology (5) Prereq: C or better in BIOS 321, 463 or CHEM 491. J. Sugiyama. Mitigation function and metabolism of microorganisms. Pertinent laboratory work illustrating fundamental principles and various experimental techniques. 3 lec, 4 lab.

491 Biological Internship (2-6) Prereq: Bio major and approval of internship director. Practice applying biological methods in professional settings such as biomedical labs, zoos, wildlife refuges and parks, environmental monitoring labs, marine and seaworld institutes, etc.

492 Topics in Zoology (1-6, max 8) Prereq: BIOS 172, 173, 2.5 g.p.a. in BIOS courses; perm from specific professor. Individual or small-group study of specialized topics in zoology under supervision of instructor. Special registration with departmental secretary absolutely required. Graded cr only.

493 Undergraduate Research (1-3, max 12) Prereq: 20 hrs and 3.0 g.p.a. in BIOS, perm from specific professor. Individualized and directed research. Students select topics or are directed into possible research areas. Special registration with departmental secretary absolutely required. Graded cr only.

494H Undergraduate Research (1-4, max 12) Prereq: 30 hrs and 3.2 g.p.a. in BIOS, perm from specific professor. Individualized and directed research for students in departmental honors program. Students select topics or are directed into possible research areas.

495H Undergraduate Research (3-9, max 15) Prereq: 494H, 40 hrs and 3.2 g.p.a. in sciences, sr. Independent departmental honors research thesis under supervision of staff member. Student should enroll qtr or he expects to complete thesis. Registration with director of departmental honors program is required.


### Biology (BIOL)

See also Biological Sciences and Environmental and Plant Biology.


### Black Studies

See African American Studies.

### Business Administration (BA)

100A Introduction to the College of Business (1) Prereq: C or better in 345. White. First of a two-part sequence. Provides information about College of Business majors, offices, and services so students are familiar with the available options. Department chairs and directors, administrators, student representatives, and various guest speakers discuss the structure and procedures of the College of Business.

100B Introduction to the College of Business (2) Prereq: 100A. Second of a two-part sequence. Provides an introduction to the business profession. Students explore various business majors as they relate to scheduling and career options. Professional development and business research skills are covered along with practical issues related to a smooth transition into the College of Business.

101 Business and Its Environment (4) Nature of business and of economic, social, and political environments of the business firm. Emphasis on ways in which such surroundings affect business policies and operations.

298 Internship (1) Prereq: perm. Internship experience that provides on-site exposure to general business operations and procedures. Intended for experiences following the freshman year.

301 Business and Its Environment (4) Prereq: jr or sr or (not open to those with credit for 101). Nature of business and of economic, social, and political environments of the business firm. Emphasis on ways such surroundings affect business policies and operations.

329 Current Global Issues in Business (4) Prereq: jr or perm. Examines and compares the characteristics, market niches, and business strategies of various companies during the last four years. Taking examples from the U.S., Japan, Korea, and the other Far East countries, the course will focus upon selected business issues such as productivity, quality, the art of “managing” the businesses, the role of technology, and how to survive in the war of global competition.

345 New Venture Creation I (4) Prereq: Jr or sr. The focus of this two-semester course is on the development of new business ventures rather than on the management of an existing business. The key outcome of these two courses is the development of a business plan which will be presented to local bank loan officers and/or venture capitalists to be used to raise financial capital. The end of the first course, students are required to have identified a feasible new product or service, market potential, and competitor products. Additional topics covered are legal issues, exploring available support resources, starting a new venture, and the importance of entrepreneurship in the economy.

350 New Venture Creation II (4) Prereq: 340. Students continue their business plan to local bank loan officers and/or venture capitalists to be used to raise financial capital. The focus in this course is on developing and understanding how to develop the financial projections for the plan and the accounting systems necessary to manage the start-up phase. Additional topics covered are a discussion of potential sources of financing for an entrepreneurial venture, valuation of a company, undertaking, and initial public offerings.

370 Administrative Policy (4) Prereq: MGT 240, MIS 202, BUSL 255, MKT 202, FIN 325 or concurrent, OPN 310 or concurrent, and PRMC 325 or concurrent. Integrated application of core studies in nature, functions, and activities of actual business, analyzing objectives, policies, and performance in relation to outside environment.


398 Internship (1-4) Prereq: perm. Internship experience that provides opportunities for participation in day-to-day activities of a business concern for at least four consecutive weeks. Intended for experience following the sophomore year.

480 Ethics and Morality in Business (4) Prereq: Jr or sr and perm. Combined moral philosophy and personal responsibilities in business. Critical analysis of contextual situation where provisional resolutions must be indirectly charted between ethical oughts and economic musts.

485 International Business Experience (4) Prereq: Sophomore status and approval of instructor is required to write up a short reflection paper on an international travel experience. The paper should discuss what the student learned and observed cultural differences, and how the experience fits in with their career aspirations.

497 Independent Research (1-4) Prereq: perm. Research in selected fields of business administration under direction of faculty member.

498 Internship (1-4) Prereq: perm.

### Business Law (BUSL)

255 Law and Society (4) Prereq: soph. Conceptual approach to origin, nature, structure, functions, and procedures of law, with study of ethics and introduction to constitutional, administrative, criminal, tort, contractual, international, and environmental law, as well as business organizations.

265 Law of Contractual Relations (4) Prereq: 255. Legal aspects of contracts, sales, warranties, products liability, and consumer protection.

298 Internship (1) Prereq: perm. Internship experience that provides on-site exposure to general business operations and procedures. Intended for experiences following the freshman year.


357 Law of Commercial Transactions (4) Prereq: 255, jr or perm. Legal aspects of commercial paper, consumer credit, and bankruptcy.

360 Law of Health Care (4) Prereq: Jr or perm. Analysis of public-private constraints in foundation health agencies; experimentation and risk assumption; medical records; hospital liability, and governmental regulations.

385 International Business Law (4) Prereq: Jr or perm. Examines the laws, organizations, and principles that impact on business transactions in the international arena. Focuses upon the importance of international business in a global economy and upon the special legal issues facing businesses, large and small, that engage in international trade, franchising, licensing, or investment.
Courses / Business Law

198 Independent Study (1–5, max 5)
Prereq: perm. Projects concerning business technology explored with instructor in teams or one-to-one. Studies selected in subject areas in business field.

200 Introduction to Business Computing (4)
Focuses on PC-based applications used in business and industry, such as word processing, spreadsheets, databases, and presentation packages. Computer lab setting.

203 Business Career Profiles (3)
Practical approach to better understanding by students of what it is like to be one of them by management and what they can expect from management on any job or in any working situation by achieving a better grasp of the various activities and institutions found in the business community.

210 Managing Finance in Business (4)
Prereq: ATCH 103, or ACCT 101 and 102. Introduction to basic concepts, principles, and analytical techniques of finance. Emphasis on planning and managing assets.

220 Concepts of Purchasing Management (4)
Analysis of purchasing operation’s structure and procedure. Emphasis on quality, quantity, price analysis, sources of supply, and procurement controls. Vendor/buyer relationships, make-or-buy decisions, inventory control, buyer training, materials handling, records, and budgets.

230 Concepts of Sales (4)
Practices and procedures pertaining to planning sales effort and control of sales operations. Personality development and role of selling in society, careers, and psychology and philosophy as related to selling.

240 Concepts of Audience Analysis (3)
Prereq: not open to College of Business majors. Development of knowledge of behavior content of marketing in consumer fields. Examination of applicable theory and research findings and concepts provided by psychology, sociology, anthropology, and marketing. Emphasis on conceptual models of buyer behavior based on sources of influence.

250 Practical Personnel Procedures (4)
Hiring, training, assignment of work, employee counseling, promotion, wage and salary administration. Leadership, motivation, and direction of employees toward management/employee-oriented goals.

260 Business Report Writing (4)
Prereq: Tier I ENG; not open to College of Business majors. Practice in planning and writing effective business letters, memos, and reports.

270 Advertising Concepts (4)
General course in advertising which emphasizes psychology, advertising agency, media research, brands, and labels.

275 Managerial Planning (4)
Prereq: CTCH 125, CS 120, or OTEC 226. In-depth coverage of the planning process with emphasis on strategic planning. The case study approach is employed to develop skill in complex and difficult decision making. Applications in management science to assist in the decision process are covered.

280 Concepts of Labor and Management Relations (4)
A broad overview of micro and macroeconomic theory as applied to the labor factor of production; the many problems related to the full utilization of human resources and government policies addressing those problems; the effects of unionism and labor-management relations including collective bargaining.

285 Government and Business (4)
Business and government relations, with emphasis on analysis of selected areas involving public policy and business.

288 Computer Applications for Management (4)
Prereq: 275. Utilization of integrated software packages acquired in 200 and in comprehensive case-studies approach in business. Spreadsheet, data base management, word processing, and graphics applications used to create comprehensive business report that ties together overall curriculum.

289 Special Topics (1–5, max 5)
Advanced projects concerning business technology explored with instructor in teams or one-to-one. For advanced students only.

Business Management Technology (BMT)
The following courses for the A.A.B. in business management technology are available in the Chillcothe, Lancaster, and Southern campuses. These courses are not recommended for students in the College of Business.

101 Business and Its Environment (4)
Nature of business and of economic, social, and political environments of business firms. Emphasis on ways in which such surroundings affect business policies and operations.

110 Introduction to Management (4)
Nature of managerial concepts, managerial functions, and organizational structure, with emphasis on current issues.

115 Foundations of Quality and Continuous Improvement (4)
History of the quality movement along with the current thinking and best practices for organization effectiveness. The quality of management and its responsibilities for overall effectiveness will be emphasized.

120 Mathematics in Business (4)
Prereq: MATH 101 or equivalent. Application of basic math to business problems. Special emphasis on compound interest, installment buying, and depreciation. Elementary applications of probability and statistics. Introduction to computer programs commonly used in business math applications.

140 Concepts of Marketing (4)
Introduction to problems of manufacturers, wholesalers, and retailers as they relate to modern marketing, market, and product.

150 Elements of Supervision (4)
Concepts of modern-day supervision. Emphasis on supervisor’s major functions and development of sensitivity to human facets in management, using behavioral science findings.

170 Small Business Operations (4)
Includes preparation of student for selection and operation of small business. Balanced program of major aspects confronting small business operator, including finance, personnel, sales, and success and failure factors.

Chemistry (CHEM)

100D Peer-Led Team Learning Laboratory for Chem 151 (1)
Co-registration with Chem 151. Content appropriate discussion and problem solving conducted by a peer mentor in small group setting. Credit applies as hours toward graduation but meets no other college requirement.

100E Peer-Led Team Learning Laboratory for Chem 152 (1)
Co-registration with Chem 152. Content appropriate discussion and problem solving conducted by a peer mentor in a small group setting. Credit applies as hours toward graduation but meets no other college requirement.

100F Peer-Led Team Learning Laboratory for Chem 153 (1)
Co-registration with Chem 153. Content appropriate discussion and problem solving conducted by a peer mentor in a small group setting. Credit applies as hours toward graduation but meets no other college requirement.

100L Peer-Led Team Learning Laboratory for Chem 305 (1)
Co-registration with Chem 305. Content appropriate discussion and problem solving conducted by a peer mentor in a small group setting. Credit applies as hours toward graduation but meets no other college requirement.

100M Peer-Led Team Learning Laboratory for Chem 306 (1)
Co-registration with Chem 306. Content appropriate discussion and problem solving conducted by a peer mentor in a small group setting. Credit applies as hours toward graduation but meets no other college requirement.

101 Chemistry Applied to Today’s World (2A)
Designed for nonscience majors with little or no previous experience with chemistry. Applications of basic principles of chemistry to real world situations. Instruction will include multimedia and small group activities. 4 lec.

115 Preparation for College Chemistry (2)
Prereq: fr only, or perm. For students who have not had high school chemistry or have had inadequate preparation to enter regular chemistry sequence. Material presented includes metric system, atomic and molecular structure, formulas, equations, states of matter, and problem solving. Will not satisfy any part of natural sciences requirement of College of Arts and Sciences. 2 lec.

121 Principles of Chemistry I (4) (2N)
(fall, winter) Introduction to chemistry through study of atomic and molecular structure, periodic table, and states of matter. Credit not allowed for both 121 and 151. 3 lec, 3 lab.

122 Principles of Chemistry II (4) (2N)
Prereq: C- or better in 121, or 151. (winter, spring) Introduction to gases, solutions, acids, bases, and concept of equilibrium. Credit not allowed for both 122 and 152. 3 lec, 3 lab.

123 Principles of Chemistry III (4) (2N)
Prereq: 122 or 152 or perm. (spring, fall) Designed to survey organic chemistry and physical chemistry and their impact upon daily existence. 3 lec, 3 lab.

151 Fundamentals of Chemistry I (5) (2N)
Prereq: MATH 113 or placement Level 2 or higher; passing score on chemistry placement exam. (fall, winter, summer) General course in fundamental chemical principles. Atomic structure, periodic classification, bonding, mole concept, and
stochiometry with problem solving. Recommend- ed for majors in chemistry, engineering, biological sciences, plant biology, clinical laboratory science, geologic sciences, secondary education (S.S.Ed. in biological sciences, chemistry, physics, and integrated science), and preprofessional (biological sciences) and credit. Not allowed for both 121 and 151. 4 lec, 3 lab.

152 Fundamentals of Chemistry II (5) (2N)
Prereq: C- or better in 151 or perm. (winter, spring) States of matter; solutions, kinetics, acids, bases, and chemical equilibrium with problem solving. Credit. Not allowed for both 122 and 152. 4 lec, 3 lab.

153 Fundamentals of Chemistry III (5) (2N)
Prereq: 152 or perm. (fall, spring) Introduction to titations, buffers, thermodynamics, and redox. Study of the chemistry of transition metals and selected representative elements. Introduction to nuclear and radiochemistry. Lab includes qualitative analysis. 4 lec, 3 lab.

241 Quantitative Analysis (4)
Prereq: 153 and concurrent with 242. (fall) Intro- duction to quantitative techniques that include volumetric, gravimetric methods of analysis, and spreadsheet calculations. MS Excel for modeling and problem solving. Concurrent registration in 242 required. 4 lec.

242 Quantitative Analysis Laboratory (1)
Prereq: 241 and concurrent with 242. (fall) Laboratory work to accompany 241. Concurrent registration in 241 required. 3 lab.

301 Organic Chemistry (3)*
Prereq: 123 or 153, or concurrent. (winter, summer) Designated for students who are not B.S. chemistry majors and who do not require a full-year course in organic chemistry.

302 Organic Chemistry (3)*
Prereq: 301 or concurrent. (fall, spring) Continuation of 301. See 301 for description.

303 Organic Chemistry Laboratory (2)*
Prereq: 301 or concurrent. (fall, winter, spring) Designed for students who are not B.S. chemistry majors and other students wishing to acquire sound knowledge of classical and modern organic chemistry.

306 Organic Chemistry (3)*
Prereq: 305. (winter, summer) Continuation of 305. See 305 for description.

307 Organic Chemistry (3)*

308 Organic Chemistry Laboratory (3)*
Prereq: 306, or concurrent; major or perm. (winter) Emphasis on microscale synthesis, purification, and characterization of organic compounds. Designed for B.S. chemistry majors. 1 lec, 2 lab.

309 Organic Chemistry Laboratory (3)*
Prereq: 308 and 307 or with 307. (spring) Continuation of 308. See 308 for description.

325 Instrumental Methods of Analysis (4)
Prereq: 241 and 242. (winter) Survey of instrumental methods in chemical analysis. 3 lec, 3 lab.

345 Chemistry of Photography (4)
Prereq: 122 or 152 and ART 192. Basic chemistry of modern analog and digital photographic and photome- chanical materials and processes. 2 lec, 4 lab.

351 Physical Chemistry (4)
Prereq: MATH 163B or 26B, or perm and 153 (fall) Prereq: MATH 163B or 26B, or perm and 153 (fall) For premedical, B.S.Ed., B.S.I.H., and A.B. chemis- try majors. Topics include thermodynamics, thermo- chemistry, equilibrium, solutions, and kinetics.

376 Fundamentals of Inorganic Chemistry (3)
Prereq: 153. (winter) Inorganic topics related to structure, bonding, redox, HSAB and descriptive main group/transition metal chemistry, including complexes/organometallics. 3 lec.

400A Advanced Organic Laboratory (2)
Prereq: 307, 308. (winter) Advanced organic chemistry and techniques. 1 lec, 6 lab.

400B Advanced Inorganic Laboratory (2)
Prereq: 476. (winter) Advanced inorganic laboratory synthesis and techniques. Individual projects. 1 lec, 6 lab.

420 Chemical Literature (3)
Prereq: 24 hrs. Instruction in use of chemical litera- ture and application to scientific writing.

431 Chemical Separation Methods (3)
Prereq: C- or better in 241, and 351 or 453, or concurrent. (winter) Modern methods of separating components of complex mixtures with emphasis on operation and application to analytical chemistry. Topics include liquid-liquid extractions, partition chromatography, ion-exchange, gas chroma- tography, high pressure liquid chromatography, exclusion chromatography, and electrophoresis. Concurrent registration in 434 required for initial enrollment. 3 lec.

432 Chemical Instrumentation and Electrochemistry (3)
Prereq: C- or better in 241, and 351 or 453, or concurrent. (spring) Survey of modern electrochemical techniques and instrumentation with emphasis on their applications in analytical chemistry. Topics include potentiometry, specific ion electrodes, DC and AC polarography, pulse polarography, coulom- etry, chronocoulometry, cyclic voltammetry, and rapid scan voltammetry. Concurrent registration in 435 required for initial enrollment. 3 lec.

433 Spectrochemical Analysis (3)
Prereq: C- or better in 241, and 351 or 453, or concurrent. (fall) Survey of spectrochemical instru- mentation and applications in analytical chemistry. Topics include atomic absorption, atomic emission, molecular absorption and molecular emission and will cover emission-absorption phenomena in the X-ray, ultraviolet, visible, and infrared regions of electromagnetic spectrum. Concurrent registration in 436 required for initial enrollment. 3 lec.

434 Chemical Separation Methods Laboratory (1)
Prereq: 431 or concurrent. (winter) Laboratory work to accompany 431. 3 lab.

435 Chemical Instrumentation and Electrochemistry Laboratory (1)
Prereq: 432 or concurrent. (spring) Laboratory work to accompany 432. 3 lab.

436 Spectrochemical Analysis Laboratory (2)
Prereq: 433 or concurrent. (fall) Laboratory work to accompany 433. 4 lab.

451 Physical Chemistry (3)
Prereq: 153, MATH 283D or concurrent, PHYS 253. (fall) Calculus based study of thermodynamics with applications to chemical equilibria.

452 Physical Chemistry (3)

455 Physical Chemistry (3)
Prereq: 454. (spring) Continuation of 454. Quan- tum theory with applications to simple systems which model the electronic structure of atoms and molecules.

456 Physical Chemistry Laboratory (3)
Prereq: 351 or 453. Experimental determination of molecular vibrational and rotational properties, compo- sition of azetropes and complex ions, equilibrium constants, phase rule diagrams, and vibrational and rotational constants for HCl, DCl. Instrumental procedures include refractometry, polarimetry, viscometry, and infrared spectroscopy. 6 lab.

457 Physical Chemistry Laboratory (3)
Prereq: 456. Continuation of 456. 6 lab.

458 Chemical Thermodynamics (3)
Prereq: 455. (spring) Concepts of energy and entro- py and their use in predicting feasibility and extent of chemical reactions.

459 Physical Chemistry (3)
Prereq: 454. (spring) Continuation of 454. Topics include surfaces, solids, electrical conduction and transport properties, and polymers. (fall) Advanced organic chemistry and techniques and instrumentation. 1 lec, 6 lab.

460 Spectroscopic Methods in Organic Chemistry (3)
Prereq: 302 or 307. (winter) Modern spectroscopic methods in employed in organic chemical research: NMR, IR, mass spectrometry, and UV.

471 The Physical Chemistry of Macromolecules (3)
Prereq: 454. Effects of structure and molecular weight on physical and chemical properties of macromolecules. Topics include molecular weight distribution, solubility, polymer conformation, different types of polymer synthesis, and reac- tions. Both synthetic and natural polymers consid- ered.

476 Modern Inorganic Chemistry (4)
Prereq: 351 or 453 or with 351 or 453. (fall) Con- siderst relationship between physical and chemical properties of inorganic substances and nature of bonding and structures involved. 4 lec.

479 Radiobiology (4)
Prereq: 456. (fall) Laboratory work to accompany 478A. 4 lab.

480 Advanced Organic Chemistry (4)
Prereq: perm. (fall) Structural theory, stereochem- istry, reactive intermediates, and reaction mecha- nisms.

485 Introduction to Toxicology (4)
Prereq: 455 and concurrent. (spring) Introduction to chemical, clinical, environmental, and forensic aspects of toxicology, types of poisons, how poisons act, treatment of acute poisoning, and control of poisonous materials.

487A Forensic Chemistry (3)
Prereq: C or better in 431 and 433. Surveys chemi- cal problems most frequently encountered in crime labs and their currently acceptable solutions, as well as special techniques not covered in other analytical chemistry courses. 3 lec.

487B Forensic Chemistry (3)
Prereq: 487A or concurrent. Laboratory work to accompany 487A. 3 lab.

488A Special Topics in Forensic Science I (3)
Prereq: 431 or concurrent. Laboratory work to accompany 487A or 487B. Survey topics, which are not included in CHEM 489 or law enforcement technology (LET) courses, relevant to the modern crime lab. These topics will be focused on arson analysis and explosive analysis. Other topics such as toolmark/document identification, forensic entomology, and forensic photography will also be included.

488B Forensic DNA Analysis (3)
Prereq: 489 or 490 or concurrent. Survey of techniques and instrumentation used in the identification, extraction, and analysis of DNA obtained from forensic evidence. Topics include the identification and extraction of blood stains, DNA analysis by restriction fragment length polymorphisms, PCR amplified length and sequence polymorphisms, STR systems, and mitochondrial DNA sequencing. Electrophoretic techniques and statistical interpretation of data will also be covered.

489 Basic Biochemistry (4)
Prereq: 302 or 307 or perm. (fall) Survey course, including introduction to biochemical concepts and techniques, metabolic pathways, and informa- tion storage and transmission, with emphasis on directions of current biochemical research.

490 General Biochemistry I (4)

491 General Biochemistry II (3)
Prereq: 490. (winter) Bioenergetics, metabolism, and metabolic control systems. Physical chemistry recommended.
252 Courses / Chemistry

492 General Biochemistry III (3) Prereq: 491. (spring) Complex integrated biochemical systems.

493 Biochemical Techniques (3) Prereq: 490; biochemistry major or perm. (winter) Laboratory course using modern biochemical and molecular biology techniques including electrophoresis, chromatography, and enzyme kinetics. 6 lab.

494 Biochemical Research (1-5) Prereq: perm. (fall, winter, spring) Independent work in a biochemistry laboratory. Students will be assigned a research project which will use various biochemical research techniques. Students may enroll one or more quarters. 2–10 lab.

497 Forensic Chemistry Internship (3–10) Prereq: sr in Forensic Chemistry Program and perm. Supervised work in approved forensic science lab to gain practical experience. Oral and written reports required.

499 Undergraduate Research (1–5) Prereq: jr or sr with 2.75 g.p.a. in chemical courses and perm of department chair. Independent work for qualified upperclass majors in chemistry and related areas. Student may enroll one or more quarters.

*Credit is not allowed for both sequences of organic chemistry courses—301–302–303–304 and 305–306–307–308–309. Transfer from the middle of one sequence to the other may be possible, but is permitted only upon approval of the faculty in the courses involved.

Chinese
See Foreign Languages and Literatures.

Classics and World Religions (CLAR/CLAS/CLWR)

Classical Archaeology (CLAR)

211 Greek Archaeology (4) (25) Provides an introduction to Greek society as known from archaeology; covers the period from the Minoan and Mycenaean Bronze Age to 338 B.C. Special emphasis on the use of archaeological material, with an emphasis upon the cultural, artistic, and literary influences that contributed to the continuous change and development of Roman material culture, and emphasizes the Roman ability to adapt and innovate. Topics include the nature of Greek influence on Italian culture, the development of a characteristic Roman architecture, archaeological evidence for the economy, the development of public and private art styles, and the Roman provinces.

213 Near Eastern and Egyptian Archaeology (4) (25) Survey course tracing the initial development of complex urban states in Mesopotamia, Syria-Palestine, Anatolia, and Egypt from the Early Bronze Age to the Iron Age. Presents the main elements of society, art, and architecture in these major Near Eastern cultures. Topics include the role of religion in the early states, the rise of the absolute ruler, trade networks, and the growth of the Egyptian and Hittite empires.

352X Ancient Rome: Development of the City from the 8th Century B.C. to the 4th Century A.D. (4) Prereq: Any LAT course or CLAS 254 or CLAR 212 or HIST 3298. An introduction to the urban development of ancient Rome through an intensive on-site examination of its monuments and artifacts. The focus is on field work. While Rome is the focal point of the course for several days, we are also spent at Ostia and Pompeii to highlight aspects of Roman life not readily observable in modern Rome.

353X Reuses of Roman Antiquity (4) Prereq: soph. CLAS 254X concurrent. Focuses on two aspects of the reuse of antiquity: the reuse of spolia, fragments of Roman buildings, statuary, and inscriptions; the creation of new monuments and the way the idea of "empire" was used for propaganda in the Middle Ages. Sites include fragments of the city by Sixtus V, Napoleon, and Mussolini.

361 Greek Cities and Sanctuaries (4) Historical overview of the evolution of the ancient Greek city and of the principal Greek religious sanctuaries, and their role in the development to the topography and monuments of representative sites.

362 The Archaeology of Roman Cities (4) An archaeological study of Rome and other Roman cities from the 8th century B.C. to the fall of the Roman empire. Particular emphasis is placed on the physical remains as products of and evidence for the changing economy and political concepts that constantly revised the design and composition of Roman cities.

363 Aegean Archaeology (4) Uses archaeological evidence and methods to trace the development of the three main Aegean civilizations—Minoan, Cycladic, and Mycenaean—from the appearance of the first agricultural communities in the Neolithic period (6000 B.C.) to the widespread destruction and subsequent economic decline at the end of the Bronze Age (1100 B.C.). Focuses on the archaeological evidence for state formations and the internal and external influences that shaped the palace complexes on Crete and in Greece.

364 Craft and Technology in the Roman World (4) The purpose of this course is to introduce students to the ways in which different types of ancient objects were created. We examine the tools and processes used to create objects of iron, bronze, marble, glass, and terracotta. Various types of modern analysis are also discussed to show how advances in technology affect our understanding of the ancient world. A large goal of the course is to impart a better understanding of the relationship between the development of technology and political/economic changes in connection with changing attitudes and desires of the Roman people in different parts of the Roman Empire.

451 Mycenaean Society (4) Examines Mycenaean society primarily from the information in Mycenaean texts including original Linear B texts, put into perspective through the use of archaeological material. Examines the development and political structure of Mycenaean society in the Aegean to record different aspects of the palace topic. Topics include the social structure within and outside the palaces, agriculture, craft production, trade, the demise of the palace economic system, and the relevance of the Homeric poems to our understanding of Mycenaean society. (No linguistic prerequisite.)

Classics in English (CLAS)
The lectures and readings for these courses are in English, and the courses may count as part of the humanities requirement of the College of Arts and Sciences. These courses cannot count as part of the foreign language requirement of the College of Arts and Sciences.

127 Greek and Latin Words in English (4) (2H) General and technical vocabulary derived from Greek and Latin is an essential requirement of Greek or Latin. No credit toward theory or foreign language requirement.

227 Greek and Latin Roots in Biomedical Terminology (4) This course teaches the user a vast number of Greek and Latin linguistic elements (bases, prefixes, suffixes, etc.) and basic linguistic principles useful to anticipation and understanding of biomedical terminology via etymology.

231 Human Aspirations Among the Greeks and Romans (4) (2H) A study of the hopes and goals that shaped the lives of individuals and societies in the ancient Western tradition. Topics include financial success, respect, pleasure, wisdom, national well-being, and salvation of the soul. The reading list involves extensive reading of Greek and Latin literature in English translation.

234 Classical Mythology (4) (2H) Introduction to classical mythology; readings and discussions of myths and their interpretations. No knowledge of Greek or Latin required. No credit toward meeting foreign language requirement.

235 Classics in Translation (4) (2H) Reading of Greek and Latin in English translation. May be counted as part of requirements for humanities of College of Arts and Sciences. No knowledge of Greek or Latin required. No credit toward meeting foreign language requirement.

236 Classics in Translation (4) (2H) Continuation of 235.

237 Classics in Translation (4) (2H) Continuation of 236.

252 Classical Athens (4) (2H) Study of classical Athenian culture and the people to whom the gods are known from the written texts and archaeological remains of the period.

253 Alexander the Great and the Hellenistic World (4) (2H) An interdisciplinary approach to life and thought in the Hellenistic world from the conquests of Alexander the Great to ascendency of Rome in the eastern Mediterranean (fourth to first centuries B.C.). The course content is based on archaeological, historical, and literary sources.

254 Rome under the Caesars (4) (2H) An interdisciplinary approach to life and thought in Rome from the reigns of Augustus through Marcus Aurelius (27BC-AD180) based on archaeological, historical, and literary sources.

255 Pagan to Christian in Late Antiquity (4) (2H) An interdisciplinary approach to the dramatic changes that occur in ways of looking at the individual and his place in the world during the 4th through 6th centuries of our era as paganism is replaced by Christianity as the dominant religious view. The geographical focus are Rome and Constantinople. The sources are textual, artistic, and archaeological.

301 Love in Antiquity (4) Reading and discussion of the literary and philosophical treatments of love in Greek-Roman tradition. All readings are in English translation. No knowledge of Greek or Latin required.

311 Gods and Heroes in Greek Epic (4) A survey of the history, literature, and values of the Greek Heroic period: Mycenaean heroes (Achilles, Agamemnon, Ajax, Odysseus, Jason, etc.), and the Epic tradition ( Homer, Hesiod, Apollonius) who passed on their stories to later generations of Greeks.

312 Greek Tragedy (4) A survey of Greek tragedy in English translation: extensive reading from Aeschylus, Sophocles, and Euripides. Study of the historical and cultural setting and the literary aspect of the plays.

313 Greek Sophists and Orators (4) An introduction to the new modes of oratory and argumentation which flourished in the context of 5th-century B.C. Greek democracy.

343 Women in the Ancient Mediterranean (4) Prereq: soph or WS 100. Survey of aspects of women’s lives in ancient Greece, Rome, Egypt, and Mesopotamia based on recent archaeological material, with an emphasis upon the cultural biases inherent in the sources.

351X On-Site Survey of Greek History (4) A survey of Greek history from Mycenaean to modern times, with particular attention to sites on the itinerary of the study abroad program in Greece.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>181</td>
<td>Introduction to Religion (4) (2H)</td>
<td></td>
<td>An examination of Roman life from a number of perspectives emphasizing the Roman family, sexual attitudes, slavery, and the economy. Attention given to the means by which classicists draw conclusions about ancient Roman life and social attitudes.</td>
</tr>
<tr>
<td>481</td>
<td>Myth and Symbolism (5)</td>
<td></td>
<td>Prereq: 3 CLWR courses. Characteristic expressions of thought in primitive societies and theories concerning primitive mentality.</td>
</tr>
<tr>
<td>482</td>
<td>Thinking About Death (4)</td>
<td></td>
<td>Prereq: 3 CLWR courses. Study and analysis of human thought and practice regarding death.</td>
</tr>
<tr>
<td>483</td>
<td>Contemporary Religious Thought (5)</td>
<td></td>
<td>Prereq: 3 CLWR courses. Representative thinkers such as Tillych, Buber, and others.</td>
</tr>
<tr>
<td>491</td>
<td>Senior Research Writing (4)</td>
<td></td>
<td>Prereq: 490. Writing a scholarly paper based on research in World Religions.</td>
</tr>
<tr>
<td>498</td>
<td>Independent Study in Classical Literature (1–8, max 8)</td>
<td>Perm.</td>
<td>Directed individual reading and research.</td>
</tr>
<tr>
<td>301</td>
<td>Old Testament (5) (2H)</td>
<td></td>
<td>Background and development of Old Testament; its philosophical, moral, and religious significance.</td>
</tr>
<tr>
<td>305</td>
<td>Asceticism: Virgins, Monks and Hermits (4)</td>
<td></td>
<td>Prereq: soph. Examination of asceticism—the rejection of physical pleasure and material wealth—as philosophical and religious ideal in pagan and Christian communities in the world. This course will focus on reading ancient texts in translation.</td>
</tr>
<tr>
<td>306</td>
<td>Religion and Violence (4)</td>
<td></td>
<td>Prereq: soph. Examination of religious violence by studying historical case studies from different religious traditions. Themes include divine punishments against humans, martyrdom, forced conversions, persecutions, holy wars, and the importance of religion in contemporary conflicts.</td>
</tr>
<tr>
<td>311</td>
<td>Islam (4) (2C)</td>
<td></td>
<td>Prereq: soph. Introduction to basic ideas, history, and background.</td>
</tr>
<tr>
<td>321</td>
<td>Hinduism (4) (2C)</td>
<td></td>
<td>Prereq: soph. Introduction to the doctrines, origins, and varieties.</td>
</tr>
<tr>
<td>331</td>
<td>Buddhism (4) (2C)</td>
<td></td>
<td>Prereq: soph. Introduction to the doctrines, origins, and varieties.</td>
</tr>
<tr>
<td>341</td>
<td>Taoism (5)</td>
<td></td>
<td>Prereq: jr. or perm. A historical survey of philosophical and religious Taoism from the 3rd century B.C. to the 18th century.</td>
</tr>
<tr>
<td>361</td>
<td>American Religions (4)</td>
<td></td>
<td>Prereq: jr. (or demand) Christianity, Judaism, and other religions and developments in U.S.</td>
</tr>
<tr>
<td>385J</td>
<td>Writing on Religion (4) (1J)</td>
<td></td>
<td>Prereq: first year comp, 181, jr. or perm. Study of vocabulary and communication problems in written expression and analysis of religious phenomena. Writing projects in various styles, from reports of personal experience to scholarly research.</td>
</tr>
<tr>
<td>387</td>
<td>Theories of Religion (4)</td>
<td></td>
<td>Prereq: soph. Introduction to the theories of religion, the hermeneutics of suspicion, the hermeneutics of the sacred, the sociology of religion, historical approaches to the study of religion, and the feminist critique.</td>
</tr>
<tr>
<td>442</td>
<td>Confucianism (4)</td>
<td></td>
<td>Prereq: 3 courses CLWR. Examination of the texts associated with Confucius and their history, including religious, social, and intellectual aspects.</td>
</tr>
<tr>
<td>471</td>
<td>African Religions (4)</td>
<td></td>
<td>Prereq: 3 courses CLWR. Study of the worldviews of African traditional cultures expressed in myths, art, beliefs, and practices.</td>
</tr>
<tr>
<td>472</td>
<td>Vedic civilization (4)</td>
<td></td>
<td>Prereq: 3 courses CLWR. Study of the worldviews of Vedic civilization expressed in myths, art, beliefs, and practices.</td>
</tr>
<tr>
<td>473</td>
<td>Hindu civilization (4)</td>
<td></td>
<td>Prereq: 3 courses CLWR. Study of the worldviews of Hindu civilization expressed in myths, art, beliefs, and practices.</td>
</tr>
<tr>
<td>474</td>
<td>Buddhist civilization (4)</td>
<td></td>
<td>Prereq: 3 courses CLWR. Study of the worldviews of Buddhist civilization expressed in myths, art, beliefs, and practices.</td>
</tr>
</tbody>
</table>

**Communication Studies (COMS)**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
<th>Prerequisites/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Fundamentals of Human Communication (4) (2H)</td>
<td></td>
<td>Prereq: soph. Study of oral communication in human relationships with focus on variety of contexts including dyadic, small group, and public communication processes. Mass iec.</td>
</tr>
<tr>
<td>104</td>
<td>Listening (4)</td>
<td></td>
<td>Improvement of listening skills through intensive practice.</td>
</tr>
<tr>
<td>110</td>
<td>Communication Between Cultures (4)</td>
<td></td>
<td>The purpose of the course is to explore the role of communication in understanding, accepting, and appreciating cultural differences. Students in this course will understand that culture includes not only issues of nationality, ethnicity, and race, but also gender, socioeconomic status, age, etc. Using a number of co-cultural, cross-cultural, and intercultural examples, students will explore how communication is a key component of bridging cultural differences.</td>
</tr>
<tr>
<td>117</td>
<td>Beginning Forensics (1–3, max 9)</td>
<td></td>
<td>Students prepare for competition in oral interpretation, public speaking, and/or debate as part of the Ohio University Forensics Team. Travel to a weekend tournament at another university is required to earn credit. Number of credits depends upon number of performances prepared for competition.</td>
</tr>
<tr>
<td>205</td>
<td>Techniques of Group Discussion (4)</td>
<td></td>
<td>Study of structure and dynamics of small groups, nature and functions of leadership, group participation, problem solving, and decision making; frequent participation in group discussion activities.</td>
</tr>
<tr>
<td>206</td>
<td>Communication in Interpersonal Relationships (4)</td>
<td></td>
<td>Provides maximum experience in study of communication in face-to-face interaction. Exploration of communication variables, and skill development in message generation in one-to-one informal settings.</td>
</tr>
<tr>
<td>215</td>
<td>Argumentative Analysis and Advocacy (4)</td>
<td></td>
<td>Prereq: C or better in 103. Basic principles of argumentative discourse including concepts of presumption, burden of proof, rhetorical forms of reasoning, and evidence. Practice in applying these principles.</td>
</tr>
<tr>
<td>217</td>
<td>Advanced Forensics (1–3, max 12)</td>
<td></td>
<td>Prereq: 117 or perm. Students prepare for competition in one or more individual events and/or debate as part of the Ohio University Forensics Team. Attendance at tournaments is expected.</td>
</tr>
<tr>
<td>220</td>
<td>Oral Interpretation of Literature (4)</td>
<td></td>
<td>Techniques of oral interpretation and development of adequate intellectual and emotional responsiveness to meaning of literature.</td>
</tr>
<tr>
<td>235</td>
<td>Introduction to Communication Theory (4)</td>
<td></td>
<td>Prereq: COM or perm; sophomore or jr or sr; no cr or 234 or 250. To identify the purposes, history, and application of key social and rhetorical theories of communication through reading and discussing classic works of communication theory. To understand issues of epistemology, ontology, and axiology when discussing the goals and methods related to relevant theories.</td>
</tr>
<tr>
<td>240</td>
<td>Introduction to Health Advocacy (4)</td>
<td></td>
<td>Prereq: C or better in 235. Concerned with issues in the theory and practice of health communication. Topics include provider/patient communication, organizational communication in health care delivery systems, communication in community/consumer health education, information technologies in health communication, communication in support systems for the elderly, disabled, and terminally ill, and communication training for health care professionals.</td>
</tr>
<tr>
<td>245</td>
<td>Introduction to Organizational Communication (4)</td>
<td></td>
<td>Prereq: C or better in 235. To introduce students to the theoretical, philosophical, and methodological influences integral to legal and political communication research. To aid in the development of students’ understanding of the sources through readings, class discussions, writing assignments, examinations, and presentations. To provide a theoretical and technical vocabulary of legal and political communication research that will extend beyond graduation for successful advancement in the major.</td>
</tr>
<tr>
<td>300</td>
<td>Field Research Methods in Communication (4)</td>
<td></td>
<td>Prereq: C or better in 235. Discussion and application of communication data collection methods such as content analysis, participant observation, questionnaire design, sampling procedures, case studies, and unobtrusive measures.</td>
</tr>
<tr>
<td>301</td>
<td>Empirical Research Applications in Communication (4)</td>
<td></td>
<td>Prereq: C or better in 235; MATH 113 or higher; no credit if PSY 221 or QBA 201 or MATH 251. Provides undergraduates with principles and basic skills necessary to critique research literature; develops minimal proficiency in structuring designs basic to descriptive and experimental studies, including data collection, analysis, and presentation techniques in communication research.</td>
</tr>
<tr>
<td>303</td>
<td>Rhetorical Analysis and Criticism (4)</td>
<td></td>
<td>Prereq: C or better in 235. Studies the approaches and methods of modern rhetorical critics. Emphasizes research and writing skills for a critical evaluation of rhetorical artifacts.</td>
</tr>
</tbody>
</table>
Courses / Communication Studies

397T Communication Studies Tutorial (1–15)
Prereq: Honors Tutorial College and perm.

398T Communication Studies Tutorial (1–15)
Prereq: Honors Tutorial College and perm.

304 Principles and Techniques of Interviewing (4)
Prereq: jr. Methods used in two-party, face-to-face oral communicative situations commonly encountered in organizational and professional environments. Intensive practice through role-playing and real-life interviews inside and out of class, emphasizing skills involved in giving and getting information, persuasion, and job-employment situations.

306 Interpersonal Conflict Management (4)
Prereq: jr. Analysis of the communication dynamics involved in managing interpersonal and organizational conflicts. Examination of theory and research related to conflict management. Emphasis on case studies and role-playing conflicts in various interpersonal and group settings.

310 Information Diffusion (4)
Prereq: jr or sr. This course provides an understanding of information diffusion theory, which seeks to explain the process through which new ideas (innovations) spread over time via communication channels among the members of a social system. It especially emphasizes the relevance, practicality, and usefulness of diffusion theory in interpersonal, group, organizational, and mass communication settings, with an emphasis in areas of public education, health, and policy. The course focuses on factors that speed or hinder innovations and the critical points of interface between information dissemination systems and end users.

315 Advanced Argument and Debate (4)
Prereq: jr or sr; C or better in 215. Purpose of course is to familiarize student with argumentation, rhetoric, and communication skills used in legal process. Advanced argument and debate course with legal issues used as basis for arguments.

320 Women and Health Communication (4)
This course focuses on the unique communication issues for women in health-related settings. Topics include the accomplishment of relational, informational, and medical goals for women; health-care seekers, as well as the challenges of offering and seeking social support in contemporary society.

345 Advanced Organizational Communication (4)
Prereq: 245. This course builds upon and extends the conceptual foundations of organizational communication through analysis and critical examination. Students will read, discuss, and write about advances in contemporary organizational communication thought, practices, and research orientations.

351 Courtroom Rhetoric (4) (2S)
Prereq: C or better in 235. Famous cases and methods of communication of masters of courtroom and judicial oratory. Cases, trials including Cicero, Lipsett, O’Neal, Erskine, Hastings, Marshall, Webster, Darrow, Sacco-Vanzetti.

352 Political Rhetoric (4) (2S)
Prereq: C or better in 235. Rhetorical techniques found in political discourse are examined. Topics covered include symbolic politics, the place of myth in politics, and the political elements of film, literature, and television.

353 Contemporary Culture and Rhetoric (4) (2S)
Prereq: C or better in 235. Explores the relationship between rhetoric and contemporary culture. Contemporary theories of rhetoric are examined and used to study communication in contemporary cultural contexts. Issues involving identity and power, in particular, will be discussed.

397 Communication Studies Tutorial (1–15)
Prereq: Honors Tutorial College and perm.

403 Advanced Presentations (4)
Prereq: mjr; jr, or sr or 103. This course will build on the knowledge and skills developed in COMS 103. Students will learn how to make presentations to the classroom and to the wider public, longer presentation times, and/or adaptation to diverse audiences. Particular attention will be given to developing competence with presentation technology.

405 Meeting and Conference Planning (4)
Prereq: jr, C or better in 205. Theoretical and methodological foundations of group and conference leadership. Emphasis on leadership methods and skills as they apply to group and conference situations.

406 Advanced Interpersonal Communication (4)
Prereq: C or better in 206. An examination of communication theories relevant to the study of interpersonal communication. Attention will be given to communication involved in initiating, developing, maintaining, repairing, and disengaging from interpersonal relationships.

410 Cross-Cultural Communication (4)
Prereq: Jr. Analysis of processes and problems of communication as affected by national cultures; effects of differences in language, values, meaning, perception, and thought.

411 Communicating with People with Disabilities (4)
Examines the implications of communication between the physically disabled and able-bodied individuals/groups. The course utilizes simulated exercises, video presentations, field trips, and outside guest lectures to increase the student's reasonable exposure to the disabled community.

420 Gender and Communication (4)
Prereq: 101 or C or better in 206. Explores variations in communicative behaviors related to biological sex and psychological gender. Examines female and male communication in intrapersonal, interpersonal, small group, public, and organizational settings.

421 Instructional Training and Development in Communication (4)
Prereq: 234 or C or better in 235. Provides upper-level undergraduate with an opportunity to learn how to design instructional training programs beginning with the needs assessment and continuing through the evaluation phase. Combination of lecture/discussion and student presentations.

422 Communication in the Family (4)
Prereq: 101 or C or better in 206. Examination of the communication concepts basic to understanding interaction in the family. Provides a framework for analysis of family communication. Explores communication issues that relate to family interaction, including conflict, power, intimacy, and the development of relationships. Presents a model of effective communication in the family. Consideration of verbal and nonverbal communication behaviors.

430 Communication and the Campaign (4)
Prereq: 342. Theory and practice of persuasion and management in campaign situations (political, religious, institutional, fundraising, advertising, etc.). Students may participate in local, state, or national campaigns, or do an in-depth research paper.

442 Responsibilities and Freedom of Speech in Communication (4)
Prereq: jr. Ethical and rhetorical implications of constitutional guarantees on political, social, and religious speech; analysis of effects of famous legal cases on freedom of speech.

445 Practicum in Communication (4)
Prereq: sr; mjr; 240, 245, or 260; Students assume roles in an internal real-to-life organization and engage in a consulting or training project with a client. Opportunity to apply theories and skills developed in major.

448 Rhetoric and Electronic Media (4)
Prereq: jr. This course examines meaning-making via the electronic symbol, verbal and graphic. Classes will alternate between theoretical discussions of theory and close examination of radio, hypertext (online via the World Wide Web and stored on CD-ROM), e-mail, word processing, and television—especially in contrast to print and speech.

450 Capstone Seminar in Communication (4)
Prereq: mjr; sr. This course presents a seminar treatment of current or topical interest in communication studies. The topic will vary with instructor expertise and relevance. During the seminar, students will synthesize and integrate concepts from multiple areas of communication.

470/570 Effective Classroom Communication for Teachers and Trainers (4/5)
Course focuses on interpersonal communication in classroom environment, with particular emphasis on communication between students and teachers. Taught in intensive format only during summer session.

471/571 Nonverbal Communication for Teachers and Trainers (4/5)
Course focuses on the nonverbal behaviors used by students and teachers and the impact of those behaviors on student/teacher relationships. Taught in intensive format only during summer session.

472/572 Communication in Your Workplace: Strategies for Teachers and Administrators (4/5)
Course focuses on the organizational communication variables that operate within the classroom, school, community, and state. Increases the abilities of teachers and administrators to understand and respond to the various organizational constituencies to which they are accountable. Taught in intensive format only during summer session.

473/573 Effective Listening and Small Group Communication for Teachers and Trainers (4/5)
Course focuses on steps to more effective listening and working in small groups. Designed to familiarize teachers and trainers with the keys to active listening, the stages of group development and decline, how to manage groups, and improving their cooperation and productivity. Taught in intensive format only during summer session.

474/574 Family Communication for Teachers and Trainers (4/5)
This course explores issues of family communication for classroom teachers and organizational trainers. The definition and nature of contemporary families are explored. Children's views of the family and peer relationships are highlighted. Conflict, stress, decision making, and problem solving are discussed. Special activities for the teacher and trainer are provided. Taught in intensive format only during summer session.

475/575 Instructional Communication Assessment for Teachers and Trainers (4/5)
Examination of test construction and grading practices, procedures, and formats. Analysis of underlying assumptions and philosophies of assessment in education. Emphasis on the alignment among objectives, testing practices, and evaluation procedures. Taught in intensive format only during summer session.

476/576 Children's Conflict and Mediation for Teachers and Trainers (4/5)
This course focuses on the design and implementation of peer mediation and conflict resolution programs within elementary and secondary school systems. Course content includes discussion of children's communication development and development of conflict management ability, the rationale underlying and challenges involved with implementing peer mediation and approaches to training youngsters in mediation and conflict management communication skills. Taught in intensive format only during summer session.
302 Fundamentals of Common Carrier Regulation (4)

304 Applications of Common Carrier Regulation (4)
- Prereq: C or better in 302, major. Provides applications of the materials learned in 302. Topics include the tariffing process, rate making methodologies, the Computer Inquiries, and regulation of emerging technologies.

310 Technological Basics of Communication Systems (4)
- Prereq: 220 and 222, major. Investigation of the technical issues common to all communications systems. Topics include basic electrical and electromagnetic theory, components of circuits and components, and operation of the telephone and other communications equipment.

312 Technology of Voice/Data Systems (3)
- Prereq: 310, major. Basic laboratory experience in the technologies commonly found in voice and data telecommunication systems. Students design, examine, and build basic telecommunication circuits, and develop both competency in the use of telecommunication test equipment and skills in system problem analysis.

325 Data Networks (4)
- Prereq: 220 and 222, major. Provides the understanding needed to use telecommunication protocols and access methods to design and implement applications software in a data communication environment. Topics will include: TCP/IP, selected other protocols, and the OSI model.

379 Protection of Communication Systems (3)
- Prereq: 220, 222, major. Examination of security and protection of communications systems and networks. Topics will include disaster prevention and recovery, securing voice and data systems against hackers, and securing sensitive information.

391 Topical Seminar (3–4)
- Prereq: 220, 222, major. Specialized topics, taught by faculty or visiting professionals. Illustrative examples have included wireless communications, voice applications, encryption, and voice over IP.

401 Internship in Communication (1–12)
- Prereq: written proposal and perm. Internship with approved company, agency, or organization. Application necessary; comprehensive paper required. Students may not apply both 401 and 495 toward COMT elective requirement.

405 Competition and Market Structure in Network Industries (4)
- Prereq: 304, 310, major. An in-depth analysis of policy and market issues of fundamental concern to the voice/data communication environment. Examples of such issues could include markets for bandwidth, antitrust and software markets, cost allocation, and data network traffic pricing.

407 International Communication Networks (4)
- Prereq: 302, 310, major. A study of international communication organizations (PTTs, the ITU, etc.), international satellite organizations, and other international record carriers. The course will explore current issues in international standards and regulations.

429 Communication Network Analysis and Design (4)
- Prereq: 220, 222, major. An extensive examination of the process of designing communications networks. Topics will include statistical distribution of voice, data, and image traffic; definition of limitations in communication networks; and experiences in modeling various network topologies.

431 Senior Seminar (2)
- Prereq: 302, 222, major. Weekly discussions with faculty and telecommunication professionals; position papers required for discussion and presentation.

444 Management of Communication Resources (4)
- Prereq: 304, major. Case studies in costing communication carriers; developing and responding to NPRFBURQs; and needs analysis of communication installations. Extensive paper required.

475 Internet Engineering (4)
- Prereq: 220, 222, major. Internet status and future, including IP addressing, DNS, DHCP, and utilities such as ping and traceroute. Router configuration and operating systems, Linux and Windows.

491 Topical Seminar (3–4)
- Prereq: 302, 310, major. Specialized topics taught by faculty or J. Warren McClure Distinguished Visiting Professor. Illustrative examples have included privacy and GIS in telecommunications.

493 Special Studies (1–4, max 12)
- Prereq: 214, major, and proposal. Independent study, supervised by faculty.

495 Practicum in Communication Systems (3–5, max 12)
- Prereq: perm. Faculty-supervised first-hand experience with installing, designing, configuring, maintaining, or otherwise managing communication systems. A written report is required. Students may not apply both 401 and 495 toward COMT elective requirement.

Computer Science (CS)

120 Computer Literacy (4)
- Prereq: MATH 101 or Placement Level 1 (fall, winter, spring) Basic computer course for students from different disciplines who are expected to use computers in an academic environment. Emphasis is on concepts—what the student needs to know about computer systems, essential applications, internet options, and computer security and ethical concerns in an information age. Lab emphasis is on skills—what the student needs to practice to be proficient with word processing, spreadsheets, database management systems, presentation graphics and web pages as problem-solving tools. No credit if CS major; no credit if MIS 100 or HIS 309.

190 Workshop in Computer Applications (5-5)
- Short courses in specific topics in computer applications. Lecture and applications. No credit/no grade on such subjects as the internet, word processing, spreadsheets, and databases. Students seeking credit must complete project determined by instructor. Graded credit/no credit.

210 Programming in C (5)
- Prereq: MATH 113 or placement level 2 or 263A or 163. A first course for students with no programming background who intend to continue with more advanced programming classes. Basic programming and program structure, computer organization, data representation, control structures, manipulation of strings, arrays, structures, and pointers. Computer solutions to a variety of problems using the C programming language. Debugging and verification techniques.

220 Introduction to Computing (5) (IM)
240A Introduction to Computer Science (5)
Prereq: MATH 115 or math placement level 3 or MATH 263A; 210 or perm. (fall, winter, spring, summer) An intensive introduction to the process of algorithmic problem solving in a computing environment. Topics include problem definition and specification, algorithm design, efficiency and validity of implementation. Serves as an introduction to advanced topics in computer science for students with previous programming experience.

240B Introduction to Computer Science (4)
Prereq: 240A, MATH 263A, EE 102 (fall, winter, spring) Introduction and application of standard data structures and their operations, abstract data types and encapsulation, sorting, searching, storage management and complexity of algorithms. Continuation of 240A.

240C Introduction to Computer Science (4)
Prereq: C or better in 240B, MATH 263B; 265 or EE 103 (fall, winter, spring) One large program will be developed by the student with design guidance from the instructor. This course will synthesize the material from 240A and 240B into a disciplined approach to design and development using current software engineering principles and practices for specification, design, coding, and testing.

265 Computer Ethics (1)
Prereq: MATH 263A (fall, spring) An investigation into the ethical dimensions of computer technology. The course begins with an overview of the dominant traditions within computer ethics. These theories are then used as a framework within which students consider specific ethical topics germane to computing and information technology. Topics include censorship, intellectual property, privacy, and the obligations and implications of cyber-relationships.

297T Computer Science Tutorial (1–15)
Prereq: HTC students only. (fall) First-year tutorial studies in computer science.

298T Computer Science Tutorial (1–15)
Prereq: HTC students only. (winter) Second-year tutorial studies in computer science.

299T Computer Science Tutorial (1–15)
Prereq: HTC students only. (spring) Third-year tutorial studies in computer science.

300 Introduction to Discrete Structures (5)
Prereq: 240A. (fall, winter, spring) Review of set algebra including mappings and relations. Algebraic structures including semi-groups and groups, and concepts of theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computer science.

309 Co+ for Non-majors (4)
Prereq: 210 or 230 or ET 181. Designed to teach the Co+ language to technically able students with previous programming experience who are not majoring in Computer Science. Deals with various topics including the syntax and semantics of C++, modular design of programs, functions, and subroutines, selection and application of data structures, classes, arrays, abstract data types (ADTs), and their separate compilation of modules. Includes a brief introduction to the string class and template classes.

320 Organization of Programming Languages (5)
Prereq: C or better in 240B, 300. (winter, spring) Formal definition of programming languages, including specification of syntax and semantics. The imperative, object-oriented, functional, and logic programming language paradigms are discussed. Names, binding, storage allocation, type checking, and scopes in the major programming languages. Programming language design issues including data types, expressions, assignment statements, control structures, and subprograms. Runtime representation of program and data structures.

361 Data Structures (5)
Prereq: 300, 240C. (fall, spring) Basic concepts of data. Linear lists, strings, arrays, and orthogonal lists. Representation of trees and graphs. Storage systems and structures and storage allocation and collection. Multilinked structures. Symbol tables and searching techniques. For each data structure, data structures in programming languages, and generalized data management systems.

397T Computer Science Tutorial (1–15)
Prereq: HTC students only. (fall) Second-year tutorial studies in computer science.

398T Computer Science Tutorial (1–15)
Prereq: HTC students only. (winter) Second-year tutorial studies in computer science.

404 Design and Analysis of Algorithms (5)
Prereq: 361. (fall, winter) The course provides an introduction to the modern study of computer algorithms. Topics include correctness of algorithms, analysis of iterative and recursive algorithms, worst-case, best-case, and average-case behavior, design of algorithms, divide and conquer algorithms, the greedy method, graph searching, and dynamic programming techniques. Selected additional topics may include computational geometry or NP-completeness.

406 Computation Theory (5)
Prereq: 300. (fall) A study of the fundamentals concerning formal language theory and the theory of computation are explored. Topics include basic models of computation, Turing machines, decidability and undecidability, computational complexity, NP-completeness, and diagonalization.

410 Formal Languages and Syntactic Analysis (5)
Prereq: 320, 361. (winter) Practical and formal aspects of compilers related to the lexical and syntactic analysis stages of compilation are explored. The relationships among regular expressions, deterministic finite automata, and nondeterministic finite automata are presented. The relationship between context-free grammars and pushdown automata is also explored. Practical parsing algorithms are examined, including bottom-up, top-down, and recursive descent strategies.

442 Operating Systems and Computer Architecture I (5)
Prereq: 361, EE 395A. (fall, winter) In-depth coverage of computer operating systems and related computer architecture issues. Coverage of physical devices, interrupts, and communication between the computer and external hardware. Interfaces between programs and the operating system, system calls, software interrupts, and protection issues. Context switching, process address spaces, and process scheduling. Process synchronization, interprocess communication, critical sections, and deadlock detection and recovery. Memory mapping, swapping, paging, and virtual memory.

444 Data Communications (5)
Prereq: 442. (spring) In-depth coverage of computer-to-computer and program-to-program communication over modern computer networks focusing on the TCP/IP protocol family. Review of data communication issues, physical address binding, bridging, Ethernet, and Token Ring. Internetwork protocols, routing, domains, networks, and subnetworks. Transport protocols, reliability, flow control, retransmission, and acknowledgment. Distributed systems, server and client issues including verification, and authentication. High-level protocols and applications including e-mail, file sharing, remote terminal interaction, and the World Wide Web.

456 Software Design (5)
Prereq: 361; 320 or EE 352 (fall, spring). This course provides the software engineering approaches to mathematical invention. Objectives include the study of effective software development techniques, and/or solved by individual student or small group working in close relationship with instructor. Suitable problems might include construction of compiler for special purpose artificial language, perfection of computer code to solve some significant problem, or study of coherent subfield of computer science. May be repeated for credit.

458 Operating Systems and Computer Architecture II (5)

462 Database Systems I (5)
Prereq: 361. (winter, spring) Introduces fundamental concepts in data modeling and relational database systems. Begins with the entity-relationship (ER) modeling technique as a tool for conceptual database design. The relational data model and relational algebra are introduced next, followed by the SQL query language for relational databases. Functional dependencies, normalization, and relational database design algorithms are then discussed.

475 Internet Engineering (4)
Prereq: C or better in MATH 101. Introduces fundamental concepts in data modeling and relational database systems. Begins with the entity-relationship (ER) modeling technique as a tool for conceptual database design. The relational data model and relational algebra are introduced next, followed by the SQL query language for relational databases. Functional dependencies, normalization, and relational database design algorithms are then discussed.

490 Special Problems in Computer Science (1–6)
Prereq: jr; 3 400-level courses below 490. Special project in 1 of various subfields of computer science or application area studied, investigated, and/or solved by individual student or small group working in close relationship with instructor. Suitable problems might include construction of compiler for special purpose artificial language, perfection of computer code to solve some significant problem, or study of coherent subfield of computer science. May be repeated for credit.

496 Computer Science Internship (1–5, max 15)
Prereq: perm.

Computer Science Technology (CTCH)
The following courses for the A.B.B. in computer science technology are available only on the Chico State, Lancaster and Southern campuses.

125 Introduction to Computers (4)
Prereq: MATH 101 or higher placement. Introduction to computer hardware, productivity software within the framework of business applications, involves hands-on use of software, including Windows, word processing, spreadsheets, presentation graphics, the Internet, and e-mail.

127 Introduction to Website Management (4)
Introduction to Website management principles, skills, techniques, strategies, hardware, and software necessary to operate and maintain a successful Website or Intranet. Emphasis on how to maximize the usability of a website while maintaining the structure necessary to allow the site to change and grow.

133 Programming and Design I (5)
Prereq: MATH 101 or higher placement. Introduction to structured design and computer programming. Studies design, program, test, and debug business applications. Emphasis is on top-down logic design and modular-structured programming.

134 COBOL Programming I (5)
Prereq: MATH 101 or higher placement. Introduction to structured design and COBOL
programming. Students analyze, design, program, test, and debug business applications. Emphasis is on top-down logic design and modular-structured programming.

160 Network Concepts I (4)
Prereq: MATH 101 or higher placement. Concepts and principles of business data communications are explored. Topics include communication media and equipment, data transmission, protocols, networks, and network management.

161 Network Concepts II (4)
Prereq: C or better in CTCH 160. Concepts and principles of client server systems are explored. Topics include introduction to client server computing, understanding LAN, MAN, and WAN, how to build a client server system, and client server management.

189A Internets and Distributed Computing I (4)
Prereq: C or better in 160. An introduction to the use of internets and distributed computing. Study will focus on the theoretical foundations of internetworking including the OSI reference model, the TCP/IP reference model, network configurations, and networking protocols.

189B Internets and Distributed Computing II (4)
Prereq: C or better in 189A. A continuation of 189A, the course examines the routing and routed Internets and Distributed Computing 2 (4).

189C Distributed Computer Applications (4)
Prereq: C or better in 189B. A continuation of 189B, this course focuses on the characteristics of distributed business applications including: databases, video conferencing, and enterprise resource planning.

189D Network Security (4)
Prereq: C or better in 189C. A continuation of 189D, the course provides an in-depth examination of distributed communication systems including the management of the infrastructure and the provision of network security.

233 Programming and Design II (5)
Prereq: C or better in 133. Continuation of 133 with emphasis on array handling and file processing.

234 COBOL Programming II (5)
Prereq: C or better in 134. Continuation of 134 with emphasis on table handling and file processing.

240 C/C++ Programming (5)
Prereq: MATH 101 or higher placement. An introduction to C programming language. Students analyze, design, program, test, and debug business-related applications. Emphasis is on top-down logic design and modular structured programming.

241 Visual Programming (5)
Prereq: MATH 101 or higher placement. Introduction to logic and visual programming techniques. Includes analyzing, designing, coding, testing, and debugging computer applications using visual programming.

242 Java Programming (5)
Prereq: MATH 101 or higher placement. Introduction to Java 2 and Java programming. Includes analyzing, designing coding, testing, and debugging computer applications using Java.

285 Database Management Systems (4)
Prereq: C or better in 125. Introduction to database management systems. Focus is on applying the techniques of data base to create effective and efficient information systems.

290 Special Topics (1-5, max 10)
Prereq: perm. Provides the opportunity to explore or expand upon subjects or topics not covered or only briefly covered in other CTCH courses. Topics may vary from year to year and may include either business or scientific applications in computer science.

291A Systems Analysis I (4)
Prereq: C or better in 125. This course looks at the planning and management of information systems projects, along with tools for analysis and evaluation of alternatives.

291B Systems Analysis II (4)
Prereq: C or better in 291A. Continuation of 291A with emphasis on designing and implementing information systems, along with testing and maintenance.

299 Practicum (1-10, max 20)
Prereq: perm.

Dance (DANC)

090 Composition Laboratory (0)
This course is to be taken in conjunction with composition classes.

101A Modern Dance Technique I (3)
Prereq: Dance major/minor or perm. required. Introduction to basic technical skills of modern dance including alignment, strength, flexibility, rhythmic accuracy, and reproduction of a movement shape.

102A Modern Dance Technique I (3)
Prereq: 101A or perm. required. Continuation of 101A.

103A Modern Dance Technique I (3)
Prereq: 102A or perm. required. Further development of 102A.

101B Ballet Technique I (2)
Prereq: Dance major/minor or perm. required. Introduction to ballet and the development of basic technical skills within the classical ballet tradition. Execution of basic ballet vocabulary with an emphasis on classical line.

102B Ballet Technique I (2)
Prereq: 101B or perm. required. Continuation of 101B.

103B Ballet Technique I (2)
Prereq: 102B or perm. required. Further development of 102B.

101C Beginning Composition (2)
Prereq: Dance major/minor or perm. required. Exploration of movement materials through improvisation and short problems dealing with rhythm, space, movement qualities, and dynamics.

102C Beginning Composition (2)
Prereq: 101C or perm. Continuation of 101C.

103C Beginning Composition (2)
Prereq: 102C or perm. Further development of 102C.

104D Jazz Dance Technique I (3)
Prereq: Dance major/minor or perm. required. Introduction to jazz dance and the development of basic technical skills for modern dance. More complex coordinations which add more spatial and dynamic considerations.

105A Jazz Dance Technique II (3)
Prereq: 103A or perm. required. Further development of 103A.

106A Modern Dance Technique II (3)
Prereq: 105A or perm. required. Further development of 105A.

107A Ballet Technique II (2)
Prereq: 103B or perm. required. Development of technical skills for modern dance. More complex coordinations which add more spatial and dynamic considerations.

108A Ballet Technique II (2)
Prereq: 104A or perm. required. Development of technical skills for modern dance. More complex coordinations which add more spatial and dynamic considerations.

109A Ballet Technique II (2)
Prereq: 105A or perm. required. Development of technical skills for modern dance. More complex coordinations which add more spatial and dynamic considerations.

110A Ballet Technique II (2)
Prereq: 106A or perm. required. Development of technical skills for modern dance. More complex coordinations which add more spatial and dynamic considerations.

111 Music for Dance I (2)

120 Introduction to Dance (2)
(A) modern dance, (B) ballet, (C) jazz.

150 Viewing Performance (2)
Integrates classroom and student life activities at the University with the Arts Council, major productions of the Schools of Music, Dance, and Theater with a seminar course dealing with characteristics of the medium and artistic concerns. A two-hour seminar precedes and follows each of the performances. No credit to those with credit for 210A or MUS 150, or THAR 150.

170 Viewing 20th-Century Dance (4)
Art of dance from broad point of view, involving dance viewing, literature, and participation. Deals with aesthetic, physiological, social, and cultural aspects.

171 The Dance Experience (4) (2H)
A comprehensive course to introduce the beginning student to contemporary and classical dance forms including modern, ballet, and jazz dance styles. Discussions and readings cover historical and aesthetic perspectives. Live performances and studio practice contribute to students' experiential learning.

201A Modern Dance Technique II (3)
Prereq: 103A or perm. required. Development of basic technical skills for modern dance. More complex coordinations which add more spatial and dynamic considerations.

202A Modern Dance Technique II (3)
Prereq: 201A or perm. required. Continuation of 201A.

203A Modern Dance Technique II (3)
Prereq: 202A or perm. required. Further development of 202A.

203B Ballet Technique II (2)
Prereq: 202B or perm. required. Further development of 202B.

208C Intermediate Composition (2)
Prereq: 103C or perm. Choreographic studies to enhance the student's understanding and appreciation of the creative process by developing the concepts of rhythm, space, and dynamics into longer, more detailed studies.

209C Intermediate Composition (2)
Prereq: 201C or perm. Continuation of 201C.

209D Jazz Dance Technique II (3)
Prereq: 203C or perm. Development of movement skills from various styles of jazz using a series of challenging exercises and movement phrases to improve technique, build strength, stamina, and performance quality.

211 Creative Listening for Dance (1)
This course affords opportunity for students to gain knowledge of different musical styles through exposure to a wide array of music listening experiences. Students are encouraged to share musical interests and tastes.

220 Dance Technique II (2)
Prereq: 120 or equiv. (A) modern dance, (B) ballet, (C) jazz.

231 Introduction to Dance Kinesiology (2)
Introduces student to basic anatomical materials, kinesiological concepts, and their relationship to production of dance movement.

240 Practicum in Teaching Dance I (1)
Prereq: perm. Observation and assistance in student teaching. May be repeated.

250 Ethnic Dance of Non-Western Cultures (2)
Dances from selected non-Western cultures with emphasis on style and related folklore.

255 Ethnic Dance of Western Cultures (2)
Dances from selected Western cultures with emphasis on style and related folklore.

271 Black Dance Forms (4) (2H)
A lecture and studio/lab course that will familiarize students with Black dance forms and the contributions that African Americans have made to the development of dance in America. Discussions, readings, videotaped material, live performances, and studio practice will all contribute to the students' experiential learning.

301A Modern Dance Technique III (3)
Prereq: 203B or perm. required. Emphasis on the theoretical foundations of the planning and management of information systems projects, along with tools for analysis and evaluation of alternatives. Topics include introduction to client server computing, understanding LAN, MAN, and WAN, how to build a client server system, and client server management.

310A Modern Dance Technique III (3)
Prereq: 203B or perm. required. Further development of 202A.