Course Recommendations/Suggestions (in addition to required admission courses) for Students Interested in Healthcare Professions
(PLEASE check prerequisites and semester offerings)

ANTHROPOLOGY

ANT 251  Physical Anthropology  3(3-0-0) F,S,Sum
Course Offerings: fall sprg  WolfWare Info

ANT 252  Cultural Anthropology  3(3-0-0) F,S,Sum
Comparative study of contemporary human culture, social institutions and processes that influence behavior. The range of human cultural variation shown throughout the world, including the student's own cultural system.
Course Offerings: fall sum1 sum2 sprg  WolfWare Info

ANT 370  Introduction to Forensic Anthropology  3(3-0-0) F
Preq: ANT 251
Broad overview of forensic anthropology-an applied field of biological anthropology. Application of the science of biological anthropology to the legal process and humanitarian arena. Identification of skeletal remains to determine age, sex, ancestry, stature, and unique features of a decedent. General identification techniques addressed but proficiency not expected.
Course Offerings: sprg  WolfWare Info

ANT 371  Human Variation  3(3-0-0) F, Alt. yrs. (odd)
Preq: ANT 251
Survey of basic principles of population genetics with emphasis on mechanisms that shape human biological variation. Analysis of laws of heredity exhibited in modern human populations via microevolution and adaptation. Historical development of concepts with specific application to physical and forensic anthropology. Discussion of most current research.

ANT 373  The Human Fossil Record  3(3-0-0)
Preq: Three hours physical anthropology or archaeology
Analysis of the human fossil record and consideration of alternate theories of human evolution.
ANT 420  Biological Bases for Human Social Behavior 3(3-0-0)

Preq: ANT 251 or 3 hrs. biological sciences
Applicability of sociobiology to the study of the human condition. Nature and uniqueness of human behavior as compared to the social behavior of nonhuman animals.

ANT 421  Human Osteology 3(3-0-0) F, Alt. Yr. (odd)

Preq: ANT 251 & any ANT 300 Level
Pre/Corequisite for following courses: ANT 424, ANT 429
Survey of all the bones of the human skeleton from an anthropological perspective, including their names, important features useful in recognizing fragmentary specimens from an archaeological context, and techniques for determining the side of the body they come from. Skeletal development and its relationship to skeletal abnormalities. Issues relating to the study of archaeological skeletons.

Course Offerings: fall

ANT 424  Bioarchaeology 3(3-0-0) F, Alt. Yr. (even)

Preq: ANT 421
Survey of approaches used by bioarchaeologists to understand past lifeways through the study of excavated human remains. Analysis of the ways in which bioarchaeologists reconstruct health and disease patterns, mortality rates, diet, degree of interpersonal violence, and social structure in the human past.

ANT 429  Advanced Methods in Forensic Anthropology 4(2-4-0) S, Alt. Yr. (even)

Preq: ANT 370, ANT 421
Advanced methods in forensic anthropology-an applied field of biological anthropology. Application of the science of biological anthropology to the medicolegal process. Identification of skeletal remains to determine age, sex, ancestry, stature, and unique features of a decedent. Analysis of human skeletal remains. Identification techniques addressed and proficiency expected. Students must provide their own transportation to the laboratory site.

Course Offerings: fall

BIOCHEMISTRY

BCH 451  Principles of Biochemistry 4(3-0-1) F, S, Sum

Preq: CH 223
Introduction to the fundamental principles of biochemistry. Emphasis on biochemical structures, properties, functions and interactions, including enzyme kinetics and central pathways of metabolism.

Course Offerings: fall sum2 sprg WolfWare Info
BCH 452    Introductory Biochemistry Laboratory  
            
            Coreq: BCH 451
            Laboratory experience to complement BCH 451. Basic skills in the use of volumetric equipment, spectrophotometers, chromatography, and electrophoresis. Manipulation and assay of small quantities of biological materials, and analysis of laboratory data.
            Course Offerings: fall, sum1, sprg

BCH 453    Biochemistry of Gene Expression

            Preq: BCH 451
            Coreq: GN 411, MB 351 or permission of instructor
            Credit is not allowed for both BCH 453 and BCH 553
            Course Offerings: fall, sprg

BIOMEDICAL ENGINEERING

BME 495    Special Topics in Biomedical Engineering

            Offered as needed for presenting material not normally available in regular BME Department courses or for new BME courses on a trial basis.
            Course Offerings: fall, sprg

- Note –special sections taught as available for EMT Basic Training

BIOTECHNOLOGY

BIT 410    Manipulation of Recombinant DNA

            Preq: BIO 181 or ZO/BIO 160 and CH 223 with a C- or better
            Pre/Corequisite for following courses: BIT 461, BIT 462, BIT 463, BIT 464, BIT 466, BIT 467, BIT 468, BIT(BO)481, BIT 495
            Introduction to molecular biology and protein chemistry. Theory behind laboratory techniques and overview of cloning strategies starting from nucleic acid or protein sequence data. Laboratory sessions involve subcloning, preparation of competent cells, transformation, screening recombinant DNA by colony hybridization and PCR, SDS-PAGE of recombinant protein, affinity purification, and western blots.
            Course Offerings: fall, sprg

BOTANY
BO 215  Medicinal Plants  3(3-0-0) F
Preq: CH 101 and any one of the following courses: BIO 125, BIO 181, BO 200, ZO 150, ZO 160
Plants and their derived pharmaceuticals in Western medicine and in herbal medicine.
Course Offerings:  fall

COMMUNICATION

COM 110  Public Speaking  3(3-0-0) F,S,Sum
Research skills, topic selection, speech organization, skills in speech delivery. Listening for analysis and evaluation of in-class speech presentation.
Course Offerings:  fall  sum1  sum2  sprg  WolfWare Info

COM 112  Interpersonal Communication  3(3-0-0) F,S,Sum
Interpersonal communication competence: self-concept, self-disclosure, active listening, verbal and nonverbal communication, and conflict management.
Course Offerings:  fall  sum1  sum2  sprg  WolfWare Info

COM 201  Introduction to Persuasion Theory  3(3-0-0) F,S,Sum
Impacts of persuasive communication on attitudes and behavior. Uses humanistic and social scientific theories to explain the persuasive process.
Course Offerings:  fall  sum1  sprg  WolfWare Info

COM 202  Small Group Communication  3(3-0-0) F,S
Theory and practice of effective communication in small groups, including: stages of group development, role emergence, leadership functions, decision making strategies, conflict management, and the significance of power.
Course Offerings:  fall  sum1  sprg

COM 215  Introduction to Communication Disorders  3(3-0-0) F,S
Normal speech/language development including the anatomical and physiological bases for reception and expression of oral language. Developmental and acquired speech/language problems and basic treatment principles applied to communication disorders.
Course Offerings:  fall  sum1

COM 226  Introduction to Public Relations  3(3-0-0) F,S,Sum
Public relations as a communication function of organizations. Public relations process, principles, history, and practice. Analysis of environmental, organizational, communication, and audience influences on public relations practice; career opportunities.
Course Offerings:  fall  sum1  sum2  sprg

COM 325  Anatomy and Physiology of Speech  3(3-0-0) F
Anatomy and physiology of the speech mechanism including the muscular, skeletal, and nervous system structures involved in respiration, phonation, and articulation.

Course Offerings: fall sum1

**COM 375**  
Articulation and Phonological Development and Disorders  
3(3-0-0) F  

*Preq: COM 215*  

Course Offerings: sprg

**COM 441**  
Ethical Issues in Communication  
3(3-0-0) S  

*Preq: COM 110, 112*  
Critical analysis of ethical problems in interpersonal and public communication practices.

Course Offerings: fall1 sprg

**COM 445**  
Neurolinguistic Development and Disorders  
3(3-0-0) F,S  

*Preq: COM 335*  
Neuroanatomy and physiology basic to the diagnosis and treatment of children and adults with neurolinguistic disorders related to traumatic brain injury, aphasia and neurological disease. Survey of etiology and symptomatology. Training in the nature, characteristics, associated problems, and clinical management of patients with brain damage.

Course Offerings: sprg

**COM 455**  
Clinical Observation in Speech-Language Pathology  
3(3-0-0) F,S  

*Preq: COM 215*  
Observation of a variety of therapy techniques and clinical procedures used in the treatment of speech-language-hearing-impaired individuals in the NC State Speech Clinic and other local sites.

Course Offerings: fall sprg

**COM 498**  
1-3 F,S  

*Preq: Nine hours of communication courses; Junior Standing*  
Advanced study of contemporary theories, methods, practices, processes, or issues related to the field of communication. Topic varies.

Course Offerings: fall sum1 sum2 sprg

**ECONOMICS**

**EC 437**  
Health Economics  
3(3-0-0) F,S  

*Preq: EC(ARE) 301 or EC(ARE) 401*  
Application of micro-economic tools to the analysis of public and private policy issues concerning health care financing and delivery in the United States.

Course Offerings: fall

**CURRICULUM, INSTRUCTION AND COUNSELOR EDUCATION**

**ECI 332**  
Health Promotion and Disease Prevention  
3(3-0-0) S, Alt. yrs  
*Preq: For credentialed health professionals only*  
Emphasis on education of the public regarding general health concerns including cancer,
cardiovascular disease, accident prevention, nutrition, drugs, alcohol, mental health, sexuality, and environmental hazards. [WolfWare Info]

**ECI 333Health Care Delivery** 3(3-0-0) The historical basis of healthy care delivery in the U. S. with emphasis on hospitals, health maintenance organizations, ambulatory care centers, ambulatory surgery, nursing homes, and private care practice. Philosophical issues of funding health care, promoting health care, and the training of healthy care workers.

**ECI 438Medical Law and Ethics** 3(3-0-0) F Ethical and legal issues involved in delivering health care, such as euthanasia, reproductive technology, organ transplants, patients' rights, and confidentiality. Classical ethical theories and principles. Systematic review procedures and current medical law used to examine current case dilemmas in the health professions.

**ENGLISH**

**ENG 333 Communication for Science and Research** 3(3-0-0) F,S

*Preq: Junior standing*

*Credit is not allowed for more than one of ENG 331, 332, and 333*

Written communication in scientific and research contexts, emphasizing relationship between research and writing in problem formulation, interpretation of results, and support and acceptance of research. Intensive practice in writing; relationship of writing to oral and visual communication. For students who plan careers in scientific research.

Course Offerings: [fall] [sum1] [sum2] [sprg]

**ENG 425 Analysis of Scientific and Technical Writing** 3(3-0-0) S

*Preq: ENG 314, 331, 332, or 333*

The role of communication in the creation of scientific knowledge and technical designs and artifacts; methods of analyzing texts and of studying their creation and use; relationships between writing and other forms of communication. Field research in a scientific or technological setting.

Course Offerings: [sprg]

**ENG 520 Science Writing for the Media** 3(3-0-0) F

Coverage of three areas: how to write science articles for a variety of mass media, how to think critically about how mass media cover science, and how to think critically about science itself. Preparation for careers not only in mass media, but also in scientific and technological organizations.

Course Offerings: [fall]

**FOREIGN LANGUAGE – SPECIAL HEALTHCARE SECTIONS FOR SPANISH – MUST CHECK WITH PROFESSOR – WATCH FOR LISTSERV NOTIFICATION**

**FLS 201 Intermediate Spanish I** 3(3-0-0) F,S,Sum

*Preq: FLS 102,105 or 110*

The third of four consecutive Spanish courses idiomatic, spoken Spanish. With special attention to reading and writing skills and the cultural heritage of the Spanish-speaking peoples. Class practice, laboratory and written assignments.

Course Offerings: [fall] [sum1] [sum2] [sprg] [WolfWare Info]
GENETICS

GN 301  Genetics in Human Affairs  3(3-0-0) F,S,Sum
Appreciation and understanding of genetics in everyday life. Genetic perspective on normal human development, birth defects, birth control, cancer, organ transplants, intelligence, mental illness, and radiation and chemical exposure and issues raised by applications of recently developed genetic techniques such as in vitro fertilization, genetic engineering and prenatal monitoring.

Course Offerings: fall sum2 sprg

GN 411  Principles of Genetics  4(4-0-0) F,S,Sum
Preq: BIO 183 or ZO 160, and Junior standing
Basic concepts and principles of prokaryotic and eukaryotic genetics. Mendelian inheritance, polygenic inheritance, linkage and mapping, chromosome aberrations, population genetics, evolution, DNA structure and replication, gene expression, mutation, gene regulation, extranuclear inheritance, bacterial and viral genetics, and recombinant DNA technology.

Course Offerings: fall sum1 sum2 sprg  WolfWare Info

GN 412  Elementary Genetics Laboratory  1(0-3-0) F,S
Coreq: GN 411
Genetic experiments and demonstrations using a variety of bacterial, plant and animal organisms. Mendelian inheritance, linkage analysis, population genetics, cytogenetics, biochemical genetics, DNA isolation, electrophoresis, and Southern blotting.

Course Offerings: fall sprg  WolfWare Info

GN 413  Advanced Genetics  3(3-0-0) F,S
Preq: GN 411
Students cannot receive credit for both GN 413 and GN 513

Course Offerings: fall  WolfWare Info

GN 414  Genes and Development  3(3-0-0) S
Preq: GN 411
Genes and genetic pathways that control development in animals; overview of early, pivotal experiments in embryology and genetics; use of molecular biology, genomics and bioinformatics to study genes and development; concentration on four model systems; presentation and discussion of major issues in developmental biology.

Course Offerings: sprg  WolfWare Info
GN 415  Genome Science  3(3-0-0) S
Preq: GN 411
Complementation of modern genomics approaches with classical and molecular genetics; goals of major
genome projects in animals, plants, humans, and microorganisms; genomic science opportunities at NCSU and
in the Research Triangle; presentation and discussion of current literature; and preparation for careers in
genomics-related fields.
Course Offerings: sprg

GREEK

GRK 333  Medical Terminology  2(2-0-0) S
Study of the formation of medical terms from their Greek and Latin roots designed both to build vocabulary and
to teach the uses of a medical dictionary.
Course Offerings: fall sprg

HISTORY

HI 481  History of the Life Sciences  3(3-0-0) Alt. yrs
Preq: Junior standing or permission of instructor
Credit will not be given for both HI 481 and HI 581
The major ideas, methods, institutions, and individuals that have contributed to the biological sciences from
Renaissance to modern times. The connections between the life sciences and other aspects of culture, including
the physical sciences, religious belief, medical practice, and agriculture.
Course Offerings: sprg

HI 482  Darwinism in Science and Society  3(3-0-0) S, Alt. yrs(even)
Preq: 6 hrs. of advanced history
Credit will not be given both for HI 482 and HI 582
Scientific development of Darwinism and its reception by the scientific community and the general public.
Social impact of theories of evolution as reflected in Social Darwinism, eugenics, sociobiology, and relationship
of sciences to ethics and religion.

INTERDISCIPLINARY STUDIES

201  Environmental Ethics  3(3-0-0) F,S
Interdisciplinary consideration of ways in which field of study coupled with personal/cultural values contribute
towards either solving or compounding environmental problems; provides framework for process of making
ethical decisions.
Course Offerings: fall sprg
IDS 211        Eating through American History            3(3-0-0) F
Examination of cultural and scientific forces that have shaped our relationship with food. Science and politics of dietary recommendations. Influence, over time, of economic, social and political conditions on food preparation, preference and nutritional knowledge. Role of religion, family, tradition and personal experience in shaping eating attitudes and behaviors. Roles played only by women in American food culture.

IDS 303        Humans and the Environment                 3(3-0-0) F, S
Interactions among human populations in the biophysical system and the environment. Emphasis on current issues, ecological principles and their relationships to basic biophysical processes; considers food, population dynamics, public land and common resources, renewable natural resources, pollution, water resources, energy and non-renewable resources.

Course Offerings: fall sprg

MARINE, EARTH AND ATMOSPHERIC SCIENCE

MEA (ET) 320    Fundamentals of Air Pollution            4(3-3-0) S
Preq: MA 121 or MA 131 or MA 141, CH 201, PY 131 or PY 201 or PY 205 or PY 211
Air pollution sources, and the influence of natural and anthropogenic processes on the atmosphere. Roles of local, state and federal governments in air pollution control and importance of the Clean Air Act and it amendments. Techniques for measurement of atmosphere pollutant concentrations and determination of local and regional air quality. Required field trips may extend beyond class time.

Course Offerings: sprg

MICROBIOLOGY

MB 351         General Microbiology                      3(3-0-0) F,S,Sum
Preq: One biology course: (BIO 125,BIO 181, 183 or ZO 150) and one organic chemistry course: (CH 221 or CH 220)
Rigorous introduction to basic principles of microbiology for students in biological and agricultural sciences and for all students planning to take further courses in microbiology.

Course Offerings: fall sum2 sprg

MB 352         General Microbiology Laboratory            1(0-3-0) F,S,Sum
Coreq: MB 351
Laboratory experience in general microbiology. Aseptic technique, isolation and identification of bacteria, staining and microscopy. Enumeration of bacteria and viruses.

Course Offerings: fall sum2 sprg

MB (FS) 405    Food Microbiology                        3(3-0-0)
Preq: MB 351
Microorganisms of importance in foods and their metabolic activities. Source of microbial contamination during food production, processing and storage. Microbial spoilage; foods as vectors of human pathogens. Physical and chemical destruction of microorganisms in foods and the kinetics involved. Conversions of raw foods by microorganisms into food products. Microbiological standards for regulatory and trade purposes.

Course Offerings: fall

**MB (FS) 406 Food Microbiology Lab**  
1(0-2-1)  
Coreq: FS (MB) 405  
Laboratory experience to complement FS/MB 405. Skills in detecting and quantitating microorganisms and their toxins in foods. Application of colony and direct microscopic counts, most probable numbers, enzyme immunoassays, nucleic acid probes and computer modeling are used to understand the numbers and types of microorganisms or microbial end products in foods. Laboratory safety and oral and written reports are emphasized.

Course Offerings: fall

**MB 409 Microbial Diversity**  
3(2-3-0) S  
Preq: MB 351  
Molecular, biochemical and evolutionary diversity of the microbial world, including Bacteria (a.k.a. eubacteria), Archaea (archaebacteria), and unicellular Eucarya (eucaryotes). Evolutionary perspective on microbial relationships, molecular methods of study, and classical and modern biotechnological methods utilizing this genetic diversity to meet the needs of our own species.

**MB 411 Medical Microbiology**  
3(3-0-0) F  
Preq: MB 351  
Comprehensive study of microbial pathogenesis and mammalian host resistance. Diagnosis, prevention, and therapy of common human diseases of microbial origin.

Course Offerings: fall  
WolfWare Info

**MB 412 Medical Microbiology Laboratory**  
1(0-3-0) F  
Preq: MB 351  
Laboratory experience to complement MB 411. Techniques of detection, growth and identification of bacteria and viruses relevant in clinical microbiology laboratories. Good laboratory practices (GLP) and safety stressed.

Course Offerings: fall  
WolfWare Info

**MB 414 Microbial Metabolic Regulation**  
3(3-0-0) F  
Preq: MB 351, BCH 451  
An integrative perspective on bacterial physiology and metabolism through an analysis of metabolic regulatory functions.

Course Offerings: fall  
WolfWare Info
MB 441  Immunology  $3(3-0-0)$ F

*Preq: MB 351*

Introduction to principles of molecular immunology. Overview of immune system development and function, and discussions of ongoing scientific research regarding immune regulation.

Course Offerings: **fall**

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MB 451  Microbial Diversity  $4(3-3-0)$ S

*Preq: MB 411/412 and either GN 411 or BCH 451*

**SMB majors only except by permission**

Molecular, biochemical and evolutionary diversity of the microbial world, including Bacteria (a.k.a. eubacteria), Archaea (archaebacteria), and unicellular Eucarya (eukaryotes). Evolutionary perspective on microbial relationships, molecular methodsof study and classical and modern biotechnological methods utilizing this genetic diversity to meet the needs of our own species.

Course Offerings: **sprg**

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MB 455  Microbial Biotechnology  $3(3-0-0)$ S

*Preq: MB 351, GN 411*

Introduction to industrial microbiology with focus on biotechnology including developments employing recombinant nucleic acid and monoclonal antibody techniques. Bioremediation, industrial enzymes, transgenic plants, biopesticides, medical diagnostics, recombinant vaccines production of important secondary metabolites, and other topics. Field trips to local biotechnology companies.

Course Offerings: **sprg**  [WolfWare Info](#)

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MB 461  Introduction to Molecular Virology  $3(3-0-0)$ S

*Preq: MB 351, MB 411*

Introduction to principles of molecular virology. Overview of classification and nomenclature, virus structure, interaction of viruses with cells, organisms (immunology, pathology), and populations (epidemiology). Detailed case studies from major groups of viruses; picornaviruses, togaviruses, orthomyxoviruses, retroviruses, polyomaviruses, and herpesviruses.

Course Offerings: **sprg**  [WolfWare Info](#)

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**NUTRITION**

NTR (ANS) (FS) 301  Introduction to Human Nutrition  $3(3-0-0)$ F,S,Sum

*Preq: Sophomore standing*

**Food science majors may use as a free elective only**

Functions, dietary sources and deficiencies of essential nutrients in humans; a balanced diet; role of nutrients in heart disease, cancer, hypertension, osteoporosis; weight control and eating disorders; vegetarianism; food safety; dietary supplements; government regulation of food supply; food quackery.
Course Offerings: fall sum1 sum2 sprg

NTR (FS) 400 Principles of Human Nutrition 3(3-0-0) F, S, Sum
Preq: CH 220, CH 221; ZO 160 or BIO 181/183
Credit will not be given for both NTR (FS)400 and NTR 500
Overview of fields of Nutritional Sciences; functions of nutrients in the human body; sources and properties of nutrients; relationships of food industry practices to nutrition.

Course Offerings: fall WolfWare Info

NTR (ANS) (PO) 415 Comparative Nutrition 3(3-0-0) F
Preq: CH 220 or both 221 and 223
Principles of nutrition, including the classification of nutrients and the nutrient requirements of and species for health, growth, maintenance and productive functions.

Course Offerings: fall WolfWare Info

NTR (ANS) 419 Human Nutrition in Health and Disease 3(3-0-0) S
Preq: ANS 230, or ANS/FS/NTR 301 or FS/NTR 400 or ANS/NTR/PO 415
Junior standing
Current concepts regarding, and physiological bases of the roles of nutrition in the prevention and treatment of acute and chronic disease states in humans with emphasis on the process of scientific discovery, reading of original research and transformation of research findings to public policy.

Course Offerings: sprg

NTR 420 Community and Life Cycle Nutrition 3(3-0-0) F, Alt. Yr. (even)
Preq: Human nutrition course: NTR(ANS/FS) 301, NTR(FS) 400, or NTR(ANS) 419
Junior standing
Basic principles of community nutrition programming: development and assessment; nutrient requirements and nutritional concerns during pregnancy, lactation, childhood, adolescence and aging; examples of age-specific community nutrition programs and their effectiveness. Students will apply course concepts throughout the semester in community-based service-learning projects. Twenty hours of service is required. Students are expected to provide and pay for their own transportation for the community service, which will be in the greater Raleigh area.

Course Offerings: fall

PARKS, RECREATION & TOURISM

PRT 200 Leisure Behavior, Health and Wellness 3(3-0-0) F,S,Sum
Leisure as a lifelong resource for human satisfaction and fulfillment; its potential for physical, mental, social
and emotional growth and emotional growth and development of the individual. Leisure opportunity areas presented and evaluated.

Course Offerings: sprg

### PHYSICAL EDUCATION – HEALTH STUDIES

**PEH 212  Alcohol, Drugs and Tobacco**

*2(2-0-0) F,S*

This course does not constitute credit toward meeting the Physical Education GER requirement

Theories of drug use, pharmacology, tolerance, dependence, nicotine, alcohol usage, alcoholism, sedative-hypnotics, narcotics, amphetamines, cocaine, marijuana, hallucinogens, steroids and treatment.

Course Offerings: fall sprg

**PEH 213  Human Sexuality**

*2(2-0-0) F,S,Sum*

Physiological and psychosocial aspects of human sexuality. Emphasis placed on health-related topics of birth control, pregnancy, childbirth, abortion and sexually-transmitted diseases. Concepts of gender acquisition, sexual values, and sexual morality discussed as related to the promotion of healthy lifestyles within contemporary American culture.

Course Offerings: fall sum2 sprg

**PEH 280  Responding to Emergencies**

*Does not satisfy the physical education requirement*

Information necessary to evaluate vital signs and bodily functions as related to emergency response; training to evaluate and react correctly to most emergency situations which might arise, and to perform temporary medical care and the follow-up action as indicated. Optional fee assessed for certification.

Course Offerings: fall sum1 sprg

**PEH 281  First Responder**

*3(2-1-0) F,S,Sum*

Knowledge and skills necessary to respond appropriately in an emergency. Advanced skills in first aid and CPR (adult, child, and infant, pocket masks and oxygen use) fulfills requirements for First Responder (depending on local protocol).

Course Offerings: fall sprg

**PEH 284  Women's Health Issues**

*2(2-0-0) F,S*

Minor courses.

This course will review health and wellness issues affecting women through their life span. It will explore medical concerns and prevention as well as social health issues that disproportionately affect women in contemporary society. Discussions of current critical topics in women's health will also take place.
**PEH 285  Personal Health**  
2(2-0-0) F,S  
*This course does not constitute credit toward meeting the Physical Education GER requirement*


Course Offerings: fall sprg

**PEH 286  Nutrition, Exercise and Weight Control**  
2(1-2-0) F,S  
*Medical request*

A nutrition, exercise and weight management program emphasizing the basics of proper nutrition and exercise. Emphasis on lifestyle changes and their relationship to appropriate weight management.

Course Offerings: fall

**PEH 287  Stress Management**  
2(2-0-0) F,S  
*This course does not constitute credit toward meeting the Physical Education GER requirement*

Impact of stress upon the psychological and physiological function of the body. Exploration and interaction with stress management techniques.

Course Offerings: fall

**PEH 335  Prevention of Sexual Assault and Violence**  
3(3-0-0) F,S  

Historical and cultural perspective on rape, sexual assault, and relationship violence will be presented. The course prepares students to deliver a standard outreach program that includes statistics, definitions, risk reduction techniques, medical, legal, psychological, community and campus resources.

Course Offerings: fall sprg

**PEH 375  Health Planning and Programming**  
2(2-0-0) F,S  
*Preq: PEH 285 Personal Health*

This course is designed to assist students in developing a foundation in health programming. Students will learn the necessary skills to develop, implement, and evaluate health education programs.

Course Offerings: fall

**PEH 377  Methods of Health Promotion**  
2(2-0-0) F, S  

This course focuses on methods and techniques for delivering health-related content to diverse populations. Cooperative learning, critical thinking, peer educator training, and decision-making will be applied to various health dimensions.

Course Offerings: sprg

**PHILOSOPHY**
PHI (STS) 325  Bio-Medical Ethics 3(3-0-0) F,S
Interdisciplinary examination and appraisal of emerging ethical and social issues resulting from recent advances in the biological and medical sciences. Abortion, euthanasia, physician-assisted suicide, compromised infants, aids, reproductive technologies, and health care. Focus on factual details and value questions, fact-value questions, fact-value interplay, and questions of impact assessment and policy formation.
Course Offerings: fall sprg

PHI 340  Philosophy of Science 3(3-0-0) F, S, Sum
Nature of science highlighted by differences between science and pseudoscience, relationships between science and religion, and roles of purpose-directed (teleological explanation) and causal explanation in physical life and social sciences.
Course Offerings: fall sum1 sprg WolfWare Info

PHI 375  Ethics 3(3-0-0) F,S
Examination of traditional questions of philosophical ethics: What are the principles of moral conduct? What sort of life is worthy of a human being? Includes both classic and contemporary literature.
Course Offerings: fall sprg WolfWare Info

PHI 415  Life Science Ethics 3(3-0-0) S
Preq: One course in PHI
Credit will not be given for both PHI 415 and PHI 515

PHI (PSY) 425  Introduction to Cognitive Science 3(3-0-0)
Preq: One upper-level course in either PHI, PSY, CSC or Linguistics
Credit cannot be given for both PHI/PSY 425 and PHI/PSY 525
Philosophical foundations and empirical fundamentals of cognitive science, an interdisciplinary approach to human cognition. Topics include: the computational model of mind, mental representation, cognitive architecture, the acquisition and use of language.
Course Offerings: sprg

PHI 440  The Scientific Method 3(3-0-0) S
Preq: One upper-level course in philosophy
Credit cannot be given for both PHI 440 and PHI 540
Detailed examination of core issues in the philosophy of science: the confirmation of scientific theories, falsification, projectibility, the nature of scientific explanation, laws of nature, and causation.
Course Offerings: fall
PHI 445 Philosophy of Biology 3(3-0-0) S

Preq: One 300 or 400-level course in philosophy or biology

Pre/Corequisite for following course: Corequisite for PHI 496; Credit cannot be given for both PHI 445 and PHI 545

Central issues in the philosophy of biology such as units of selection, philosophy of ecology, species, fitness, adaptationism, reductionism, development and innateness, evolutionary progress, and viability of applications of evolutionary theory to culture and "human nature".

Course Offerings: sprg

POLITICAL SCIENCE

PS 314 Science, Technology and Public Policy 3(3-0-0) S

Societal impacts of science and technology. Structures and processes for formulation, implementation, evaluation of United States science and technology policy. Political implications of selected issues in science and technology policy studies.

Course Offerings: sprg

PSYCHOLOGY

PSY 311 Social Psychology 3(3-0-0) F,S,Sum

Preq: PSY 200 or 201

Theory and research on how individuals respond and are responded to in social situations. Topics include attitude formation and change, affiliation, attraction, self and interpersonal perception, interpersonal relationships, aggression, helping behavior, intergroup behavior, and group dynamics.

Course Offerings: fall sum1 sum2 sprg WolfWare Info

PSY 370 Personality 3(3-0-0) F

Preq: PSY 200

Major personality theories. Definition of personality associated with each theory as well as the assumptions and principles used in accounting for human behavior. Theories evaluated considering recent research.

Course Offerings: fall sprg WolfWare Info

PSY 376 Developmental Psychology 3(3-0-0) F, S, Sum

Preq: PSY 200, 201 or 304 or EDP 304

Behavioral development during the life span, including study of current theories and project work with persons at various stages of the life cycle.

Course Offerings: fall sum1 sum2 sprg WolfWare Info
PSY 400

Perception 3(3-0-0) F,S,Sum

*Preq: PSY 200 or 201, Junior standing*

Anatomy and physiology of the major sensory systems, their relationship to central structures of the brain, important and/or common pathological conditions. Basic issues and techniques of psychophysics. Perceptual phenomena and theory, with an emphasis on topics in two-and three-dimensional spatial perception, including the perceptions of size, depth and motion. Consideration of perceptual phenomena in practical settings.

Course Offerings: fall sum1 sum2 sprg WolfWare Info

PSY (WGS) 406

Psychology of Gender 3(3-0-0) F, S

*Preq: PSY 200, 201 or HSS 200*

*Credit cannot be given for both PSY 406 and PSY 506*

Current theory and research on perceived and actual biological, social, cognitive, personality, and emotional similarities and differences of men and women throughout the lifespan. The construction and consequences of gender in our society and others.

WolfWare Info

PSY 410

Learning and Motivation 3(3-0-0) F

*Preq: PSY 200; Junior standing*

Introduction to the primary laboratory research areas in learning and motivation: classical conditioning, operant conditioning, verbal learning, drive theory, and the role of motives. Emphasis upon research on conditioning and its motivational processes as the foundations for techniques in behavior modification. Examination of both the uses and limitations of current information on learning and motivation.

Course Offerings: fall sum1 sum2 sprg WolfWare Info

PSY 420

Cognitive Processes 3(3-0-0) F,S,Sum

*Preq: PSY 200; Junior standing*

Introduction to research and theory in cognition, including such topics as memory, acquisition and use of language, reading, problem-solving, reasoning, and concepts.

Course Offerings: fall sum1 sprg WolfWare Info

PSY (PHI) 425

Introduction to Cognitive Science 3(3-0-0) F

*Preq: One upper-level course in either PHI, PSY, CSC or Linguistics, or permission of instructor*

Philosophical foundations and empirical fundamentals of cognitive science, an interdisciplinary approach to human cognition. Topics include: the computational model of mind, mental representation, cognitive architecture, the acquisition and use of language.

Course Offerings: sprg WolfWare Info
PSY 430  Biological Psychology  3(3-0-0)  F,S  
Preq: PSY 200 and either BIO 125 or 105; Junior standing
Biological mechanisms of behavior, including elementary neuroanatomy and neurophysiology, sensory and
motor processes, and their application to motivation, learning, and psychological processes.
Course Offerings: fall sprg
WolfWare Info

PSY 470  Abnormal Psychology  3(3-0-0)  S,Sum  
Preq: PSY 200 or 304 or EDP 304
Common psychological disorders of children and adults. Historical and theoretical perspectives on abnormal
behavior; issues of assessment and classification, etiology, symptoms, and treatment of disorders.
Course Offerings: fall sum1 sum2 sprg  
WolfWare Info

PSY 475  Child Psychology  3(3-0-0)  F,S  
Preq: PSY 200 or 304 or EDP 304; PSY 376
Theories, methods, and phenomena of child psychology and application of this information to the enhancement
of child development. Multiple aspects of development, including physical, cognitive/intellectual, and
social/emotional development, from conception to adolescence. Emphasis on recent research findings in
developmental psychology.
Course Offerings: fall sum2 sprg  
WolfWare Info

PSY (EDP) 476  Psychology of Adolescent Development  3(3-0-0)  F,S,Sum  
Preq: PSY 200 or EDP 304
Theories, principles, and issues of human psychological development emphasizing adolescence. Cognitive,
social, and physical changes; their interaction. Implications for teaching and parenting adolescents.
Course Offerings: fall sum1 sum2 sprg  
WolfWare Info

RELIGION

REL (STS) 471  Darwinism and Christianity  3(3-0-0)  F, Alt. yrs. (even)  
Preq: One course in religious studies, biological sciences, philosophy of science, or history of science
Evolutionary biology and Christianity. Darwin's evolutionary theory; neo-Darwinism; conflicts between
evolutionary theory and Christian thought; methodological parallels and differences between science and
religion; proposals for divine action in an evolutionary world.

SOCIOLOGY

SOC 203  Current Social Problems  3(3-0-0)  F,S,Sum  
Examination of social problems linked to structures of economic, political, gender and racial inequality;
including poverty, disease, racism, sexism, unemployment, psychological distress, educational failure, environmental destruction and violence. Possible solutions viewed from a variety of perspectives. Includes core sociological concepts, methods and theories.

Course Offerings: fall sum1 sum2 sprg  WolfWare Info

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<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>SOC (WGS) 204</td>
<td>Sociology of Family</td>
<td>3(3-0-0) F,S,Sum</td>
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<td>SOC 206</td>
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<td>SOC 301</td>
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<td>SOC (WGS) 304</td>
<td>Women and Men in Society</td>
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<td>SOC (AFS) 305</td>
<td>Racial and Ethnic Relations</td>
<td>3(3-0-0) F,S,Sum</td>
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<tr>
<td>SOC 381</td>
<td>Sociology of Medicine</td>
<td>3(3-0-0) F,S</td>
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Preq: 200 level Sociology
Use of theory and empirical studies to understand the social etiology of disease health practices, practitioners, and institutions, and the special area of mental health. Historical as well as contemporary examples of social influences on, and effects of, health throughout the world, but especially in the United States. Core sociological concepts, methods, theories.

Course Offerings: fall sprg

**SCIENCE, TECHNOLOGY, & SOCIETY**

**STS (WGS) 210 Women and Gender In Science and Technology 3(3-0-0) F**
Interdisciplinary introduction to the reciprocal relationships between scientific/technological research and contemporary understanding of gender. Special emphasis on social factors influencing scientists and engineers in their professions.

**STS 214 Introduction to Science, Technology, and Society 3(3-0-0) F**
Introduction to the field of Science, Technology, and Society (STS), including most important STS scholars, major schools of thought, and important theoretical and empirical issues in STS.

Course Offerings: fall sprg

**STS 301 Science and Civilization 3(3-0-0) F,S,Sum**

*Preq: Soph. standing*
An inquiry into the scientific achievement and cultural impact of three different, but interrelated, models (or paradigms) of understanding the world and man's place in it; the Ancient-Medieval model of Aristotle, Ptolemy and Aquinas; the 17th century model of Newtonian physics; and the emerging, but fragmentary, 20th century model based upon the new physics of Einstein, Planck and Heisenberg.

Course Offerings: fall sprg

**STS 302 Contemporary Science, Technology and Human Values 3(3-0-0) F,S**

*Preq: Soph. standing*
Interdisciplinary evaluation of recent and potential influences of current scientific and technological developments on society. Emerging social, ethical, and intellectual issues include: The adequacy of contemporary scientific frameworks; the relations among science, technology, and society; the social consequences of scientific and technological applications, and human prospects and possibilities.

Course Offerings: fall sum2 sprg

**STS 303 Humans and the Environment 3(3-0-0) F,S**
Interactions among human populations in the biophysical system and the environment. Emphasis on current issues, ecological principles and their relationships to basic biophysical processes; considers food, population dynamics, public land and common resources, renewable natural resources, pollution, water resources, energy and non-renewable resources.
**STS 304  Ethical Dimensions of Progress  3(3-0-0) F**
Multidisciplinary examination of traditional western notion of progress, focusing on ethical issues raised by concept of progress, and connections between science, technology and society. Places relationships such as engineering and social responsibility within the context of present day redefinitions of the notion of progress.
Course Offerings: fall

**STS (PHI) 325  Bio-Medical Ethics  3(3-0-0) F,S**
Interdisciplinary examination and appraisal of emerging ethical and social issues resulting from recent advances in the biological and medical sciences. Abortion, euthanasia, physician-assisted suicide, compromised infants, aids, reproductive technologies, and health care. Focus on factual details and value questions, fact-value questions, fact-value interplay, and questions of impact assessment and policy formulation.
Course Offerings: fall sprg

**SOCIAL WORK**

**SW 310  Human Behavior Theory for Social Work Practice  3(3-0-0) S**
Prep: SW 201 or consent of instructor
Theory regarding human social functioning for students intending to practice social work. Emphasis on biological, psychological, social and cultural factors in human life.
Course Offerings: fall sum1 sprg

**SW 414  Social Work Practice in Health Care  3(3-0-0) F,Sum Alt yrs(even)**
Prep: SW 201 or permission of instructor
Practice skills and knowledge required of social workers in health care settings. Multi-disciplinary team work in health care. Social components of major illnesses and disabilities, including prevention and rehabilitation. Emotional, cultural, economic and social factors in health and illness. Health needs of specific population groups.

**SW 415  Child Welfare  3(3-0-0) S, Alt yrs(even)**
Prep: SW 201 or consent of instructor
Social work practice with children and families. Emphasis on child welfare programs and the development of assessment and case planning skills. Methods of protective services, adoption, and foster care are studied.
Course Offerings: fall sprg

**SW 416  Addiction Recovery and Social Work Practice  3(3-0-0) F**
Prep: SW 310
_Students cannot receive credit for both SW 416 and SW 516_
Knowledge and skills in identifying Alcohol and Other Drugs (AOD) problems, screening, assessment, intervention, referral, and prevention: history of AOD problems and treatment, AOD classification, effects and signs/symptoms of AOD, models of addiction, diversity, assessment, diagnosis, intervention, treatment modalities, mutual-help groups, family dynamics, prevention, and ethical considerations.
SW 417  Social Work and Aging  3(3-0-0) S, Alt. Yr. (even)
Credit is not allowed for both SW 417 and SW 517
Focuses on the physical, psychological, social, and cultural theories used to understand the aging process. Analyzes relevant social policy, and reviews services for working with older adults and their families. Emphasis is placed on the factors that promote mental and physical well-being. Issues of diversity, social and economic justice, and intergenerational practice are explored.

TOXICOLOGY

TOX 201  Poisons, People and the Environment  3(3-0-0) S
Introduction to the fascinating world of chemical poisons including their many and varied effects on people as well as the environment. Learn how and why poisons have played an important role in history, how to critically evaluate the chemical risk information reported in the media, and the underlying principles of "the basic science of poisons."
Course Offerings: fall spring

TOX 401  Principles of Toxicology  4(4-0-1) F
Preq: CH 220 or CH 221; BIO 181 or ZO 160
Introduce students to the basic principles of toxicology. Will cover the history and scope of the field; absorption, distribution, metabolism and elimination of toxicants; types and mechanisms of toxic action; carcinogenesis; environmental toxicology as well as human and ecological risk assessment.
Course Offerings: spring

TOX 415  Environmental Toxicology and Chemistry  4(4-0-1) S
Preq: CH 220 or CH 221; BIO 181 or ZO 160 recommended
Provides students with an appreciation and understanding of the principles of environmental toxicology and chemistry including the sources, fate, and effects of chemicals in the environment; emphasis on contemporary problems in human health and the environment.
Course Offerings: fall

WOMEN AND GENDER STUDIES

WGS (COM) 362  Communication and Gender  3(3-0-0) F,S
Preq: Junior Standing; COM 112
Effects of gender on the interpersonal communication process. Construction of gendered identities via communication practices. Examination of theories of gender and the role of gender in organizational, institutional, and media communication practices.
Course Offerings: fall spring
WGS (PSY) 406  Psychology of Gender 3(3-0-0) F, S
Preq: PSY 200, 201 or HSS 200
*Credit cannot be given for both PSY 406 and PSY 506*
Current theory and research on perceived and actual biological, social, cognitive, personality and emotional similarities and differences of men and women throughout the lifespan. The construction and consequences of gender in our society and others.

WGS (SOC) 407  Sociology of Sexualities 3(3-0-0) S
Preq: 3 hours SOC 200 level, 300 level, or equivalent research methods course
Exploration of sexuality in a social context. Relationship between sexuality, gender and power in the U.S. Historical trends in behaviors and identities: social movements and sexual issues; current behavioral trends. Some issues covered; identity, social construction, sexual meanings.

WGS (ENG) 410  Studies in Gender and Genre 3(3-0-0) F
Preq: Sophomore standing
This course examines the ways in which writers have revised the literary genres to include gendered experience. It will focus on a different generic area, such as poetry, fiction, drama or autobiography, depending on its instructor.

ZOONOLOGY

ZO 361  Principles of Embryonic Development 3(3-0-0) S
Preq: ZO 150 or ZO 160 or BIO 125 or BIO 183
An integrated study of descriptive and experimental embryology. Development of both invertebrates and vertebrates at levels of organization from molecular to organismal.
  Course Offerings: sprg  WolfWare Info

ZO 370  Developmental Anatomy and Histology of the Vertebrates I 3(3-0-0) F
Preq: ZO 150 or ZO 160 or BIO 125 or BIO 183
Coreq: ZO 375
An integrated study on the embryonic development, gross anatomy, microanatomy and phylogeny of vertebrate organ systems; surface and connective tissues, the skeleton and the muscular system.
  Course Offerings: fall  WolfWare Info

ZO 371  Developmental Anatomy and Histology of the Vertebrates II 3(3-0-0) S
An integrated study on the embryonic development, gross anatomy, microanatomy, and phylogeny of vertebrate organ systems; the circulatory, respiratory, digestive, urogenital, endocrine, and nervous systems.

**Course Offerings:** sprg

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### ZO 375  Developmental Anatomy and Histology Laboratory I

- **Preq:** ZO 150 or ZO 160 or BIO 125 or BIO 183
- **Coreq:** ZO 370
- **Credits:** 2(0-6-0) F
- **Description:** Vertebrate organ systems utilizing dissections of preserved specimens and microscopic examination of embryos and tissue preparations; early embryonic development, surface and connective tissues, the skeleton and muscular system.
- **Course Offerings:** fall

### ZO 376  Developmental Anatomy and Histology Laboratory II

- **Preq:** ZO 370 and ZO 375
- **Coreq:** ZO 371
- **Credits:** 2(0-6-0) S
- **Description:** Vertebrate organ systems utilizing dissections of preserved specimens and microscopic examination of embryos and tissue preparations; late embryonic development and the circulatory, respiratory, digestive, urogenital, endocrine, and nervous systems.
- **Course Offerings:** sprg

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### ZO 405  Functional Histology

- **Preq:** BIO 183 or ZO 150 and ZO 160
- **Offered by Distance Education Only.** JR or SR standing. **Credit not allowed for both ZO 371 and ZO 405**
- **Description:** Offered only as a distance education course via the internet. Functional Histology describes the cellular structure of tissues and organs. Human organs are emphasized, with brief consideration given to variation in other mammals. Tissue and organ structure is related to function, including examples of malfunction (histopathology). The course is especially appropriate for students planning a career in veterinary science, medicine, or allied health fields.
- **Course Offerings:** sprg

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### ZO 412  Human Anatomy

- **Preq:** BIO 183 or ZO 250, and JR or SR standing
- **Description:** Study of the structure of the human body, utilizing a systems approach. Focus on gross anatomy, with reference to microanatomy and embryonic development as needed to understand gross morphology. Emphasis on the interrelationship of structure and function. Laboratory study facilitated through use of human skeletons, anatomical models, and electronic media as well as dissection of mammalian systems and selected organs.
- **Course Offerings:** sprg

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### ZO (BO) 414  Cell Biology

- **Preq:** ZO 160 or ZO 250 or BIO 125 or BIO 183
The chemical and physical bases of cellular structure and function with emphasis on methods and interpretations.

Course Offerings: sprg

ZO 421 Principles of Physiology 3(3-0-0) F,S,Sum

*Preq: CH 223, ZO 250 or equivalent*

A comprehensive survey of the processes involved in the function of specialized cells, tissues and organ systems. Emphasis on basic concepts with orientation toward mammalian and human systems.

Course Offerings: fall sum1 sprg

ZO 450 Evolutionary Biology 3(3-0-0) F

*Preq: ZO 205, ZO 208. GN 411 recommended.*


Course Offerings: fall

ZO 488 Neurobiology 3(3-0-0) S

*Preq: ZO 250*

Overview of the neurosciences, with a focus on fundamental principles in the function, structure, and development of the nervous system. Topics include neuroanatomy, electrical signaling, synaptic transmission, sensory and motor systems, neural development, neural plasticity, and complex brain functions. Multiple levels of analysis, from molecular to behavioral, with an emphasis on the mammalian nervous system.

Course Offerings: sprg