

Natural Sciences and Mathematics / Quantitative Reasoning

ANTH 3610 - Race, Racism, and Human Variation (3)

Prerequisite: Completion of Basic Subjects (Block A) and one course from Block B. Evaluation of cultural and environmental influences upon composition and distribution of human populations; consideration of the genetic basis for human variation and biological validity of race concept. Lecture: 3 Units. **UD GE B**

ANTH 3700 - Perspectives and Methods of Archaeological Science (3)

Prerequisites: Completion of Block A and B4, and additional course from Block B and at least one course each from Blocks C and D. Explores the application of scientific methods to the interpretation of archaeological sites and material remains. Examines the interface between science and archaeology; highlighting its interdisciplinary nature. **UD GE B**

ANTH 3850 - Measurement of Human Difference (also listed as PHIL 3850) (3)

Prerequisite: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Exploration of issues of diversity and justice through examination of popularized accounts of scientific research into human difference; topics include I.Q. testing and race, innate gender differences, and sexuality. **UD GE B; (RE)**

ASTR 3600 - Ancient and Modern Views of the Universe (3)

Prerequisites: Completion of Basic Subjects (Block A) and at least one course from Block B. Additional prerequisite for majors in the Physics and Astronomy Department: Satisfactory completion of the Graduation Writing Assessment Requirement (WPE). Not available for students with credit for ASTR 3601. Scientific theories of the Universe from ancient Mediterranean and Chinese cultures to present day Big Bang Cosmologies. Satisfies the upper division writing course in the major requirement. Lecture 3 hours. **UD GE B**

ASTR 3601 - Ancient and Modern Views of the Universe Writing Intensive (3)

Prerequisites: Completion of Basic Subjects (Block A) and at least one course from Block B. Additional prerequisite for majors in the Physics and Astronomy Department: Satisfactory completion of the Graduation Writing Assessment Requirement (WPE). Not available for students with credit for ASTR 3600. Scientific theories of the Universe from ancient Mediterranean and Chinese cultures to present day Big Bang Cosmologies. Satisfies the upper division writing course in the major requirement for physics and astronomy majors. Intensive practice in writing scientific reports including physics and astronomy literature searches. Lecture 3 hours. **UD GE B; (WI)**

BIOL 3084 - Biology of Human Aging (3)

Completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Age-related changes in human physiology and anatomy at the molecular, cellular, and organismal levels; relationship of late-onset diseases to the aging process. No credit toward biology major or minor. **UD GE B**

CE 3520 - Technological Aspects of Urban Environment (3)

Prerequisites: Completion of Basic Subjects (Block A) and one course from Block B. Current engineering practice in dealing with urban problems such as financial, transportation, pollution, communications, public utilities, land use planning and public health. Not acceptable for engineering technical elective credit. **UD GE B**

CE 3580 - Environment, Earth Systems and Technology (3)

Prerequisites: Completion of Basic Subjects (Block A) and one course from Block B. Consider the role of technology in the changing relationships between human societies and their environment; studies the impact of the agricultural, industrial and information revolutions on natural systems and sustainability. **UD GE B**

CHEM 3800 - Ancient and Modern Science (also listed as PHIL 3800 and HIST 3800) (3)

Prerequisite: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. A systematic analysis of ancient scientific thought and its relationship to modern science. **UD GE B**

CLS 3770 - Environmental Justice (also listed as PH 3770) (3)

Prerequisites: Completion of GE Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Use of epidemiology in environmental health. Morbidity and mortality in communities of color and lower economic status due to disproportionate distribution of environmental contaminants. Some sections of this course may be offered online. **UD GE B; (CL)**

GEOG 3090 - Urban Environmental Pollution (3)

Prerequisites: Completion of the Basic Subjects courses (Block A) and B4, an additional course from Block B, and at least one course each from Blocks C and D. Investigates the major sources and effects of land, water and air pollution in cities of developed and developing countries. Best management practices and control methods will also be discussed. This course includes civic learning activities. **UD GE B; (CL)**

GEOG 3100 - Urban Climatology (3)

Prerequisites: Completion of Basic Subjects (Block A) and B4, an additional course from Block B, and at least one course each from Blocks C and D. The course investigates urbanization effects on the immediate atmospheric environment. Students evaluate these effects through direct measurement and data analyses. Topics include architecture, urban planning and pollution. The course includes civic/service learning activities. **UD GE B; (CL)**

GEOG 3120 - Global Climate Change and the Developing World (also listed as GEOL 3120) (3)

Completion of Basic Subjects (Block A) and B4, an additional course from Block B, and at least one course each from Blocks C and D. Investigates the causes and impacts of global climate change on developing countries, as well as mitigation schemes. Students explore current climate change and its impact on the poor, and they gather evidence from the past and formulate scenarios of the future. This course includes civic/community learning. **UD GE B; (CL)**

GEOG 3330 - Environment and Development in the Third World (also listed as GEOL 3330) (3)

Prerequisites: Completion of Blocks A and B4, an additional course from Block B, and one course each from Blocks C and D. The physical environments of the Third World and associated problems of development. **UD GE B**

GEOL 3120 - Global Climate Change and the Developing World (also listed as GEOG 3120) (3)

Completion of Basic Subjects (Block A) and B4, an additional course from Block B, and at least one course each from Blocks C and D. Investigates the causes and impacts of global climate change on developing countries, as well as mitigation schemes. Students explore current climate change and its impact on the poor, and they gather evidence from the past and formulate scenarios of the future. This course includes civic/community learning. **UD GE B; (CL)**

GEOL 3330 - Environment and Development in the Third World (also listed as GEOG 3330) (3)

Prerequisites: Completion of Blocks A and B4, an additional course from Block B, and one course each from Blocks C and D. The Physical Environments of the Third World and Associated Problems of Development. **UD GE B**

GEOL 3570 - Urban Geology (3)

Prerequisites: Completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Geologic conditions and processes (earthquakes, volcanoes, floods, landslides, coastal processes, etc.) as they affect urbanized areas around the world. Urban governmental planning and regulation for mitigation of geologic problems. **UD GE B; (CL)**

HIST 3300 - Big History: From The Big Bang Until the Present (3)

Prerequisites: Completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Covers eight thresholds of universal history, from the creation of the universe through the origin of life through the Anthropocene Epoch: human history in its broadest ecological and biological context. **UD GE B**

HIST 3800 - Ancient and Modern Science (also listed as PHIL 3800 and CHEM 3800) (3)

Prerequisite: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. A systematic analysis of ancient scientific thought and its relationship to modern science. **UD GE B**

HNRS 3400 - Addressing “Wicked” Problems: A Natural Sciences Case Study (3)

Prerequisites: Completion of GE Blocks A and B4, an additional course from lower division Block B, and at least one course each from lower division Blocks C and D. Prerequisite or co-requisite: HNRS 2900. This course is an in-depth study on a significant environmental and biological problem that has complex interactions with and profound impacts on our ecosystem and human society. **UD GE B**

KIN 3000 - Physiological Bases of Nutrition, Physical Fitness, and Health (3)

Prerequisites: Completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. This course provides information that is based on the scientific principles of nutrition, exercise, weight control, and health leading to the development of individualized exercise and nutritional strategies for achieving lifelong wellness. **UD GE B**

KIN 3450 - Physiological Effects of Exercise During Aging (3)

Pre-requisites: Completion of Blocks A and B4, and additional one course from Block B., and at least one course from Blocks C and D. Age-related physiological changes with mature adults, and the impact of physical activity on physical capacity. Some sections of this course will include service learning as an option. **UD GE B**

LBS 3860 - Gender in Science (3)

Prerequisites: Completion of GE Blocks A and B4, an additional course from lower division Block B, and at least one course each from lower division Blocks C and D. Interdisciplinary exploration of scientific conceptions of gender and the effects of gender ideology on the history of science from the Scientific Revolution to the present. **UD GE B**

MKT 3700 - Marketing Analytics (3)

Prerequisite: Completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Investigates and analyzes Big Data electronic databases via electronic software to create marketing information to enable informed marketing decision making and strategic development. . Some sections may be technology mediated. **UD GE B**

NTRS 3510 - Adult Nutrition (3)

Prerequisite: Completion of G.E. Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Nutritional needs and common diseases afflicting adults; promotion of adult health by nutritional intervention. **UD GE B**

NTRS 3570 - The Changing Food Supply: Impact on Health (3)

Prerequisites: Completion of GE (Blocks A) and B4, and one additional course from Block B, and at least once course each from Blocks C and D. Changing food consumption patterns since our ancient ancestors, and the subsequent impact on health. Agricultural systems and food availability, and their impact on today's established cultural food habits will be explored. Some sections of this course may be taught online. **UD GE B; (D)**

NURS 3070 - Physiology and Psychology of Violence and Aggression (also listed as PSY 3070) (3)

Prerequisites: Completion of GE Block A, Block B4, one additional course from Block B, and one course each from Blocks C and D. Biological and psycho-behavioral approaches to violent individuals; analysis of and research support for understanding the role diversity plays in intercultural and intergroup violence drawn from natural, medical and behavioral sciences. **UD GE B; (D)**

NURS 3080 - Psychophysiology of Substance Abuse and Violence (3)

Prerequisites: Completion of Block A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Physiological effects of abused substances; examination of connection between substance abuse and violent behavior. **UD GE B**

PH 3770 - Environmental Justice (also listed as CHS 3770) (3)

Prerequisites: Prerequisites: Completion of GE Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Use of epidemiology in environmental health. Morbidity and mortality in communities of color and lower economic status due to disproportionate distribution of environmental contaminants. Some sections of this course may be offered online. **UD GE B; (CL)**

PHIL 3800 - Ancient and Modern Science (Also listed as HIST 3800 and CHEM 3800) (3)

Prerequisite: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. A systematic analysis of ancient scientific thought and its relationship to modern science. **UD GE B**

PHIL 3850 - Measurement of Human Difference (also listed as ANTH 3850) (3)

Prerequisite: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Exploration of issues of diversity and justice through examination of popularized accounts of scientific research into human difference; topics include I.Q. testing and race, innate gender differences, and sexuality. **UD GE B; (RE)**

PHIL 3900 - The Birth of Modern Physics (3)

Prerequisites: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. In this course we will examine the birth of modern physics, the advent of quantum mechanics and relativity, and the ramifications of these theories for the world. **UD GE B**

PHYS 3700 - Energy and the Environment (3)

Prerequisite: The completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. The physics of energy conversion including the environmental and cost advantages and disadvantages of energy sources - fossil fuels, nuclear, solar, hydroelectric, biomass, wind, tidal, and geothermal. Lecture 3 hours. **UD GE B**

PSY 3070 - Physiology and Psychology of Violence and Aggression (also listed as NURS 3070) (3)

Prerequisites: Completion of GE Block A, Block B4, one additional course from Block B, and one course each from Blocks C and D. Biological and psycho-behavioral approaches to violent individuals; analysis of and research support for understanding the role diversity plays in intercultural and intergroup violence drawn from natural, medical and behavioral sciences. **UD GE B; (D)**

PSY 3230 - Psychology of Emotion and Motivation (3)

Prerequisites: Completion of GE Blocks A and B4, one additional Block B course, and one course each from Blocks C and D. The influence of learning, cognition, evolution, pharmacology and physiology on emotion and motivation. **UD GE B; (CL)**

PSY 3880 - Sex and Gender (3)

Prerequisites: Completion of GE Blocks A and B4, one additional Block B course, and one course from Blocks C and D. Biological and psychological differences between the sexes; topics include genetics of sexual determination, sexual development and anomalies, hormones in physiology and behavior, psychological differences in behavior. **UD GE B**

RELS 3650 - Science and Religion (3)

Prerequisites: Completion of Blocks A and B4, an additional course from Block B, and at least one course each from Blocks C and D. Comparison of goals, methods, settings, and practitioners of religion and science, past and present, through an examination of historical and present-day case studies. **UD GE B**

WGSS 3860 - Gender in Science (3)

Prerequisites: Completion of GE Blocks A and B4, an additional course from lower division Block B, and at least one course each from lower division Blocks C and D. Interdisciplinary exploration of scientific conceptions of gender and the effects of gender ideology on the history of science from the Scientific Revolution to the present. **UD GE B**