

ANFS - Animal & Food Science

ANFS 467-15 BIOMEDICAL COMMUNICATION

Covers methodology, technique, and ethical issues fundamental to written, oral, and visual communications in the biologic and medical sciences. Topics include: scientific method and reasoning, hypothesis development, format and voice, source citation, and peer review. Prereq: ENGL110.

ANFS 467-16 GENETICS AND BREEDING

Advanced genetics course with and introduction to plant and animal breeding. Overview of transformational technologies and the impact of genetics on society. Prereq: ANFS300, PLSC100.

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ANTH - Anthropology

ANTH 267-10 ANTHROPOLOGY COLLOQUIUM

Talks by individuals trained in anthropology who work in many contexts: academic, government, business, museum, etc. Shows the full range of what people trained in anthropology DO and how anthropology shaped their view of the world and of their work.

ANTH 367-10 ANTHROPOLOGY OF CHILDHOOD

Childhood is compared anthropologically in cross-cultural, evolutionary perspectives. Examines case studies and compares growing up as a non human primate with our experiences as human children and examines both the experience of childhood and the concept of childhood in cultures from around the world.

ART – Art

ART 367-10 SEMINAR: CRANE ART CENTER INITIATIVE

Maintain and run UD@Crane, participate in installation of art works, PR work, marketing design, discuss art work with public, office organization, help with receptions, events, research around exhibitions and artists.

ARTH - Art History

ARTH 367-10 ORIGINALITY IN REN-BAROQUE ART

Examines theories of originality and the creative process. Topics include: artistic rivalries; charges of plagiarism; the "divine" artist; the burden of classical sources; the status of copies; concepts of novelty. Focus on Leonardo, Michelangelo, Cellini, Caravaggio, Carracci, Bernini, Velazquez.

ARTH 406-80 SEM:CHARLAMAGNE'S COURT

Art and architecture especially prior to Charlemagne's imperial coronation in 800, with extensive consideration of literary and historical documents.

ARTH 419-10,80 ART & RELIGION/IBERIAN WORLD

Analyzes religious monuments and artworks created in the Iberian kingdoms and their New World colonies, ca. 1492-1830.

ARTH 420-10 WOMEN ARTISTS/MODERN AFRICA

Explores the work of eight artists from Egypt, Nigeria, Morocco, Algeria, Somalia, Uganda, South Africa and Kenya. What are their works' dialogues with feminism, Islam, exile, history, philosophy, politics, medicine, and the very idea 'art'.

ARTH 423-10 NEITHER PAINTING NOR SCULPTURE

From 1945 to 1975 European and American artists expanded the easel painting into environmental space. This course looks at early instances of this tendency, tracking it through to Arte Povera, Land Art, and Institutional Critique.

ARTH 435-10 PHILADELPHIA: PEALE TO EAKINS

Explores artistic cultures in Philadelphia from 17th-19th centuries. Emphasis on Hesselius, West, the Peales, Birch, Rush, and Eakins. Studies art in relation to science, politics, urbanism, collecting, display, academics, and Atlantic world.

ARTH 467-10 EARTH PERFECT? NATURE, UTOPIA, AND THE GARDEN

Interdisciplinary seminar focusing on history & meaning of gardens as symbols of an ideal human relation with nature. Study: natural environment & society, garden in the visual arts & literature, changing meaning & function of domestic & public gardens, gardening in the face of ecological decline.

ARTH 606-80 SEM:CHARLAMAGNE'S COURT

Art and architecture especially prior to Charlemagne's imperial coronation in 800, with extensive consideration of literary and historical documents.

ARTH 616-10 ITALIAN DRAWINGS

Methods of identifying and analyzing drawings. Topics include: copies vs. originals; techniques; materials; preparatory process; function/typology; conditions/restoration; scientific analysis; history of collecting. Field trips (mostly on Fridays).

ARTH 623-10 NEITHER PAINTING NOR SCULPTURE

From 1945 to 1975 European and American artists expanded the easel painting into environmental space. This course looks at early instances of this tendency, tracking it through to Arte Povera, Land Art, and Institutional Critique.

ARTH 629-10 THE MEDIATED CITY: REPRESENTATION & URBAN EXPERIENCE

Urban representations across media - painting, film, television, literature, even maps, music, and development proposals - and in relation to themes such as growth, class, industrialization, movement, time, demographic change, disaster, and so on.

BINF – Bioinformatics

BINF 667-12 BIOMEDICAL INFORMATICS

An introductory course for biomedical informatics, which studies the effective uses of biomedical data to improve human health. Includes lecturers from UD, Christiana, Nemours and AstraZeneca; and topics on clinical and health informatics, electronic health records, data standards and vocabularies.

BINF 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

BISC – Biology**BISC 467-10 EPIDEMICS AND PLAGUES**

Covers diseases such as the Plague, which ravaged Europe in the Middle Ages, to diseases such as AIDS, Flu and Malaria which affect millions of people today. Studies diseases from medical, microbiological and societal perspectives.

BISC 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

BMEG - Biomechanic Engineering**BMEG 367-10 BIOENGINEERING MECHANICS II**

Introduction to statics, dynamics and mechanics of solids with application to biomedical problems. Continued from BMEG 310.

BMEG 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

BUAD - Business Administration**BUAD 367-10 ENTREPRENEURIAL APPRENTICE**

Completion of a series of hands-on entrepreneurial challenges that extend the boundaries of the classroom into the real world. Build important skills like opportunity recognition, ideation, personal selling, and networking. Establish valuable connections. Assess and discuss individual and team performance.

BUAD 367-13 LABOR RELATIONS IN SPORT

The history of labor relations and collective bargaining in professional sports including the NBA, NFL, NHL, MLB and MLS. Discusses the application of the antitrust laws and labor laws to professional sports as well as the intersection of the laws themselves.

BUAD 367-14 THE BUSINESS OF SOCCER

An in-depth analysis of the governance, management, marketing, financing and cultural significance of professional and international soccer. Examines major issues and trends of the world's most popular sport.

BUAD 367-15 MANAGING COLLEGE ATHLETICS

An in-depth analysis of the governance, management, marketing and financing of intercollegiate athletics at the institutional, conference and national governance levels. Covers major issues facing the leadership of intercollegiate athletics.

CHEG - Chemical Engineering

CHEG 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

CHEM – Chemistry

CHEM 367-10 ANALYSIS OF CHEMICAL PROBLEMS

Mathematical methods (differential/integral calculus, linear differential equations, linear algebra, statistical analysis, spreadsheet software) focusing on problems of chemical kinetics, quantum chemistry, and group theory. Emphasis on hands-on problem solving via in-class discussion and exercises. Prereq: MATH242; MATH243 preferred.

CHEM 467-10 CHEMISTRY IN THE MEDIA

Examines the portrayal of chemistry and chemists in literature, film, and other media. Reading, viewing, and discussing chemically related media. Prereq CHEM104.

CHEM 667-10 BIOCHEMICAL EVOLUTION

Considers the molecular continuity of all life on earth over time. Using lectures and case studies in a PBL format, it explores the role of selection and random processes on the structure and function of biological molecules and their manifestations at the organismal level Prereq: CHEM527 or CHEM642.

CHEM 667-10 BIOCHEMICAL EVOLUTION

Problem Based Learning course that conveys major concepts in Molecular Evolution through an in-depth study of case studies and associated problems developed from the contemporary research literature. Prereq: CHEM527, CHEM641.

CHEM 830-10 CHEMICAL BIOLOGY

Explores the applications of organic molecular design and discovery to manipulating, exploring, and exploiting biological systems. Reviews basic principles of molecular recognition and catalysis through examples from bioorganic chemistry. Focuses on exploring tools and techniques for manipulating cells through the chemistry framed around the central dogma (DNA-to-RNA-to-Protein) and beyond. Prereq: CHEM 527 and CHEM641 and one year of organic chemistry. CHEM633 recommended.

CHEM 850-10 X-RAY CRYSTALLOGRAPHY

Basic theory and practice of single crystal X-ray diffraction and the use of space group symmetry, with an emphasis on the practical elements of diffraction data collection and structure solution and refinement. Prereq: CHEM457.

CHEM 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

CHEM 874-10 MOLECULAR DYNAMICS SIMULATION

Basics of classical molecular dynamics simulation in a 1/3 lecture, 2/3 hands-on lab work format. Gain a working knowledge of molecular dynamics simulation by using a modern, high performance molecular dynamics code on real problems in a hands-on, practical setting. PrereqL CHEM418.

CHIN – Chinese**CHIN 467-10,80 READINGS IN CHINESE LITERATURE**

Improves students' reading and writing proficiency through reading and responding to literary works and essays on important social and cultural issues in modern and contemporary China.

CIEG - Civil & Environmental Engineering**CIEG 167-10 SUSTAINABLE ENERGY TECHNOLOGY**

Covers the major sources of energy that fuel our society and discusses how we can develop sustainable energy solutions. Presents the basic scientific principles behind each energy source. Discusses the environmental and economic impact of various energy solutions.

CIEG 467-10 RAILROAD DERAILMENT&SAFETY

Explores the engineering issues associated with common types of derailments, including track, equipment and operator derailments. The specific failure mechanisms associated with key classes of derailments will be examined with the technologies available for reducing these types of derailments.

CIEG 467-11 INTRODUCTION TO BUILDING INFORMATION MODELING (BIM)

Focuses on the role of BIM in the Architecture/Engineering/Construction (AEC) industry. Understand the basic principles and benefits of BIM through software platforms. Includes a model that facilitates documentation, 3D design exploration, model-based quantity take off and estimating, interference checking, digital fabrication, construction coordination and sequencing.

CIEG 467-12 ADVANCED STRUCTURAL ANALYSIS

Introduction to various methods of analysis of statically indeterminate structures. Discusses force methods and displacement methods, including method of consistent distortions, equation of three moments, slope deflection, and moment distribution.

CIEG 467-13 AIR POLLUTION METEOROLOGY

Introduction to meteorological processes that affect air pollution, such as diffusion, atmospheric stability, and turbulence, with a focus on the atmospheric boundary layer.

CIEG 467-014 OPTIMAL DESIGN

Introduction to optimization techniques and software based solutions for linear and non-linear problems as they relate to engineering design; includes determining which design is cheapest or fastest to build. Evaluate how sensitive a design is to change in specifications or cost. Problem-Based-Learning with students working in teams.

CIEG 467-15 MICROBIOLOGY OF ENGNRD SYSTEMS

Introduces the fundamentals of microbiology and the contributions of microbes to nutrient cycling in natural and engineered environments. At the completion of the course, students are expected to have a working understanding of microbiology and biochemistry and their relationship to biotransformat
Prereq: BISC207.

CIEG 667-10 RAILROAD DERAILMENT & SAFETY

Explores the engineering issues associated with common types of derailments, including track, equipment and operator derailments. The specific failure mechanisms associated with key classes of derailments will be examined with the technologies available for reducing these types of derailments.

CIEG 667-12 BRIDGE DESIGN II

Advanced topics include: refined methods of analysis, post-tensioning, segmental construction, fracture-critical members, load evaluation, extreme-events and cable-supported bridges.

CIEG 667-13 AIR POLLUTION METEOROLOGY

Introduction to meteorological processes that affect air pollution, such as diffusion, atmospheric stability, and turbulence, with a focus on the atmospheric boundary layer.

CIEG 667-014 OPTIMAL DESIGN

Introduction to optimization techniques and software based solutions for linear and non-linear problems as they relate to engineering design; includes determining which design is cheapest or fastest to build. Evaluate how sensitive a design is to change in specifications or cost. Problem-Based-Learning with students working in teams.

CIEG 667-15 MICROBIOLOGY OF ENGNRD SYSTEMS

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Prereq: BISC207

CIEG 667-16 ADVANCED DATA ANALYSIS

Comprehensive introduction to the principles and practices of emerging advanced data with particular focus to engineering science. Provides insight to emerging advanced statistical techniques.

CISC - Computer & Information Science**CISC 367-10 MOBILE CLOUD COMPUTING**

Covers the systems and programming of mobile cloud computing that integrates smart phones and tablets with virtualized computing infrastructures. Topics include: Android programming, IaaS, PaaS, SaaS, and Google App Engine. Prereq: MISY225 or CISC181.

CISC 367-11 FIELD EXPERIENCE IN TEACHING COMPUTING

Provides field experience in teaching the principles of computing concepts in middle and high school classrooms through inquiry-based learning and project-based instruction, using best practices in teaching.

CISC 467-11 SOFTWARE TESTING & MAINTENANCE

Covers software testing and maintenance methodologies for modern software. Includes approaches to automatic test case generation, test oracles, test coverage analysis, regression testing, program understanding, and software maintenance tools. Prereq: MISY261.

CISC 467-10 INTRO TO CYBERSECURITY

An introduction to cyber security topics including security fundamentals, applied cryptography, system security, access control policies, intrusion detection, auditing, and security models. PREREQ: CISC106, MISY 225 or MISY 261.

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An introduction to cyber security topics including security fundamentals, applied cryptography, system security, access control policies, intrusion detection, auditing, and security models. PREREQ: CISC106, MISY 225 or MISY 261.

CISC 889-10 INFORMATION RETRIEVAL

Organizing, analyzing, and searching GB to TB of heterogeneous, unstructured textual data. Search tasks, retrieval models, index structures, and effectiveness evaluation.

COMM – Communication

COMM 200-10 COMMUNICATIONS & FAMILY SYSTEMS

Introduction to the role of communication within families across the life course. Includes communication issues regarding parent/child communication, teens, sibling relationships, adult/children and elderly parents, and marriage.

COMM 200-11 SEX, VIOLENCE & THE MEDIA

Studies the prevalence of sex and violence in the media. Topics include free speech/press decisions and their impact, why people watch, their effects, and the market forces that encourage corporations to carry such content.

COMM 418-10 DIGITAL MEDIA/COMM/SOCIAL LIFE

Examines the significance of digital media for interpersonal relationships, social life, and civic engagement, both online and offline.

COMM 425-10 BROADCAST NEWS DOCUMENTARY

First experience in concepts, and practice in development and presentation of a full-length TV news documentary: program concept, design, field reporting, producing, editorial decision making, writing, digital video editing and presentation.

COMM 440-10 COMMUNICATION & EMOTION

Explores human communication and emotions from a variety of perspectives including cognitivism, social constructionism, existentialism, and depth psychology.

COMM 442-10 STRATEGIC COMMUNICATION

Investigates the theory and practice of communication in organizations. Examines the internal and external practices of crisis communication, reputation management, and leadership communication. Uses case studies analyze and apply theory to actual situations.

COMM 444-10 GLOBAL AGENDA: AMERICA'S ROLE IN THE WORLD

Internal policy and media speaker series focussing on the many demands placed on U.S. leadership. Includes fighting terrorism, negotiating peace in the Middle East, defending human rights, intellectual property, and maintaining economic stability.

COMM 467-80 COMMUNICATION HONORS CAPSTONE

Designed for seniors completing the COMM Honors degree. Student groups conduct all phases of a professional level quantitative research study of their own choosing, from choice of topic through research report preparation.

COMM 618-10 DIGITAL MEDIA/COMM/SOCIAL LIFE

Examines the significance of digital media for interpersonal relationships, social life, and civic engagement, both online and offline.

COMM 642-10 STRATEGIC COMMUNICATION

Investigates the theory and practice of communication in organizations. Examines the internal and external practices of crisis communication, reputation management, and leadership communication. Uses case studies analyze and apply theory to actual situations.

CPEG - Computer Engineering

CPEG 467-10 INTRO TO CYBERSECURITY

An introduction to cyber security topics including security fundamentals, applied cryptography, system security, access control policies, intrusion detection, auditing, and security models. PREREQ: CISC106, MISY 225 or MISY 261.

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CRJU - Criminal Justice

CRJU 467-10 CRIME AND CRIMINAL JUSTICE IN E. ASIA

Examines crime & criminal justice issues in E. Asia, with an emphasis on China and Japan. Describes the variety of crime and criminal justice, to understand the determinants of these variations, and to compare the differences and similarities between E. Asia and the US.

DISA – Disability Studies

DISA 667-010 ISSUES IN DISASTER RESPONSE

Focusses on a variety of problems that arise before, during, and after emergencies and disasters. Includes the psychology of warnings and risk perception, the establishment of emergency response organizations, developing emergency operation centers, post-disaster behavioral health.

ELEG - Electrical Engineering

ELEG 467-10 INTRO TO CYBERSECURITY

An introduction to cyber security topics including security fundamentals, applied cryptography, system security, access control policies, intrusion detection, auditing, and security models. PREREQ: CISC106, MISY 225 or MISY 261.

ELEG 467-12 DIGITAL IMAGING/AUDIO SIG PROC

The Internet has triggered a business paradigm shift in the music & video industries resulting in advances in digital signal processing of music & imaging. The principles draw from rich fields of Fourier analysis, human perception & communications.

ELEG 667-10 INTRO TO CYBERSECURITY

An introduction to cyber security topics including security fundamentals, applied cryptography, system security, access control policies, intrusion detection, auditing, and security models. PREREQ: CISC106, MISY 225 or MISY 261.

ELEG 667-11 SOFTWARE DEFINED RADIO

Provides hands-on experience for students to build modem hardware that can perform digital data communication using either electromagnetic waves or acoustic waves. Prereq: ELEG403 or MAST811.

ELEG 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

ENEP - Energy & Environmental Policy

ENEP 167-10 SUSTAINABLE ENERGY TECHNOLOGY

Covers the major sources of energy that fuel our society and discusses how we can develop sustainable energy solutions. Presents the basic scientific principles behind each energy source. Discusses the environmental and economic impact of various energy solutions.

ENTR – Entrepreneurship

ENTR 367-10 ENTREPRENURIAL APPRENTICE

Completion of a series of hands-on entrepreneurial challenges that extend the boundaries of the classroom into the real world. Build important skills like opportunity recognition, ideation, personal selling, and networking. Establish valuable connections. Assess and discuss individual and team performance.

ENTR 467-50 STARTUP EXPERIENCE I

Conceive and develop a high growth potential business. Students from technical and business backgrounds work together in teams to learn and utilize a repeatable method for developing viable business concepts. Emphasizes types of businesses, opportunity recognition, ideation, and validation of business model hypotheses. Includes intellectual property, venture capital, business strategy, and team building.

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ENWC - Entomology & Wildlife Ecology**ENWC 267-10 HUMANS & NATURE**

Addresses challenges such as the earth's carrying capacity, ecosystem function, climate change, and the extinction crisis, in terms of their causes, politics, and solutions.

ENWC 667-10 LANDSCAPE ECOLOGY

Basic principles and methods to explore spatial relationships among landscape elements and ecosystems. Focusses on the influence of spatial pattern on biotic and abiotic processes and ecological principles for the management of landscape heterogeneity. Computer lab uses ArcGIS software.

ENWC 667-11 WILDLIFE SPATIAL ANALYSIS

Wildlife Resource Selection Models and Species Distribution Models are two important tools for wildlife managers and conservationist. We will cover advanced GIS techniques, statistical analyses in R and WinBUGS, and the use of programs like MAXENT and PRESENCE.

FINC – Finance**FINC 167-10 PORTFOLIO SIMULATION**

Introduction to investing in a portfolio using simulation.

FINC 467-10 ENERGY FINANCE

Introduction to sustainable energy systems; economics of traditional and renewable energy sources; physical and financial energy markets; commodity derivatives (futures, options, swaps); and risk management in the oil, gas, and electricity industries.

FINC 667-10 ENERGY FINANCE

Introduction to sustainable energy systems; economics of traditional and renewable energy sources; physical and financial energy markets; commodity derivatives (futures, options, swaps); and risk management in the oil, gas, and electricity industries.

FINC 867-10 THEORY OF ASSET PRICING

Provides a comprehensive introduction to the pricing of financial assets. Covers the main pillars of asset pricing, including choice theory, portfolio theory, equilibrium pricing, and arbitrage pricing. Prereq: FINC870, ECON801, ECON802, ECON812 or ECON813.

FLLT - Foreign Languages & Literature**FLLT 467-10 EARTH PERFECT? NATURE, UTOPIA, AND THE GARDEN**

Interdisciplinary seminar focusing on history & meaning of gardens as symbols of an ideal human relation with nature. Study: natural environment & society, garden in the visual arts & literature, changing meaning & function of domestic & public gardens, gardening in the face of ecological decline.

GEOG – Geography

GEOG 467-11 GLOBAL AT HOME

Considers reasons for and impact of recent immigration to Delaware. Students visit organizations that deal with immigrant concerns and conduct fieldwork in selected immigrant communities. Thus the ability to commit to some off-campus inquiry is important.

GEOG 467-13 AIR POLLUTION METEOROLOGY

Introduction to meteorological processes that affect air pollution, such as diffusion, atmospheric stability, and turbulence, with a focus on the atmospheric boundary layer. Prereq: MATH243 or equivalent, CHEM103 or CHME103 or CHEM112 PHYS201 or PHYS207, GEOG220 or equivalent or permission of instructor.

GEOG 473-10 AUTOMATING GEOPROCESSING

Covers how to create Python scripts to automate ArcGIS geoprocessing tasks, increasing productivity and efficiencies in GIS workflows. Exercises include expanding ModelBuilder capabilities to decision-making logic, adding different types of variables, controlling the flow of the geoprocess.

GEOG 667-10 SPATIAL STATISTICS

Explores the emerging literature on statistical methodologies that have been explicitly developed for the solution of spatial problems.

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GEOG 673-10 AUTOMATING GEOPROCESSING

Covers how to create Python scripts to automate ArcGIS geoprocessing tasks, increasing productivity and efficiencies in GIS workflows. Exercises include expanding ModelBuilder capabilities to decision-making logic, adding different types of variables, controlling the flow of the geoprocess.

GEOL – Geology

GEOL 667-10 SPATIAL STATISTICS

Explores the emerging literature on statistical methodologies that have been explicitly developed for the solution of spatial problems.

HDFS - Human Development & Family Studies

HDFS 467-11 FAMILY AND YOUTH COUNSELING

Examines the major approaches to family counseling, including theory and intervention techniques. Particular emphasis is given to their application to working with at risk youth. Prereq: HDFS201.

HDFS 667-10 LONG STAT RESEARCH HUMAN DEV

Individual, project-based approach to introduce students to applied quantitative research methods in human development. Course will lead students through the process of dev & refining their question, planning stat analyses, extracting & preparing raw data, conducting analyses, & interpreting results. Prereq EDUC665 or equivalent.

HIST – History**HIST 337-10 AMERICA OBSERVED**

Course assesses contemporary American life and character; it joins a longstanding conversation about American virtue and default, about wrong done and denied, about the things worth saving, and about the circumscribed fate of Americans without money enough to matter.

HIST 337-440 AMERICAN SPORTS HISTORY

Traces major developments in American sports history since the Civil War.

HIST 467-10 EARTH PERFECT? NATURE, UTOPIA, AND THE GARDEN

Interdisciplinary seminar focusing on history & meaning of gardens as symbols of an ideal human relation with nature. Study: natural environment & society, garden in the visual arts & literature, changing meaning & function of domestic & public gardens, gardening in the face of ecological decline.

ITAL – Ital**ITAL 367-70 INTERNSHIP**

120-150 hours of non-paid, graded, credit-bearing employment experience at an Italian company, non-profit, or other organization, with academic expectations such as a journal and final report. Guided oversight by JCU faculty. Requires an application and employer interview; placement not guaranteed. Prereq: Any two 200-level ITAL courses and GPA of at least 3.30.

JAPN – Japanese**JAPN 467-10 CAPSTONE THESIS**

Students plan and write a research thesis in the Japanese language, using sources in English and Japanese. Writing is broken into stages, including a formal research proposal, annotated bibliography and outline. This course is the capstone experience in Japanese language study at UD.

JWST - Jewish Studies**JWST 267-10 SHOW BIZ: A JEWISH PERSPECTIVE**

As the Jewish population of America grew rapidly during the early decades of the 20th century, Jews brought with them a rich and diverse tapestry of dramatic and theatrical modes. This course will examine the development of this extraordinary creative and commercial phenomenon.

KAAP - Kinesiology & Applied Physiology**KAAP 267-10 INTRODUCTION TO RESEARCH**

According to the Centers for Disease Control and Prevention, almost 50% of US citizens have at least one chronic illness. In the health sciences, early academic training is necessary to develop skilled researchers to investigate causes, cures, and interventions for disease and disabilities.

LAMS – Latin American Studies

LAMS 367-010 INTERDISCIPLINARY METHODS IN LATIN AMERICAN & IBERIAN STUDIES

Introduces students to methodologies used by the disciplines and fields represented in LAIS.

LEAD – Leadership

LEAD 267-10 ENGAGED LEADERSHIP

Engages students in practical application of leadership theory in the development, implementation and assessment of a sustainable, team-based project, designed to address a campus or community issue.

LING – Linguistics

LING 267-10 SCIENCE OF LANGUAGE

An intensive introduction to formal linguistic theories, including areas such as sound, word and sentence structures. Analytical and scientific examination of empirical data from diverse languages. Prereq: LING101.

MAST - Marine Studies

MAST 467-13 AIR POLLUTION METEOROLOGY

Introduction to meteorological processes that affect air pollution, such as diffusion, atmospheric stability, and turbulence, with a focus on the atmospheric boundary layer. Prereq: MATH243 or equivalent, CHEM103 or CHME103 or CHEM112 PHYS201 or PHYS207, GEOG220 or equivalent or permission of instructor.

MAST 667-10 SYSTEMS BIOLOGY I

Combines lectures and hands-on exercises to introduce students to experimental methods and bioinformatics analysis in systems biology, showing how global analysis of omics data improves understanding of biological systems.

MAST 667-11 SOFTWARE DEFINED RADIO

Provides hands-on experience for students to build modem hardware that can perform digital data communication using either electromagnetic waves or acoustic waves. Prereq: ELEG403 or MAST811.

MAST 667-13 AIR POLLUTION METEOROLOGY

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MAST 667-20 ECOLOGICAL MODELS & DATA IN R

Examines the theory and mechanics of developing ecological models using the R language (<http://www.r-project.org/>). Introduces students to the R language and ecosystem models through in class and homework exercises.

MAST 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

MCST - Material Culture Studies**MCST 435-10 PHILADELPHIA: PEALE TO EAKINS**

Explores artistic cultures in Philadelphia from 17th-19th centuries. Emphasis on Hesselius, West, the Peales, Birch, Rush, and Eakins. Studies art in relation to science, politics, urbanism, collecting, display, academics, and Atlantic world.

MCST 467-10 EARTH PERFECT? NATURE, UTOPIA, AND THE GARDEN

Interdisciplinary seminar focusing on history & meaning of gardens as symbols of an ideal human relation with nature. Study: natural environment & society, garden in the visual arts & literature, changing meaning & function of domestic & public gardens, gardening in the face of ecological decline.

MEDT - Medical Technology**MEDT 267-10 MED. MICRO. & INFECT. DISEASES**

Introduces principles of human medical microbiology. Emphasizes bacterial pathogenic mechanisms, clinical manifestations, and diagnostic methods. Includes important human viral and parasitic diseases, antimicrobial agents, immunology and immune disorders. Prereq BISC207.

MEEG - Mechanical Engineering**MEEG 267-10 DYNAMICS**

Intermediate-level development of the kinematics and dynamics of particle systems and rigid bodies. Solution of engineering problems by force, momentum and energy methods with applications to mechanisms, machines, and vehicles. Computer problems. PREREQ: Grade of C- or better in MEEG112 or CIEG211.

MEEG 467-10 CONTROL OF DYNAMIC SYSTEMS

Analysis of state space dynamical systems with multiple inputs and outputs. Study of solutions to continuous-time linear state equations, introduction to controllability and observability, basic control design for multiple input state space systems.

MEEG 467-11 INTRODUCTION TO ROBOTICS

Topics include: rigid motions and transformations, forward kinematics, Denavit-Hartenberg representations, inverse kinematics, velocity kinematics, dynamics, independent joint control, multivariable control, force control.

MEEG 467-12 INTERFACE SCIENCE AND ENG

Provides an introduction to tribology, imparts a basic understanding of interfacial phenomena, and surveys emerging interface challenges ranging from wind power conversion to osteoarthritis. Recommended for mechanical, chemical & material science engineering seniors."

MEEG 467-13 CYTOMECHANICS

Address how cell mechanics is involved in essential cellular processes (maintenance of cell shape, cell motility, adhesion, deformations, and mechanotransduction).

MEEG 467-14 APPLIED STRUCTURAL ANALYSIS

Introduction of finite element methods (FEM) for the analysis of solid and structural problems. Practical use and application of commercial finite element software package. Modeling of solids and structural problems and analysis of FEM results. Prereq: MEEG215.

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MEEG 867-10 FRACTURE OF COMPLEX MATERIAL SYSTEMS

Fracture mechanics applied to complex systems such as composites, membranes, electro-chemical devices, biomaterials etc. Prereq: MEEG610 or permission of instructor.

MEEG 867-11 NONLINEAR OPTIMAL CONTROL

An overview of methods for optimal control of nonlinear dynamical systems. Review of variational and maximum principle approaches, and links between these formulations, dynamic programming and the Hamilton-Jacobi-Bellman equation. Illustration of the proof of the maximum principle.

MISY - Management Information Systems

MISY 367-10 MOBILE CLOUD COMPUTING

Covers the systems and programming of mobile cloud computing that integrates smart phones and tablets with virtualized computing infrastructures. Topics include: Android programming, IaaS, PaaS, SaaS, and Google App Engine. Prereq: MISY225 or CISC181.

MISY 467-11 SOFTWARE TESTING & MAINTENANCE

Covers software testing and maintenance methodologies for modern software. Includes approaches to automatic test case generation, test oracles, test coverage analysis, regression testing, program understanding, and software maintenance tools. Prereq: MISY261.

MISY 467- INTRO TO CYBERSECURITY

An introduction to cyber security topics including security fundamentals, applied cryptography, system security, access control policies, intrusion detection, auditing, and security models. PREREQ: CISC106, MISY 225 or MISY 261.

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MSEG - Material Science Engineering

MSEG 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

PHIL – Philosophy

PHIL 867-10 ETHICS, BUSINESS & COMMUNICATION

Provides professional development in ethics, business and communication related to systems biology research applications in stem cell, tissue engineering, and drug delivery technologies. Intended for PhD students in interdisciplinary life science and engineering programs.

PLSC - Plant & Soil Science

PLSC 467-10 GENETICS & BREEDING

Advanced genetics with and introduction to plant and animal breeding. Overview of transformational technologies; impact of genetics of society. Prereq: ANFS30 or PLSC300.

PLSC 467-11 DESIGN PROCESS PRACTICUM

Learn and engage in creative problem solving, design and group processes. Develop a variety of skills designing and constructing an educational exhibit that serves the needs of a local community group.

PLSC 667-10 GENETICS AND BREEDING

Advanced genetics course with and introduction to plant and animal breeding. Overview of transformational technologies and the impact of genetics on society. Prereq: ANFS300, PLSC100.

PLSC 867-10 TOPICS IN BIOGEOCHEMISTRY

Biologically mediated interactions involving nutrients in soils; discussion on selected topics and research literature; presentation and project work. Prereq: PLSC419, PLSC619, CHEM443, PLSC567 or PLSC608.

POSC - Political Science

POSC 367-10 SCIENCE, RESEARCH & POLITICS

Provides an in-depth examination of how political scientists and other social researchers come up with and find the answers to questions about the world of government and politics, and to describe and explain the practice and profession of academia. Prereq: POSC150, POSC300.

POSC 444-10 GLOBAL AGENDA: AMERICA'S ROLE IN THE WORLD

Internal policy and media speaker series focussing on the many demands placed on U.S. leadership. Includes fighting terrorism, negotiating peace in the Middle East, defending human rights, intellectual property, and maintaining economic stability.

POSC 867-10 FRONTIERS CRITICAL IR THEORY

Focuses entirely on the current literature, issues, and debates in critical IR.

PSYC – Psychology

PSYC 467-10 APPLIED BEHAVIORAL ANALYSIS

Explores the use of both operant and respondent conditioning techniques to bring about improvement in human behavior. Details the implementation and assessment of treatment programs as well as the importance of direct observation and measurement of behavior. Focus is on practical applications.

PSYC 467-11 CHILD & ADOLES'T MENTAL HEALTH

Group work and projects are the course teaching methods. Topics include prevention, child welfare, and youth mental health interventions. Grading is based on students' abilities to work collaboratively with other students and to apply research to solve real-world problems encountered in the field.

PSYC 467-12 DEVELOPMENTAL DISABILITIES

Overview of developmental disabilities such as autism and ADHD with emphasis on the family system. Topics include marital and coparenting relationships, fathering, and interventions. Uses a lifespan approach examining changes in family issues as children develop from infancy to adulthood.

SOCI – Sociology

SOCI 367-10 SOCIOLOGY OF DIAGNOSIS

Examines the way that medical diagnoses are shaped and their powerful role in society.

SOCI 367-11 GENDER AND HEALTH

Explores the relationship of gender & health, particularly its social aspects. For instance, how do stereotypes of masculinity influence mental health diagnoses? Topics covered include the body, sexuality, violence, reproduction, mental health, substance use, & policies.

SOCI 367-12 SOCIOLOGY OF THE BODY

Examines the body, not through the lens of the biological sciences, but as the product of complex social arrangements and processes. Considers: what is 'natural' about bodies; how are bodies commodified; and how are they constituted by discourses of race, class, gender, and sexuality.

SOCI 367-70 SOCIOLOGY OF SOUTHERN ITALY

Examination of the social history and contemporary realities of Southern Italy, focusing on the many paradoxes which continue to characterize the area, such as the influence of history and tradition alongside the often rapid social changes which have occurred since World War II. to be studied are: the Unification of Italy from a Southern perspective; the mass migrations of the twentieth century; the development of organized crime and the anti-Mafia movements; clientelist politics and civil society; the changing role of women.

SOCI 467-10 PERSONALITY AND POLITICS

The role of personality in political behavior: includes theories of political leadership, and the study of specific leader-political system interactions.

SOCI 667-10 INEQUALITY, JUSTICE & SOC

Considers how social inequalities interface with struggles for civil and human rights; and what the lived experiences of marginalized groups teach us about the challenges of justice and social change.

SPAN – Spanish

SPAN 367-70 SPEAKING & WRITING SKILLS

Fundamental linguistic support in areas of difficulties the student may have at this level. Enables the student to understand and express him/herself in a variety of situations which may be unfamiliar, and which require exchanging informational & personal opinions using complex linguistic structures.

SPAN 467-70 ENGLISH-SPANISH TRANSLATION I

Deals with the new approaches to language learning that view the activities of translation and interpreting as a tool for the development of communicative ability and mediation skills.

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SPAN 467-72 ENGLISH-SPANISH TRANSLATION 2

Deals with the new approaches to language learning that view the activities of translation and interpreting as a tool for the development of communicative ability and mediation skills. Focuses on specialized and advanced translations themes.

SPAN 467-73 SPANISH GRAMMAR (SUPERIOR)

Includes the main points of those remaining difficulties which a student may encounter in the latter part of an advanced learning phase and the best way to solve them, within a pragmatic tone.

SPAN 467-74 SPEAKING & WRITING SKILLS

Fundamental linguistic support in areas of difficulties the student may have at this level. Enables the student to understand & express him/herself in a variety of situations which may be unfamiliar, and which require exchanging informational and personal opinions using complex linguistic structures.

SPAN 467-75 SPANISH GRAMMAR (SUPERIOR)

Includes the main points of those remaining difficulties which a student may encounter in the latter part of an advanced learning phase and the best way to solve them, within a pragmatic tone.

STAT – Statistics

STAT 667-10 SPATIAL STATISTICS

Explores the emerging literature on statistical methodologies that have been explicitly developed for the solution of spatial problems.

THEA – Theater

THEA 267-10 SHOW BIZ: A JEWISH PERSPECTIVE

As the Jewish population of America grew rapidly during the early decades of the 20th century, Jews brought with them a rich and diverse tapestry of dramatic and theatrical modes. This course will examine the development of this extraordinary creative and commercial phenomenon.

UAPP - Urban Affairs & Public Policy

UAPP 467-10 LAND USE & TRANSPORT LINKAGES

Explores the linkages between land use planning and the provision of transportation infrastructure. Discussions include guest speakers who are recognized practitioners in the fields of land use and transportation planning. Land development techniques and patterns which influence transportation needs.

UAPP 467-11 URBAN PLANNING & GOVERNANCE

Issues like sprawl, growth management, and sustainability are complex and require the coordinated action of governmental and non-governmental actors. Focuses on government and governance institutions and their roles in fostering regional cooperation and coordination.

UAPP 467-12 COMMUNITY DEVELOPMENT FINANCE

Explores the impediments to business development and affordable housing and the role capital markets play in addressing the financing needs of underserved communities. Exposes students to how community development is financed and the financial instruments used to facilitate economic development.

UAPP 467-13 ENVIRONMENTAL POLICY ANALYSIS

This course focuses on developing competencies to perform professional-style policy analysis of contemporary environmental problems. Students gain in-depth understanding of prominent U.S. environmental policies and practice analysis techniques through case-study problem-solving.

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UAPP 667-70 COMPARATIVE PA & PUBLIC POLICY Provides a unique opportunity for students to enrich their understanding of academic areas of concentration by exploring ways in which differing governance systems and cultural backgrounds affect the way problems and issues are defined and policies are set out and acted upon.

UAPP 667-70,71 URBAN REVITALIZATION

Focuses on the city planning and historic preservation efforts of Krakow and Warsaw, Poland. Considers post-WWII, Soviet, and post-Soviet development of two medieval cities through readings, lectures, and participation in an 11-day study trip between March 20-April 30, 2013.