

SUPPLEMENTAL COURSE DESCRIPTIONS

Spring 2005

ANIMAL SCIENCE

ANSC 467/667-010 BACTERIAL PATHOGENESIS

Studies how bacteria colonize, invade and produce disease in vertebrate animals. Surveys the array of mechanisms bacteria use to establish infection and evade the host immune response. Prereq: Knowledge of immunology.

ANTHROPOLOGY

ANTH 267-010 ANABAPTIST CULTURES

Examines the origins, development and current status of Amish, Mennonite and Brethren communities in the United States. Emphasis on varied methods these groups have used to establish and maintain a visible and distinctive identity separate from mainstream American culture. Discusses the merchandizing and consumption of their separate identity through tourism.

ANTH 367-011/WOMS 367-011 ASIAN WOMEN'S LIVES

Examines how the lives of women from East, South and Southeast Asia and the Middle East have been constructed by cultural, historical and international forces and seeks to understand and challenge the culturally pervasive stereotypes that define their lives.

ANTH 390-080 HNRS: CLQ: PYRAMIDS / PRIESTS / PALACE

Introduces students to spectacular and best known discoveries from the Near East, Mesoamerica, South America, Africa and East Asia. Emphasizes the similarities and differences in the kinds of societies. Compares the environmental settings, economic bases and the nature of political leadership, the role of religious ideology, the process of urbanization and the impact of writing.

ARTS AND SCIENCE

ARSC 367-010 GAY AND LESBIAN FILM

Explores gay and lesbian issues represented in film from 1980 to present. An analysis of major themes such as sexuality and gender, Hollywood heterosexism, sex versus sexuality, alternative families and AIDS will be examined in the context of cinematic representation.

ART

ART 467/667-010 ART AS SOCIAL ACTIVISM

Project with public artist Lily Yeh. Documents and honors history of local African American community, designs and implements public art in the local African American community in Newark. Builds bridges and understanding with the community through art making.

ART HISTORY

ARTH 402-010 SEM: TRAVELING ARTISTS IN THE RENAISSANCE AND THE BAROQUE

Many Renaissance and Baroque artists traveled for their art. This phenomenon raises the main questions of: Why did artists leave their homes? Did they absorb or reject the new artistic practices they encountered? Students will formulate and research their own paper topics.

ARTH 406/606-010 SEM: IMAGES AND CULT

Historical and critical issues concerning function of religious images in a cult context. Includes problems of representation and audience in late Antiquity and the medieval west as well as in the Orthodox world, with a special concentration upon medieval icons.

ARTH 635-010 VISION AND VIRTUALITY IN 18TH CENTURY BRITAIN AND NORTH AMERICA

Explores impulses toward naturalism in 18th-century British and American practices of vision and representation. Includes perceptual theories (Lockean sensationalism, Common Sense philosophy), technologies of virtuality (zograscopes, panoramas), and efforts to reproduce effects of nature and the real in painting and drawing.

ARTH 667-010 WRITING MATERIAL CULTURE

Explores the history and range of critical and theoretical approaches employed in the study and interpretation of objects and images. Readings including art history and criticism, social and cultural history, literary theory, sociolinguistics, archaeology, and philosophy. Includes poetry and fiction as strategies for critical writing.

ARTH 667-011 COLLECTING NEW WORLDS: NON-EUROPEAN OBJECTS IN EARLY MODERN COLLECTIONS

The afterlife of non-European artifacts (in particular, those created in the Americas) after their integration to early modern collections. Against traditional frameworks that considered these objects as primary sources to "recreate" the native past, the seminar examines their paradoxical impact on later constructions of indigenous identities.

ARTH 667-012 MODE, MEDIUM, HISTORY AND REPRESENTATION: ART CONGO/ART KONGO

Joseph Conrad; Rene Stout; NASA launches; Patrice Lumumba; Dictatorship; Early Christian (outside Ethiopia's); 'Mohammed Ali Rumbles in the....'; 'Architecture Against the State?'; History Painting and Narration; the Kongolese St. Anthony; Mobutu SeseSeko; the Tate's Cheri Samba (naïve?); Haitian(!) documentary; V.Y. Mudimbe; Johannes Fabian; Nkisi; Cartier.

ARTH 667-013 ART AND PHILOSOPHY OF THE 1960's

The art of the 1960s -- pop, minimal, conceptual, etc. -- is still present, and many philosophers writing then -- Gadamer, Adorno, Eco, Danto, Wollheim, Goodman, Merleau-Ponty, Foucault, Derrida, et al. -- remain central in aesthetics today. Explores the relationships between art and philosophy in the 1960s, and the legacy of those relationships in contemporary art and aesthetics.

BIOLOGY

BISC 667-010 MOLECULAR MEDICINE-BIOTECHNOLOGY

Examines and evaluates the use of genes, proteins and genetically modified cells to treat disease. The scientific, ethical and biotechnological aspects of molecular medicine are emphasized.

BISC 667-011 ENVIRONMENTAL TOXICOLOGY

Studies environmental toxicology and its role in the assessment of environmental risk. Understanding the fate and effects of chemical, physical and biological stressors in the environment is key to the process of assessing their environmental impacts.

CHEMICAL ENGINEERING

CHEG 667-010 IGERT RESEARCH

First year doctoral students will complete six weeks of research training in the laboratory of a Chemical Engineering faculty member. Students gain breadth of research training and are better able to identify appropriate dissertation advisors.

CHEG 667-011 INTRODUCTION TO ENGINEERING OF ELECTRONIC MATERIALS

Covers modern reactive processing methods of electronic materials in the semiconductor industry. Includes introduction to semiconductor materials and devices, reactor design, reaction chemistries, reaction mechanisms, materials properties, and modern applications.

CHEG 667-012 TOPICS IN PARTICLE SCIENCE

Particle design is the production of new particles with specific attributes. Prepares students to work in the pharmaceutical industry, nanotechnology and biotechnology. Population balances are developed and integrated with particle science to model a variety of particle design processes, such as crystallization, granulation and comminution.

CHEG 667-014 GREEN ENGINEERING

Studies the design, commercialization, and use of processes and products, which are feasible and economical while minimizing 1) generation of pollution at the source and 2) risk to human health and the environment. Takes a multidisciplinary, problem solving approach, to developing the necessary tools and applying the principles of Green Engineering to analyze and address real world problems.

CHEG 867-012 RHEOLOGY OF COMPLEX AND POLYMERIC FLUIDS

Principles and applications of the science of the deformation and flow of polymeric fluids. Topics include: review of vector and tensor mathematics and Newtonian fluid mechanics; structure-rheological property relations for melts and solutions; techniques for experimental rheological characterization; non-Newtonian flow phenomena, including normal stresses, recoil and relaxation; rheological constitutive models, including generalized Newtonian and linear viscoelastic fluids; molecular models of polymer flow behavior. Prerequisite: CHEG 600 or 602.

CHEG 867-013 CHEMICAL ENGINEERING PRINCIPLES II

Equips incoming graduate students with the applied mathematical and computational background needed in other graduate courses and research. Covers partial differential equations, tensors, introduction to computer packages, probability and statistics, and molecular simulation. Introduces and uses computational software, such as Fluent, Femlab, and Cerius, in order to solve complex problems.

CHEG 867-014 ADVANCED COLLOID SCIENCE AND ENGINEERING

Discusses advanced topics in colloid and interface science, including hydrodynamics, Brownian motion, electrostatic interactions, dispersion forces, electrophoresis, colloid-polymer solutions, equilibrium phase transitions and suspension rheology. Highlights engineering applications to nanotechnology and photonic materials.

CHEMISTRY

CHEM 667-010 INTRODUCTION TO RESEARCH AT THE CHEMISTRY-BIOLOGY INTERFACE

Research experiences in biochemistry, molecular biology, bioanalytical chemistry, bioorganic chemistry, bioinorganic chemistry, protein crystallography, agricultural biochemistry, virology, and cell biology. Attendance at the weekly Chemistry-Biology Interface Seminar is required. Limited to graduate students in the Chemistry-Biology Interface Graduate Training Program.

CHEM 667-011 ENVIRONMENTAL CHEMISTRY

Introduces the advanced chemistry student to the earth and its natural and human impacted environment. Presents chemical reactions in the earth's atmosphere, hydrosphere and geosphere, and applies them to understanding fluxes and exchanges of chemical materials across those interfaces.

CHEM 667-012 ORGANIC REACTIVITY AND TOTAL SYNTHESIS

Focuses on the development of new organic reactivity, as exemplified by current accomplishments in the total synthesis of natural products. Additional focus on the strategies of total synthesis.

CHEM 830-010 SPC TPCS: PEPTIDE CHEMISTRY

Discusses the design, synthesis and characterization of peptides. Correlation between structure, folding and function will be made using the literature as a principle guide.

CHEM 874-010 SPC TPCS: BIOMOLECULAR NMR SPECTROSCOPY

Introduction to the general NMR theory and an extensive treatment of the NMR applications to solving

biochemical problems. Includes one-, two-, and three-dimensional experiments and their applications to the structure, dynamics, and folding of proteins; ligand binding and exchange rates; pKa values; enzyme mechanisms.

CIVIL AND ENVIRONMENTAL ENGINEERING

CIEG 467-667-010 ADVANCED WATER QUALITY ENGINEERING

Review of classical dissolved oxygen models for streams and estuaries: analytical and numerical solutions; application to Delaware Estuary. Eutrophication models: carbon, nitrogen, phosphorus and silica mass balances; chlorophyll, primary production and dissolved oxygen; annual simulations; application to Lake Ontario. Sediment flux models: organic matter diagenesis; ammonia, nitrate, oxygen, phosphorus and silica flux models; application to Chesapeake Bay sediments.

CIEG 467/667-011 SOIL SLOPES AND EMBANKMENTS

Common slope and embankments problems; site investigation; stress, strength and consolidation concepts; slope stability analyses; landslide investigation; embankment design; stabilizing methods; construction and monitoring; use of software to analyze slope stability and embankment settlement.

CIEG 467-016 WATERSHED ENGINEERING, PLANNING AND DESIGN

reviews the planning, design and engineering of watershed best management practices necessary to protect and restore the quality and quantity of surface and ground waters. Students design BMPs such as wet detention basins, bioretention wetlands, stream restoration and bioengineering, and soil erosion and sediment control plans.

CIEG 467/667-017 TRAFFIC OPERATIONS AND SAFETY

Deals with operational aspects of transportation engineering and their impact on safety. Includes traffic flow characteristics, breakdowns and impact of crashes on flow, special weaving conditions, dynamic capacity, gap acceptance, speed-change-lanes and their impact on capacity, special intersections (roundabouts and staggered), queue lengths considerations and delay analysis.

CIEG 667-012 MATRIX STRUCTURAL ANALYSIS

Matrix formulation and computer analysis of statically indeterminate structures using commercial software. Analysis of complex frameworks using the matrix method including the treatment of tapered beams, beams on elastic foundations; partially rigid connections and finite sized joints; geometric and material nonlinearities; and buckling.

CIEG 667-014 BRIDGE DESIGN II

Explores bridge superstructure design beyond traditional bridge types and analysis methods. Studies longer-span bridge types, such as segmental concrete bridges, steel tub girders and cable-supported alternatives. Emphasizes refined methods of analysis for complex bridge types and more traditional girder and slab superstructures. Studies limit states beyond strength and service. Prereq: CIEG608.

CIEG 667-015 GROUND IMPROVEMENT METHODS

Addresses the design and construction principles of ten unique ground improvement methods to address soil and rock engineering problems. Includes grouting, prefabricated vertical drainage, stone columns, mechanically stabilized earth systems, soil nailing, soil mixing, vibro compaction, lightweight fill materials and geosynthetics.

COMPUTER AND INFORMATION SCIENCES

CISC 489/689-010 TPCS: COMPUTER VISION

Introduction to the analysis of images and video in order to recognize, reconstruct, model, infer static and dynamic properties of objects in the three-dimensional world. Study geometry of image formation; basic concepts in image processing; segmentation; techniques for 3-D reconstruction, and image registration methods.

CISC 841-010 TPCS: BIOINFORMATICS

Advanced topics and current research in bioinformatics. Probability and statistics based methods and models, including hidden Markov models, support vector machines for analyzing biological data including microarray gene expression, protein-protein interaction, and structural information. Detection of homologs, prediction of functional and structural signatures as well as inference of regulatory networks.

CISC 872-010 TPCS: ADVANCED PROGRAM ANALYSIS AND TRANSFORMATION

Static program analysis and machine-independent code transformations. Topics include: control flow analysis, intraprocedural data flow analysis, alias analysis, advanced program representations including SSA and PDG as well as local, global, and interprocedural analysis for classic code-improving transformations. Prereq: CISC672.

CISC 889-010 TPCS: INFORMATION EXTRACTION, RETRIEVAL AND QUESTION ANSWERING

Recent research directions in information extraction, document retrieval and question-answering systems. Discusses recent conference papers and journal articles. Some knowledge of natural language processing will be useful, but not required.

COMMUNICATION**COMM 200-010 TPCS: COMMUNICATION AND 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 200-410 TPCS: CONFLICT AND YOU

Explores the various aspects of conflict, as well as the different ways individuals approach conflict. Includes how conflict is defined, ways of coping with conflict, productive and unproductive conflict, and strategies for coping with conflict.

COMM 200-440 TPCS: THE CHANGING WORLD OF VIDEO GAMING

The changing world of video gaming in the age of the Internet, with a focus on online gaming. Examines how gaming today is an application of uses and gratification theory (especially the idea of presence.) Discusses the development of mass media theory to explain why interactive, user-centered gaming was not prevalent before a couple decades ago.

COMM 310-080 TPCS: HONORS PRO-SEMINAR COMMUNICATION AND SOCIAL CAPITAL

Communication plays an integral role in the formation of social capital to achieve various goals. Explores the multi-level concept of social capital and various communicative activities associated with this concept.

COMM 318-440 TPCS: THE HISTORY OF MASS COMMUNICATION IN THE U.S.

Topics ranging from the printing press to the internet, newspapers, telegraphy, photography, motion pictures, and the rise of radio, television and the internet. Provides a broad understanding of the major themes in media history in the United States, including evolving standards of journalism, changing technologies, changing social roles, and alterations in the structure and business of mass media.

COMM 367-010 ORAL COMMUNICATION FELLOWS

Oral Communication Fellows training. Students will be enrolled by invitation from department only.

COMM 418-010 TPCS: ADVERTISING AND COMMUNICATION

Current directions in the study of advertising, with emphasis given to effects research. Focuses on several different types of advertising (commercial, political, health) and the processes associated with both positive and negative message outcomes.

COMM 418-011 EFFECTS OF THE NEW MEDIA TECHNOLOGIES

Traces the latest development of computer technologies and surveys their impact at various levels in society. In particular, students learn how the Internet affects them and their families and friends.

COMM 440/640-010 TPCS: COMMUNICATION AND EMOTION

Explores from a variety of perspectives including cognitivism, social constructionism, existentialism, and depth psychology; the links between human communication and emotion, how people can learn to experience, control, and communicate emotions in healthier and more effective ways, and how we manipulate our emotions through communication.

COMM 440-011/COMM640-011 TPCS: RESEARCH PRACTICUM: RESOURCE DILEMMAS

Provides a hands-on research experience in the context of group communication. After an examination of relevant research, gather and perform a preliminary analysis of both content analytic and survey data.

COMPUTER ENGINEERING

CPEG 467-011 COMPUTER NETWORK DESIGN AND MANAGEMENT

Introduces Data Networks and Telecommunications, with emphasis on practical design and engineering. Learn fundamental computer voice networking, aided by case studies and hands-on laboratories. Explores standards, protocols, current tools and technologies. Examines security, convergence, wireless, IPv6 and network management.

CPEG 667-010 DEFENDING THE VULNERABLE INTERNET

Analyzes various security threats to the Internet and discusses countermeasures in the form of cryptographic algorithms and protocols. Threats include denial of service, masquerade, spoofing and identity theft. Specific examples drawn from the Computer Emergency Response Team (CERT) and Internet Engineering Task Force (IETF). Includes secure DNS, secure NTP, secure mail and secure electronic commerce. Emphasis on cryptographic architectures, protocols and algorithms, including public key cryptography, zero-knowledge identity schemes and secret sharing schemes.

CRIMINAL JUSTICE

CRJU 367-010/SOCI 367-010/LEST 367-010 HOMELAND SECURITY LAW AND POLICY

Explores law and policies regarding emergency response, emergency management and terrorism after 9/11. Includes incident management, WMD, volunteers, Governors' powers, FEMA, Homeland Security Department, suing terrorists, civil rights, and international anti-terrorism efforts. Features well-known guest experts.

CRJU 367-194/195 ISSUES IN CRIMINAL JUSTICE

Provides advanced criminal justice students an opportunity to synthesize materials and perspectives presented in the required core courses and apply them to the cogent issues facing the criminal justice community today. Discusses key issues using WebCT, and develops a paper conforming to criteria for submission to the Academy of Criminal Justice student panels.

CRJU 467-010 THEORIES OF JUSTICE

A Problem Based Learning (PBL) approach to exploring theories of justice during the classical, enlightenment, and modern eras. Emphasizes the historical and ideological context of justice in social thought and the application of established theory to issues facing the American justice system at the threshold of the 21st century.

EARLY AMERICAN CULTURE

EAMC 667-011 DECORATIVE ARTS AND DESIGN, 1860-PRESENT

Examines the sources and development of decorative arts after 1860. Focuses on the work of British and American artists working in a succession of styles, from the Aesthetic Movement and Arts and Crafts Style to the contemporary craft scene of today. Involves field trips to area museums and private collections. Requires three day-long trips to New York, Philadelphia, and Washington.

EAMC 667-013 CRAFTSMANSHIP IN AMERICA

Takes as its thesis that the primary suppliers of consumer goods in the 17th and 18th centuries were craftsmen. Concentrates on the social, economic and cultural aspects of the craft system in Colonial America.

ECONOMICS

ECON 367-050 ECONOMIC ENTREPRENEURSHIP OF BUSINESS

Analyzes the economic environment and the impact of public policy on business behavior and development. Students develop a business for a day and a business plan.

ECON 367-051 ENVIRONMENTAL ECONOMICS

Examines the impact of the economy on the environment, the significance of the economy to the environment, and the appropriate way of regulating economic activity so that balance is achieved among environmental, economic, and other social goals. Covers introductory welfare economics, the impact of free markets on the environment, and environmental regulation. Prereq: ECON151

ECON 467-010 URBAN AND TRANSPORTATION ECONOMICS

Focuses on the interaction between urban growth and development and transportation systems. Includes highway capacity and congestion, urban sprawl, land use planning, environmental impact of transportation, and the efficiency of different mass transit systems. Emphasis on airport capacity and aviation economics. Evaluate policy arguments related to public investment in transportation infrastructure, its effects on urban life, and the relative efficiency of transportation alternatives.

ELECTRICAL ENGINEERING

ELEG 467/667-011 SENSOR NETWORKS

Discusses and implements recently developed protocols for sensor networking. Requires several small projects and a large project. Graduate students give presentations. Prereq: Background in networking with a knowledge of routing and transport layer protocols; strong background in programming.

ELEG 467/667-014 BIOPHYSICS OF EXCITABLE MEMBRANES

Passive and active membrane properties in excitable tissue, temporal/spatial integration, salutatory conduction, and the molecular biology and conduction properties of the major classes of ligand- and voltage-gated ion channels. Prereq: ELEG671 or instructor's permission.

ELEG 472-010/667-012 CELL AND MOLECULAR BIOLOGY FOR ENGINEERS

Introduction to essential aspects of modern biology, including genes and proteins, cells, cell division, and animal development. Discusses gene and protein networks, as well as cell-to-cell and cell-to-environment communication. Introduces the use of bioinformatics tools.

ELEG 667-010 TOPICS IN COMPUTER NETWORKING

Analyzes contemporary transport layers for wired and wireless networking and AMQ techniques. Covers advanced topics, such as stochastic modeling and utility-function based analysis. Assignments include analysis of traces and modeling. Prereq: Basic understanding in transport layer protocols and basic probability.

ELEG 667-013 SOLAR ELECTRIC SYSTEMS

Basics of solar cell and wind power technology, applications, and systems. Critical issues in research and manufacturing, and how materials affect performance. Compare first and second generation technologies. Effect of sun and wind on performance. Environmental considerations in manufacturing and deployment. Off-grid, grid-connected and centralized power system design. Influence of economics and policy on industrial and international trends.

ELEG 667-015 PHOTOVOLTAIC DEVICES AND SYSTEMS

Design course for graduate students and advanced undergraduates in engineering and science. Students learn and demonstrate the design rules for high performance photovoltaic solar cells, and the engineering of the electrical contact system. Students will also design, operate and analyze a real photovoltaic system.

ENGLISH

ENGL 365-010 STDS: JEWISH AMERICAN FICTION AND DRAMA

Includes films, novels, plays, and other works by authors such as Chaim Potok, Philip Roth, Anthony Miller and Bernard Malamud. Films will be shown on Thursday afternoons, with discussions on Monday. Short, one-page papers, one midterm, and a final examination will be required.

ENTREPRENEURSHIP

ENTR 367-010 ENTREPRENEURSHIP

Studies of the basic process of entrepreneurship. Focuses on the cohesive process of creativity, risk taking, planning, and execution involved in the development of new ventures. Explores the legal, social, and ethical issues in business formation.

ENTOMOLOGY AND WILDLIFE CONSERVATION

ENWC 467/667-010 WILDLIFE POPULATION DYNAMICS

Focuses on basic principles of population ecology using mathematical models and applied wildlife examples. Includes models of single species population growth, multi-species interaction such as competition and predation, metapopulations, harvest dynamics, and disease infection. Prereq: advanced algebra and working knowledge of Excel.

FOOD SCIENCE

FOSC 367-010,080/ANSC 367-010 FOOD SAFETY FROM FARM TO FORK

Focuses on the major food production systems in plants and animals. Examines the role of government regulation, the use of antimicrobials in food animal production, plant production and harvest, natural hazards, and pesticide residues. Explores the consumer's perception of biotechnology applications in food, organic farming, and the relationship of post-harvest handling of agricultural commodities and food products to food safety.

FOSC 667-010 FOOD DETERIORATION MODELLING

Use applied chemical kinetics to model deteriorative reactions occurring during food and drug processing and storage. Includes enzyme reactions, lipid oxidation, nonenzymic browning, and microbial growth and death. Uses the principles of chemical kinetics to determine the shelf life of food products, and to discuss advantages and disadvantages of accelerated shelf life testing.

FOOD AND RESOURCE ECONOMICS

FREC 167-010 ISSUES IN NATURAL RESOURCE AND THE ENVIRONMENT

Surveys pressing issues in the management of natural resources, environmental protection, and international development. Highlights interconnections. Encourages critical thinking about these issues by applying basic policy analysis, considering the ethical dimensions of policy, and drawing on economic indicators of environmental equality and human health.

GEOGRAPHY

GEOG 667-011 SEM: COLD REGIONS RESEARCH

Discussion and directed research on earth's cold regions. Potential topics include glaciers, geomorphology, climate and climatic change, snow, soils, sea ice, and human occupation.

GEOLOGY

GEOL 467-010/PLSC 467-010 SOIL MORPHOLOGY AND INTERPRETATION

Introduces students to soil morphological features such as color, texture, structure, and horizonation. Emphasis on interpretation of these features with respect to soil forming processes, taxonomy, and hydrology. Two Saturday field trips required.

HEBREW

HEBR 267-010/JWST 267-010 CONVERSATIONAL HEBREW

Practical use of Hebrew by means of discussions and oral reports on a variety of topics including the revival of the Hebrew language, my home, future plans, and Israel's independence. Emphasis on improvement of conversational skills as well as grammatical competence and reading comprehension through multicultural themes.

HEALTH AND EXERCISE SCIENCES

HESC 367-010 SPORT EVENT AND FACILITY MANAGEMENT

Sport event and facility management, including budgeting, operations, marketing, media relations, public relations, and volunteer management.

HESC 667-010 INTERNATIONAL SPORT MANAGEMENT

International aspects of sport management, globalization of segments of the American Sport Industry and globalization strategies of individual sport organizations, including planning, marketing, financing, and management of major international sporting events.

HISTORY

HIST 367-010 VICTORIAN ENGLAND: A SOCIAL AND CULTURAL HISTORY

Covers the society that emerged during Britain's period of world domination, from 1837 to 1901. Examines the meaning of class of gender to the Victorians, medicine and health care, popular literature, urban leisure and entertainment, drink and temperance, religion and its neglect, crime and punishment, education, and the role of empire, among others.

HIST 367-011 PHILADELPHIA-A TRICENTENNIAL

Focuses on Philadelphia as a unique city and as an example of the issues and themes in American urban history. Includes the early capital, the working class, immigration and ethnic divisions, the black experience, riots and disorders, crime, bossism and reform, rivalry with other cities, economic growth and decline, industrialization, and municipal services.

HIST 367-012 MOVIES 1930'S: HOLLYWOOD'S GREAT DEPRESSION

Examines a number of the most popular films of the 1930s, placing them within their historical contexts, discussing how they reflected developments in the movie industry, and investigating how they were related to Americans' understanding of their society during the Depression.

HIST 367-013 AMERICAN SPORTS HISTORY

Since the Civil War, discusses the professionalization of sports and the transformation from amateur game to big business; race, ethnicity and the evolving position of African American athletes; women in sports; the "Golden Age" of sports in the 1920s and the creation of athletic celebrities; mass media's effect on sports; and the effect of the changing social climate of the 1960s on sports.

HIST 367-410 AMERICA IN THE TWENTIES

Covers some of the major issues and events of the decade that created modern America, including politics and foreign policy, Prohibition and the struggle for repeal, turmoil in the women's movement, the Great Migration, immigration restriction, the youth rebellion, the jazz craze, suburbanization, and the Scopes Trial.

HIST 667-011 ATLANTIC WORLD

Explores the theories and findings of historians who use the rubric of "Atlantic World" to examine the developments of four continents from empire-building in the western hemisphere to the era of revolutions. Includes creolization, labor systems, commodities and commercial networks, race, plantations and family farming. Examines historical interpretations of cultural or economic dependency, core-periphery, postcolonialism, capitalism, state formation, "othering," and identity.

HIST 867-010 RESEARCH AND WRITING SEM: COMPARATIVE HISTORY

Focus on the United States in comparative perspective. Produce a paper, based on original research, dealing in comparative fashion with some aspect of the American past. "Comparative" will be defined broadly to encompass a variety of approaches designed to accentuate context.

HEALTH PROMOTION

HLPR 867-010 PHYSICAL ACTIVITY AND PSYCHOLOGICAL HEALTH

Interrelationships among social psychological factors, physical activity, and health, including the prevention and treatment of disease and a variety of health related behaviors.

INDIVIDUAL AND FAMILY STUDIES

IFST 367-010 YOUTH AT RISK

Explores diverse theories regarding the characteristics of youth at risk. Examines individual, family, school, and societal factors that place adolescents at risk. Studies risk behaviors including substance abuse, teenage pregnancy, suicide, delinquency, and violence. Focuses on facilitating the acquisition of skills in early identification of youth at risk and applying effective, research based intervention programs.

LIBERAL STUDIES

MALS 625-430 SEM: FILM AND AMERICAN SOCIETY

Using major motion pictures, explores how Hollywood dealt with critical historical events: the Cold War, McCarthyism, the Civil Rights Movement, Vietnam, Watergate, and the modern Presidency. Films include: *On the Waterfront*, *The Manchurian Candidate*, *Dr. Strangelove*, *Mississippi Burning*, *JFK*, *Apocalypse Now* and others.

MALS 667-010 AMERICAN ART: 1600-1860

Traces the rise of American painting in the eighteenth-century through the great nineteenth-century artists Trumbull (Revolutionary War battles), Audubon (birds), Cole (allegorical scenes), Catlin (Native Americans), Durand (Hudson River School) and others.

MALS 667-410 THE ART OF ORAL HISTORY

Introduction to the state of the art debates in the oral history field as well as use of oral interviews in historical narratives and museum interpretation. Training in interview methodology includes how to identify potential respondents, develop interview agendas, and properly use recording equipment.

MARINE STUDIES

MAST 629-010 TPCS: STATISTICS IN MARINE SCIENCES

Introductory graduate statistics, with emphasis on applications in the marine sciences. Topics include exploratory data analysis, graphical presentation, correlation, regression, ANOVA, analysis of frequencies, nonparametric statistics and resampling approaches, and use of statistical software.

MAST 629-011 TPCS: ICHTHYOLOGY

The biology of fishes with emphasis on marine fishes and their adaptations and roles in the marine environment. Covers the diversity of fishes (characteristics, classification, and zoogeography); anatomy and physiology; and ecology and behavior.

MAST 629-012 TPCS: COASTAL ETHNOBOTANY: DESIGNS BY THE SEA

Explores how humans have, do, and will use the unique features of plants that have evolved to thrive in the stresses of wind, waves, salt, sand, and mud.

MAST 667-011 ENVIRONMENTAL CHEMISTRY

Introduces the advanced chemistry student to the earth and its natural and human impacted environment. Presents chemical reactions in the earth's atmosphere, hydrosphere and geosphere, and applies them to understanding fluxes and exchanges of chemical materials across those interfaces.

MAST 667-012 ALGAL ECOLOGICAL PHYSIOLOGY

The physiological dynamics of marine and freshwater algae in response to the aquatic environment from molecular and biochemical to population scales. Includes chloroplast evolution, current algal phylogeny and a brief survey of the major algal groups, acclimation and adaptation to light, nutrients, salinity and several other physical variables. Discusses population dynamics such as competition, predation, seasonal succession and allelopathic interactions.

MAST 667-013 MARINE ENVIRONMENTAL GENOMICS

An introduction into the application of genomic level research and the development of bioinformatics tools in marine science.

MAST 667-014 PERL PROGRAMMING FOR BIOLOGISTS

An introduction to programming concepts and the utilization of PERL to handle large biological data sets.

MAST 667-022/UAPP 667-022 OFFSHORE WIND POWER

Multi-disciplinary study of developing offshore wind resources for large-scale power production, aimed at displacing ½ of electric generation and light vehicle fuels. Covers wind resources, law grid connection, electric storage, shelf geology and policy to develop and regulate the industry.. Students should be knowledgeable in one of these areas.

MECHANICAL ENGINEERING**MEEG 467/667-010 CONTROL NEURO-MUSCULO-SKELETAL SYSTEM**

Examines current topics in biomechanics research relevant to the control of human movement including anatomy of the neuro-musculo-skeletal system, experimental techniques for the study of CNS organization, and coordination principles of simple and complex tasks. Exposes students to a range of perspectives and experimental approaches through review of current literature, class discussion and presentations.

MEEG 467/667-011 MECHANICAL BEHAVIOR OF MATERIALS AND STRUCTURES

Covers a set of conditions associated with properties of materials and failures of structures. Plasticity; thermal stresses; fracture and damage mechanics; and buckling. Problem solving based on both analytical methods and computational mechanics. Prereq: MEEG610 or similar.

MEEG 467/667-012 INTRODUCTION TO FUEL CELLS

Basic principles of fuel cells; fuel cell types; efficiency, open circuit voltage and irreversibility; PEM fuel cells, direct methanol fuel cells; fueling fuel cells, fuel processing, hydrogen storage; fuel cells for portable, automotive and stationary applications.

MEEG 467-013 LUBRICATION AND BEARING DESIGN

Friction, wear, effect of lubrication, bearing selection. The Reynolds equation. Externally pressurized bearings. Journal and thrust bearings. Elastohydrodynamic lubrication (EHL), lubrication regimes, formulation of the EHL problem. Rolling contact bearing, minimum film thickness calculations. Turbulence and thermal effects. Gas bearings.

MEEG 467-014 AUTOMOTIVE POWER TRAIN THEORY

Analysis and design of automotive power train design with emphasis on competition and efficiency optimization. Internal combustion engine thermodynamics, port and chamber design, cam timing, and

exhaust systems. Historical perspective on development through modern engines, ignition, carburetion, fuel injection and integrated engine management systems, turbocharging, supercharging.

MEEG 667-013 MICROSACLE FLUID FLOW WITH BIOLOGICAL APPLICATIONS

Includes fundamental issues arising from miniaturization of fluid flow and applications. Low Reynolds number flow, Brownian motion, mechanistic models of biopolymers, interfacial forces, mechanics of biomedical particles (lipid vesicles and contrast microbubbles) and their applications in medical imaging and drug delivery.

MEEG 867-010 OPTIMAL DESIGN-MECHANISMS, MACHINES, ROBOTS

Systematically describes the underlying theory for optimal kinematic and dynamic design of mechanisms, machines, and robots and the numerical implementation of the theory using computers. Includes a large number of practical examples from engineering disciplines.

MATERIAL SCIENCE ENGINEERING

MSEG 667-011 ENTREPRENEURSHIP AND RISK TAKING

Exposes students to contemporary lectures from entrepreneurs and leading experts in fields such as intellectual property and venture capital.

MSEG 667-013 PRACTICAL ELECTRON MICROSCOPY

Basic theories and practical aspects of scanning electron microscopy (SEM), transmission electron microscopy (TEM), X-ray energy dispersive spectroscopy (XEDS), and electron energy loss spectroscopy (EELS). Includes components in electron microscopes, electron-specimen interaction, SEM imaging, electron diffraction, TEM bright field imaging and dark field imaging, STEM, elemental analysis by XEDS and EELS, and sample preparation techniques.

MSEG 667-014 CONCEPTS FROM PHYSICAL METALLURGY

In depth examination of: Solidification of alloy systems; how phase behavior and the dissipation of solute fields create microscale patterns and macroscopic properties, Steels; how very small differences in crystal interstices produce major effects, and Dislocations; how line defects define the strength and formability of materials.

MUSIC

MUSC 367-010 INTRODUCTION TO RECORDING

Covers three parameters: history of recording, and recording technology; recording techniques, including hands on experience by the students; the aesthetics of recording and its impact on music through the 20th century. Prereq: MUSC105 or MUSC095.

MUSC 367-011 THEORY PEDAGOGY PRACTICUM

A place holder for Undergraduate teaching assistantship. May be repeated for credit.

MUSEUM STUDIES

MSST 206-010/WOMS 206-010 QUEER SEXUAL IMAGERY IN THE VISUAL ARTS

Introduction to the diversities of representation of the human body in western visual art with an emphasis on coded as well as explicit images of sexuality.

PHILOSOPHY

PHIL 367-010 KILLING AND LETTING DIE

Examines how doctors are forbidden to actively cause the death of terminally ill patients in great pain and wanting to die, but are allowed to withhold life sustaining treatment. Both practices result in avoidable earlier death. However, killing is condemned, while letting die is allowed.

PHIL 367-012 MODAL LOGIC

Introduction to major systems of modal logic. Alethic modal logic (metaphysical necessity and possibility) is treated in detail. The last six weeks will survey temporal logic (time), epistemic logic (knowledge and belief), deontic logic (obligation and permission), and maybe counterfactuals.

PHIL 367-440 RELIGION AND PSYCHOLOGY

Explores the interface of philosophy, religion, and psychology. Does not reduce religious experience to a normal or abnormal psychological state. Explores how religious experiences can be viewed both psychologically and philosophically, as real experiences for which one must be able to account.

PHYSICS

PHYS 467/667-010 OBSERVATIONAL ASTRONOMY

Focuses on the techniques and analysis of astronomical observation, with emphasis on CCD imaging. Includes celestial coordinates, telescope handling, CCDs, data reduction, and data analysis.

PLANT SCIENCE

PLSC 267-010 LANDSCAPE PRESENTATION GRAPHICS

Learn graphic techniques for presentation of landscape designs, including plans, sections, elevations, sketches and perspectives, using drawing methods such as pencil, ink, pastels, watercolor and computerized programs.

PLSC 267-080 HRS: HEALING PLANTS: MEDICINE, MYTH, MAGIC

Explores the medicinal use of plants from scientific, historical and cultural perspectives, including the healing connection that comes from cultivating plants. Includes plant-based medicinal traditions in China, past and present; in Belize among the Myans; and in native cultures of North America, India and Africa. Investigates the healing properties and cultural value of specific plants.

PLSC 467/667-011 FORAGE RESOURCE MANAGEMENT

Explores the various grasses, legumes, and forbs that have potential as forage crops. Discusses characteristics of each species that make it suited for a particular type of forage use. Covers cultural practices for successful plantings, maintenance, harvest, and storage and preservation.

PLSC 667-010 SIGNAL TRANSDUCTION

Analyzes recent research papers on genes, molecular mechanisms and cross-talks involved in signaling during normal plant growth, development and upon environmental challenges. Focuses on understanding basic signaling themes and molecular mechanisms with the emphasis on plant system, and on general principles of cell communication.

POLITICAL SCIENCE

POSC 167-010,011,012, 080 EXPLORING AMERICAN POLITICS

Weekly sessions to accompany POSC 150: American Political System. Students analyze an array of problems in American government and politics. Individual and group participation.

PSYCHOLOGY

PSYC 367-010 INTRODUCTION TO NEUROSCIENCE

An interdisciplinary approach to the study of the nervous system. Deals with gross anatomy of the nervous system and the anatomy and physiology of nerve cells. Integrative neuroscience covers sensory and motor systems, neuroendocrine function, and the neural basis of behavior. Prereq: PSYC100 or 201, BISC208, 2 semesters of chemistry.

PSYC 367-011 PSYCHOLOGY OF HUMAN SEXUALITY

Explores human sexuality by utilizing psychology's theoretical perspectives and empirical research. Includes sexuality development, contraception and STDs, sexual behavior and communication, and sexual disorders and dysfunctions. Emphasis on the influence that societal factors have on individual sexual expression. Prereq: PSYC100 or 201.

PSYC 367-012/410 ORGANIZATIONAL PSYCHOLOGY

Focuses on frameworks for understanding behavior in work organizations. Explores behavior at individual, group, and organizational levels. Emphasis on how the administrative structures, processes, and group interactions in organizations influence the attitudes and behaviors of employees. Prereq: PSYC100 or 201.

PSYC 367-013,014 BIOLOGICAL BASIS OF BEHAVIOR

Considers the way stress interacts with memory, depression, sex and reproduction, aging, body metabolic processes, heart attacks and death. Discusses what stress is, from neurological and endocrinological perspectives, how it relates to personality and temperament, and how to cope with it. Prereq: PSYC100 or 201.

PSYC 467-010 ETHICS IN PSYCHOLOGY

Introduces students to APA ethical principles. Through an examination of ethical issues, learn to apply such standards within applied and/or experimental psychology. Develop problem solving strategies necessary for fostering quality client service and ensuring the protection of research participants. Prereq: PSYC100, PSYC207 and PSYC209.

PSYC 467-011 COGNITION AND EMOTION

Focuses on the interplay between affective and cognitive processes--how feelings influence thought, and vice-versa. Includes the relationships between thinking, feeling, and the brain; how feelings might be related to self-consciousness; and how cognitive processes are altered in emotional disorders.

PSYC 467-080 HNRS: SOCIAL MOTIVATION

Analysis of theory and research in the social psychology of motivation. Includes active student participation in research projects.

PSYC 467-410 APPLIED BEHAVIOR ANALYSIS

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

PSYC 667-010 VISUAL COGNITION

Examines the differences between imagining and perceiving, how we recognize objects and faces, and the role of attention, consciousness, and experience in shaping how we perceive and interpret the world.

PSYC 667-011 PSYCHOPHARMACOLOGY

Surveys therapeutic drugs used for mental, emotional and neurological disorders, and drugs that are abused. Discusses the neuropathology of the disorders and how the various drugs work. The level of instruction is aimed at the clinical psychology graduate student.

PSYC 667-012 RESEARCH METHODS IN DEVELOPMENTAL PSYCHOLOGY

Students work together to develop research proposals at the Early Learning Center (the University's child care center). Together they develop hypotheses, collect and/or code data, analyze data, and write papers for publication.

PSYC 867-010 PERSONALITY IN SOCIAL PSYCHOLOGY

Systematically surveys theories of personality, methods of personality assessment, and linkages between personality and culture.

SOCIOLOGY

SOCI 267-010,011 RESEARCH ON ALCOHOL

Scholars, administrators, and clinicians from off-campus and from the University of Delaware community present and discuss their research and experiences with issues of alcohol use and abuse. Special focus on the use of alcohol on college campuses and the impact of high risk drinking on the college and neighboring communities.

SOCI 467-010 SCREENING BLACK WOMEN

A sociological examination of black women film makers from the Paul Jones Collection.

SOCI 467-011 QUALITATIVE RESEARCH METHODS

Explores such qualitative methods as participant observation, intensive interviews, focus groups, and content analysis. Considers how these techniques are used in social research and the issues raised by them. Students create a research design and conduct qualitative research.

SOCI 667-010 SEMINAR ON SOCIAL PROBLEMS

Explores the constructionist approach to studying social problems.

SOCI 867-010 THEORIES OF CRIMINAL JUSTICE

Examines theoretical work on criminal justice process and policy. Considers theories that purportedly apply to the entire criminal justice system, as well as theories that deal with individual criminal justice institutions (i.e., police, courts, and corrections). Discusses the implications of research findings for organizational and policy reforms.

STATISTICS

STAT 667-010 TIME SERIES ANALYSIS

Fundamental topics in time series analysis, featuring the Box and Jenkins techniques of fitting time series data. Includes an introduction to appropriate statistical packages.

STAT 667-011 REGRESSION AND EXPERIMENTAL DESIGN

Provides an introduction and overview of inferential methods used in analyzing regression models and linear models for experimental designs.

STAT 667-012 ADVANCED REGRESSION TECHNIQUES

Selected topics from the area of regression analysis, not typically included in an introductory regression or econometrics course. Includes: non-linear regression models, linear and non-linear regression with unequal error variances, linear regression subject to parameter constraints, model selection techniques, penalized least squares estimators (including ridge regression), and non-parametric regression.

THEATRE

THEA 267-440 CONCEPTION TO OPENING NIGHT: THEATRE, THE COLLABORATIVE ART

Examines a series of past theatre productions and covers the integration of the many collaborators brought into theatre's creative process from the initial ideas to its production on stage. Studies the roles and contributions of the producer, writer, composer, lyricist, director, orchestrator, musical director, choreographer, set and costume designers, actors, and audience.

URBAN AFFAIRS AND PUBLIC POLICY

UAPP 667-010 LAND USE AND TRANSPORT LINKAGE

Explores the linkages between land use planning and the provision of transportation infrastructure. Includes guest speakers who are recognized practitioners in the fields of land use and transportation planning. Covers land development techniques and patterns which influence transportation needs. Shows how the interplay between land use patterns and transportation infrastructure influences travel and development characteristics.

UAPP 667-011 VALUES AND ETHICS OF LEADERSHIP

Provides an opportunity to look at the "ends" served by leaders in various contexts (including government, nonprofits, business, and media) and the ethical standards by which the leader's actions are judged. Examines cases of unethical conduct as well as cases of exemplary conduct.

UAPP 667-012 INFORMATION TECHNOLOGY IN THE PUBLIC AND NONPROFIT SECTOR

Introduction to the issues surrounding IT Infrastructure in the public and nonprofit sectors. Focuses on three themes that impact the adoption, implementation, and evaluation of IT efforts: technology, policy, and administration.

UAPP 667-013 MYERS-BRIGGS TYPE AND ORGANIZATION

Explores the identification of Organizational Type, the implications for individuals within the organization and the impact that changes in Organizational Type have on the people that work in it. Includes the conflicts and issues among people within the organization. Prereq: Introduction to the Myers-Briggs (Course 1) or the equivalent (a working knowledge of the Myers-Briggs).

UAPP 667-014 GIS: APPLICATIONS IN THE PUBLIC AND NONPROFIT SECTOR

Provides a solid basis for use of GIS. Focuses on GIS in the social sciences with an emphasis on urban and regional planning. Examples are based on planning issues, but the concepts can be applied to other disciplines such as government, economics, natural resources, and sociology. Includes fundamentals of spatial analysis; overview of GIS technology and applications; designing a GIS project; gathering and analyzing data; and creating thematic maps.

UAPP 667-015 COLLABORATIVE LEADERSHIP

Focuses on tending to people, process and outcomes. Includes theory, skills and techniques used by collaborative leaders. The content will be delivered in such a way to model course content and attend to adult learn theory.

UAPP 667-018 STRATEGIC PLANNING: PUBLIC AND NONPROFIT ORGANIZATIONS

Explores the dynamics and process of strategic planning within the nonprofit sector. Exposes students to the components and tasks of planning, as well as the larger contextual issues of policy, change, and external institutionally driven mandates. Introduction to the role and process of strategic planning in an organizational context and builds skills as both facilitators of, and participants in, strategic planning processes.

UAPP 667-019 GRANTSMANSHIP AND PROPOSAL WRITING

Intended to help public and nonprofit managers hone their abilities to successfully secure grant funding. Covers resources for identifying promising targets for grant proposals, exposure to do's and don'ts in dealings with foundations, what grantmakers really look for in a winning grant proposal, and helpful strategies for transforming an idea into a feasible proposal capable of effectively attracting grant support.

UAPP 667-020 DATA MINING

Focuses on the collection of data in hospitality systems environments into accessible warehouse, and mining (or organizing) the data into a management information system. Multi-unit consolidations using traditional polling techniques and innovative web-based consolidations are the key to organization of data into an up-to-date and accurate source of management information for analysis.

UAPP 667-021 SURVEY RESEARCH

Introduces the major concepts of survey research to include questionnaire development, sampling, survey management, quality control, and analytical concerns. Follows all aspects of pre-election polling undertaken by CADSR during the semester.

UAPP 867-010 EPIDEMIOLOGY FOR PUBLIC POLICY

Introduces methods of epidemiology for public policy analysis. Focuses on monitoring of diseases and risk factors, causal inference, and study design. Computer exercises provide experience in measurement of

morbidity and mortality, health services evaluation, sensitivity, specificity, and risk assessment. Guest speakers discuss a variety of public policy analysis applications. Prereq: Graduate-level statistics, prior or concurrent.

UAPP 867-011 SUSTAINABLE ENERGY POLICY AND PLANNING

Enables students to analyze sustainable energy strategies in terms of their economics, impacts on the environment (especially on climate change) and governance attributes. Analyzes policy options to facilitate a sustainable energy future.

UAPP 867-012 ACADEMIC AND PROFESSIONAL DEVELOPMENT FOR PHD STUDENTS

Provides an opportunity for Ph. D. students to explore a range of topics related to academic processes and professional development. Includes strategies for successful graduate study, advisor/committee strategies, topic selection, research experience, writing skills, time management, conference presentations, publishing, job searches, professional organizations and networking.

WOMEN'S STUDIES

WOMS 250-010 TPCS: INTERNATIONAL WOMEN'S STUDIES: LATIN AMERICA

Explores women's lives, challenges, feminist goals and controversies within Latin American cultures and in "Hispanic" communities in the United States. Despite many commonalities, the differences of social class, education, race, religion and ethnicity influence experience and alter interpretations of problems and solutions. Listen to Latin American women's voices through research and literature.

WOMS 250-011/080 TPCS: EDUCATING WOMEN

Cross-cultural examination of two related topics: 1) feminist theories of how best to educate girls and 2) representations in various media of the experiences, past and present, of diverse women around the world as students and as educators.