

Supplemental Course Descriptions for Spring-2016

Updated December 22, 2015

ACCT - Accounting

ACCT 467-11 INTERNAL AUDITING

Covers internal audit from a broad perspective and the important role in today's companies. Topics include: Governance, Ethics, Business Processes, Risk Assessments, Controls, and Information Technology.

ACCT 667-11 INTERNAL AUDITING

Covers internal audit from a broad perspective and the important role in today's companies. Topics include: Governance, Ethics, Business Processes, Risk Assessments, Controls, and Information Technology.

ANFS - Animal & Food Science

ANFS 267-11 FERMENTATION:BREWING & BEYOND

Encompasses the process of beer brewing and food & spirits that would not exist without fermentation. Covers the history of fermentation, basic microbiology as it relates to fermentation, as well as specific fermented products. Prereqs: BISC207 or PLSC101

ANFS 267-12 ONE HEALTH: ZONOTIC & EMERGING DISEASES

Introduces the concept of One Health, and zoonotic and emerging diseases. The integration of human, animal and environmental health, and their impact on infectious diseases. Also, the use of antibiotics in animal production and human/animal medicine, and its emerging disease consequences. Prereq: BISC 205 or 207, or ANFS 140, or permission of instructor.

ANFS 367-10 ANIMAL ENVIRONMENT MANAGEMENT

Modern technologies heighten the inexorable links between the animals and their environments, making environmental management more important. Discusses the principles of animal environment management related to companion, farm, and research animals. Hands-on skills in labs reinforce course content. Prereq: MATH114 or higher; proficiency in using the Internet, Microsoft Word, and online Library resources.

ANTH - Anthropology

ANTH 367-10 EVOLUTIONARY MEDICINE

Uses an evolutionary perspective to broaden our understanding of human health and disease, and to consider; why we get sick, if some disease symptoms are an adaptive defense rather than a pathology, and if we are best adapted to a stone age lifestyle.

ARSC - Arts & Science

ARSC 367-12 MUSEUM EXHIBITIONS AND COLLECTIONS

Involves object research; label & text writing; proper care, handling, preparation of objects for exhibition; installation & de-installation of exhibitions; evaluation & critiquing techniques; and writing exhibition prospectuses & proposals. Students work in teams and alone.

ARTH - Art History

ARTH 267-10 NO RESERVATIONS: NATIVE NORTH AMERICA

Introduces Native North American art from before European contact to the present, focusing on the challenges that arise as objects and ideas move between cultures and institutions over time. Includes visits to museum collections.

ARTH 311-10, 80 WOMEN IN ANTIQUITY

Explores the lives of women in the ancient Mediterranean world through an investigation of visual and textual evidence. Topics include ancient domestic life, sexuality, medicine, and religion among powerful women, wives, working women and slaves.

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Involves object research; label & text writing; proper care, handling, preparation of objects for exhibition; installation & de-installation of exhibitions; evaluation & critiquing techniques; and writing exhibition prospectuses & proposals. Students work in teams and alone.

ARTH 417-10 VERMEER'S MODERNITY

Focusing on the new naturalistic genres, the relation of science to art, and art theory in the early modern period; this seminar investigates notions of innovation and modernity as applied to Vermeer and his contemporaries.

ARTH 419-10 ART AND RELIGION IN THE IBERIAN WORLD

Focuses on religious monuments and artifacts created in the Iberian world c. 1492-1800, paying particular attention to the confluence of European, Amerindian, and Asian traditions.

ARTH 427-10 PHOTOJOURNALISM

Toward a history and theory of photojournalism as a visual and material culture, as a professional practice, as a problem for art, and as a way of knowing.

ARTH 435-10 PUBLIC ART: MAPPING THE LOCAL

Considers what makes art "public"; how the presence, movement, and loss of art in public spaces, helps shape human experiences of place and community. Studies critical theories of public art. Maps and researches outdoor sculpture, murals, and monuments in Newark.

ARTH 617-10 VERMEER'S MODERNITY

Focusing on the new naturalistic genres, the relation of science to art, and art theory in the early modern period; this seminar investigates notions of innovation and modernity as applied to Vermeer and his contemporaries.

ARTH 619-10 ART AND RELIGION IN THE IBERIAN WORLD

Focuses on religious monuments and artifacts created in the Iberian world c. 1492-1800, paying particular attention to the confluence of European, Amerindian, and Asian traditions.

ARTH 627-10 PHOTOJOURNALISM

Toward a history and theory of photojournalism as a visual and material culture, as a professional practice, as a problem for art, and as a way of knowing.

ARTH 636-10 NORMAN LEWIS

Dedicated to the African American artist Norman Lewis (1909-1979), the subject of his first retrospective at the Pennsylvania Academy of the Fine Arts.

ARTH 667-10 CURATORIAL MATTERS

Studies the varied roles of curators in an institutional and art museum setting. Include curatorial involvement with and responsibility for collections, exhibitions, education and publications, as well as other professional challenges and conundrums.

ARTH 667-011 WOMEN IN ANTIQUITY

Explores the lives of women in the ancient Mediterranean world through an investigation of visual and textual evidence. Topics include ancient domestic life, sexuality, medicine, and religion among powerful women, wives, working women and slaves.

ARTH 667-12 INTRODUCTION TO THEORIES IN MATERIAL CULTURE STUDIES

Introduces graduate students to the theories and practices of Material Culture Studies. As the investigation of anything that is made or modified by humans, material culture works on the assumption that every object can reveal complex stories about past and present societies.

BAMS – Black American Studies**BAMS 439-10 GOVERNANCE & POVERTY REDUCTION IN SUB SAHARAN AFRICA**

Understand the social, political & economic issues in post-colonial Africa; problems of human development & poverty reduction; identify & discuss strategies to improve governance & development on the continent.

BHAN - Behavioral Health & Nutrition**BHAN 267-10 YOGA FOR WELLNESS**

Gain experiential knowledge using the wellness practices of yoga to improve the quality of life through mind-body-spirit connection. Includes self-discovery and realization, group discussion, physical asana (poses) practice, pranayama (breathing) techniques and meditation.

BHAN 467-13 ADDICTION AND RELATED HEALTH ISSUES

Exploration of topics related to addiction, drug abuse, eating, internet use, gambling, shopping. Students will learn updated knowledge in research, practice, policy in each topic area, potential bio-behavioral interventions, scientific approaches to address these health issues.

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BISC - Biological Sciences

BISC 667-10 HOST-PATHOGEN INTERACTION

Provides students with basic concepts regarding host-pathogen interactions and an overview of the recent advances in this field. Focuses on cellular and molecular mechanisms at the core of pathogen interactions with their host and will highlight the variety of pathogen molec Prereq: BISC300

CHEM - Chemistry & Biochemistry

CHEM 367-10 ANALYSIS OF CHEMICAL PROBLEMS

Overview of math and quant chemical calculation methods used in PChem & Analytical Chem courses. Application of ideas and concepts of differential and integral calculus to the solution of chemical problems. Rigorous treatment of statistical methods of data analysis; use of spreadsheet software.

CHIN - Chinese

CHIN 355-10 ADVANCED READING IN CHINESE

Designed to improve students' integrated language skills through dialogues from TV programs and films. Develops abilities to comprehend authentic language materials, understand features of spoken and written Chinese, and produce paragraph-level Chinese on familiar topics.

CHIN 467-10 ADVANCED READING IN CHINESE CULTURE

Improves students' reading and writing proficiency through rigorously reading and responding to essays on important social and cultural issues in modern and contemporary China. Develops skills of abstract reasoning, narrating and describing in Chinese.

CIEG - Civil & Environmental Engineer

CIEG 367-10 ENVIRONMENTAL ENGINEERING THERMODYNAMICS

Reviews the principles of materials and energy conservation. Introduces the first and second laws of thermodynamics and applies them to environmental engineering problems, including equilibrium, partitioning and transformation processes in natural and engineered systems.

CIEG 367-11 INTRO TO RAILROADS

An intro to railroads, rail transportation and railroad engineering to include high speed and conventional passenger rail, freight rail, commuter rail, heavy rail transit and light rail transit. Addresses railroad operations, management, economics, and the role of railways in modern society.

CIEG 467-11 UNSATURATED SOIL MECHANICS

Introduction to unsaturated soil problems. Strength, flow, volume change behavior. Stress states, concept of effective stress. Hydraulic conductivity, water potential, suction, soil water characteristic curve. Techniques applied in measuring variables affecting unsaturated behavior.

CIEG 467-12 BUILDING INFORMATION MODELING

BIM in architecture/engineering/construction. Principles/benefits of BIM in software platforms, model facilitating documentation, 3D design exploration, interference checking, digital fabrication, construction industry with real world application.

CIEG 467-13 BRIDGE ENGINEERING CONSTRUCTION

Construction of typical short to medium span slab-on-girder steel and concrete highway bridges. Longer span bridge construction, including segmentally constructed concrete bridges, concludes discussion. Accelerated bridge construction (ABC) will be included for typical and complex bridges.

CIEG 467-14 OPTIMAL DESIGN

Introduction to optimization techniques and software based solutions for linear and non-linear problems related to engineering design. Develop designs for engineering systems and understand how optimization determines which design is cheapest or fastest to use.

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CIEG 667-23 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 and machine learning techniques.

CIEG 867-10 BIOENGINEERING & MOLECULAR GENETICS

Mechanisms control gene expression, design genetic modules for biosensors, genomic screening, controlling activity. Transcrip. and transl. control via promoters, terminators, riboswitches, small RNAs, phase switching, transcript stability. Material from literature, selected chapters from textbooks.

CISC - Computer & Info Sciences

CISC 367-10 SIMULATION-BASED CYBERSECURITY

Introduces the principles and practices of cybersecurity (computer and network security). Via the use of a network simulator, students learn how attacks work, and how to defend against them. Topics include encryption; IP spoofing; bots; buffer overflows; DoS attacks; and others. Pre-req: CISC361.

CISC 849-10 AUTONOMOUS ROBOT VISION

Survey of color camera, depth camera (e.g., Kinect), and laser range-finder-based 2-D and 3-D sensing algorithms for mobile robot navigation and interaction. Focus applications will be humanoid robot perception for disaster response, driver-less cars, and trail following.

CISC 849-11 PROGRAMMING HETEROGENEOUS SYSTEMS

Focuses on exploring heterogeneous architectures and identifying productive and portable ways to program them. Topics include exploring standard-based programming models currently in wide use in academia and national labs. Coursework includes presentations as well as group and individual projects.

CISC879-10 ADVANCED TOPICS IN ARCHITECTURE & SOFTWARE SYSTEMS: CONCURRENCY & VERIFICATION

Read, present and discuss papers dealing with the verification of concurrent systems. Papers range from the classic period of Dijkstra, Lamport and others, to modern, state-of-the-art will be selected, based on the interest of the participants.

CISC 889-10 SIMULATION & MODELING OF BIOINFORMATIC SYSTEMS

Concepts, techniques, and tools for modeling and simulation of biological systems. Gene regulation, signal transduction, and metabolism. Bayesian networks. Monte Carlo and Gibbs sampling. Optimization.

COMM - Communication

COMM 200-11 COMIC BOOK COMMUNICATION

Explores comic books as a communication medium which tell a broad range of stories and speak to diverse audiences. Includes how readers understand comics, how creators use the artistic form and portrayals of sex, race, and ideology in American comic books.

COMM 318-10 SOCIAL MEDIA STRATEGY

Focuses on strategic social media with an emphasis on user engagement, content curation and public relations. Draws upon multiple disciplines and provides hands-on experiences with leveraging social platforms, such as Facebook, Twitter, Pinterest and Instagram. Interactive class format uses case stu

COMM 418-10 PSYCHOLOGICAL PROCESSING OF MEDIA

Examines the ways in which people understand and process media, including traditional and digital media. By better understanding the process, students can learn how to predict media uses and gratifications, media's effect on consumers, and even what media in the future may look like.

COMM 418-11 LOCAL NEWS & POLITICS

Examines local and national politics from a LOCAL news level through print, broadcast, and digital media.

COMM 418-12 MEDIA ETHICS & ACCOUNTABILITY

Examines the role(s) that mass media are expected to fulfill in society, and the various ways for holding media accountable for meeting those responsibilities.

COMM 440-10 COMMUNICATION FOR EFFECTIVE LEADERSHIP

Focuses on theories of leadership as well as the emotional, behavioral, and communicative tools that allow individuals in leadership positions to better engage team members, defuse confrontations, and motivate others toward their best efforts.

COMM 618-12 MEDIA ETHICS & ACCOUNTABILITY

Examines the role(s) that mass media are expected to fulfill in society, and the various ways for holding media accountable for meeting those responsibilities.

CPEG - Computer Engineering**CPEG 267-10 ECE DESIGN CHALLENGES**

Hands-on project-oriented course with students working in groups on a large challenge problem focused and structured to reinforce courses covering physics, calculus, digital electronics, computer programming, analog electronics. Technical skill modules covered. Design competition at end of course.

DIST - Disability Studies**DIST 267-10 INTRODUCTION TO DISABILITY STUDIES: ARTS & HUMANITIES**

Examines disability as a cultural category. Considers how the category of disability is shaped, defined, formed, and changed; what sorts of bodies are considered 'normal' or 'abnormal'. Assesses different ways of thinking and communicating 'models of disability' within literature, arts, and media.

EAMC - Early American Culture**EAMC 667-11 ISSUES IN MATERIAL CULTURE: THE CITY IN MATERIAL CULTURE AND DECORATIVE ARTS**

Explores the rich body of material culture and decorative arts of cities and urban landscapes in the Americas from the 17th to the present.

EAMC 667-12 INTRODUCTION TO THEORIES IN MATERIAL CULTURE STUDIES

Introduces graduate students to the theories and practices of Material Culture Studies. As the investigation of anything that is made or modified by humans, material culture works on the assumption that every object can reveal complex stories about past and present societies.

ECON - Economics**ECON 667-10 ECONOMIC ANALYSIS OF GLOBAL ENERGY MARKETS**

Economic analysis of global energy markets including supply and demand, financial analysis, external effects and regulation in selected markets Prerequisites ECON 101

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EDUC - Education**EDUC 667-10 SHARING LEARNING SCIENCE: APPLYING AND DISSEMINATING WHAT WE KNOW**

Considers how we can share our research data findings on social, cognitive, physical and linguistic realms, with people outside the academy for the larger good.

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ELEG - Electrical and Computer Engrg (3130)**ELEG 267-10 ECE DESIGN CHALLENGES**

Hands-on project-oriented course with students working in groups on a large challenge problem focused and structured to reinforce courses covering physics, calculus, digital electronics, computer programming, analog electronics. Technical skill modules covered. Design competition at end of course.

ELEG 467-10 PRACTICAL MEMS

Provides an introduction to the many facets of Microelectromechanical Systems (MEMS), including micro fabrication processes, sensing and actuation techniques and micro-sensor design utilizing computer aided design tools and system level modeling.

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ENGL - English**ENGL 667-12 INTRODUCTION TO THEORIES IN MATERIAL CULTURE STUDIES**

Introduces graduate students to the theories and practices of Material Culture Studies. As the investigation of anything that is made or modified by humans, material culture works on the assumption that every object can reveal complex stories about past and present societies.

ENTR - Entrepreneurship**ENTR 167 194 THE STARTUP OF THE PROFESSIONAL YOU**

Designed to provide practical career development skills, build meaningful relationships and foster an entrepreneurial mindset. Teaches how to brand yourself through the use of social media; acquire communication, social influence, and networking skills.

ENTR 467-50 LEGAL ISSUES FOR ENTREPRENEURS

Addresses important legal issues faced by entrepreneurs as they put their ideas into action. Topics are sequenced to mirror the entrepreneurial process, beginning with pre-startup issues like intellectual property continuing to entity formation, governance and ownership issues, and ending

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ENWC - Entomology & Wildlife Ecology

ENWC 867-10 ECOLOGICAL MODELING

Students develop a suite of tools for modeling environmental and biological data to answer ecological questions with R software. Emphasis will be on model interpretation as it relates to informing management decisions, understanding model assumptions and critical evaluation of competing models.

FINC – Finance

FINC 467-13 REAL ESTATE INVESTMENT

Focuses on the methods of valuation and evaluation of investments in real estate. Studies how to value real estate investments, present investment pitches, and measure the returns from investments in real estate. Prereq: FINC311.

FLLT - Foreign Languages & Literature

FLLT 330-10 CONTEMPORARY CHINESE WOMEN WRITERS

Explores psychology, philosophy, religion, and novels by Chinese women writers through readings in feminist theories. Studies the roots of human sufferings and contentment, depression and jouissance, in the forms of love and trauma.

FLLT 330-11 READING ROME

Examines the ancient Roman city of the Imperial period. Focuses on the topography of Rome, Ostia, and Pompeii. Considers how Romans depicted cities in literature and art. Explores a variety of public and domestic building types. Considers methods of 'reading' the ancient city.

FLLT 330-12 SCIENTIFIC REVOLUTION IN ITALY

Studies how the Scientific Revolution of the 16th and 17th Centuries transform the understanding of nature, man and the cosmos. Examines how this scientific culture evolved in Italy. Studies Galileo and his 1633 trial.

FREN – French

FREN 355-10 WOMEN WRITERS & THEIR WORLDS

Explores Francophone women authors (e.g. Haitian, Chinese, and Japanese) from minority groups within Canada as well as French-Canadian women writers from Manitoba to Montreal. Topics include family relationships, love and loss, ties to the homeland, and the challenges of city living.

FREN 455-10 FRANCOPHONE WOMEN WRITERS

centers on Francophone women writers from North Africa, Sub-Saharan Africa, and the Caribbean. Topics include: patriarchy, women rights, lesbianism, feminism, polygamy, slavery and colonialism.

GEOG - Geography

GEOG 467-11 FOOD GEOGRAPHIES

Examination of the allocation and distribution practices and processes that shape local and global food and agricultural systems. Emphasis on: production/consumption, policymaking, activism, commodity exchange, access to resources, food justice, and food sovereignty.

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GEOL - Geological Sciences

GEOL 467-10 GEOCHEMISTRY

Aqueous and environmental geochemistry. Study of chemical equilibria and reactions in aquatic environments with particular focus on mineral-water interactions, interfacial geochemistry, and biogeochemical processes.

GEOL 467-13 GEOLOGY OF THE SOUTHWEST

Study of the geology of the Southwest. Course includes a one week field trip to the Southwest during Spring Break 2016, March 26, 2016 through April 3, 2016. Locations to be determined. There will be a student fee for this course, amount TBD. Contact the department for additional information.

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GRMN – German

GRMN 355-10 – BERLIN IN LITERATURE & ART

Discusses literary texts and films from 19th to the 21st centuries. Considers the city of Berlin standing at the center of Germany's political and social turmoil for centuries; what Berlin has meant throughout the tumult of its past; and what it means today.

GRMN 355-11 – DIVERSITY IN GERMANY

Considers the flood of refugees into Germany and Europe; the question and the importance of diversity within the continent. Investigate different German identities through literature, film, and social media, including Twitter campaigns and YouTube channels.

GRMN 455-10 – GERMAN TRAVEL WRITING

Exposes us to different cultures and probes our relationship to others. Explores the history and topics of German travel writing from the 18th century until today.

HDFS - Human Development & Family Studies

HDFS 167-10 SPECIAL OLYMPICS RELATIONSHIP EXPERIENCE (SORE)

Designed to promote diversity by understanding and appreciating differences through real life experiences. Provides students with the opportunity to both learn about and work one-on-one with people with Intellectual Disabilities.

HDFS 267-10 INTRODUCTION TO CHILD DEVELOPMENT

Explores understanding children and childhood from a developmental, theoretical, political, cultural and historical perspective. Discusses children's rights, play, gender, families, and the media.

HDFS 665-10 PLAY, DEVELOPMENT & EDUCATION

Examines the role of play in human development from diverse perspectives. Addresses theories and research on play, and its relationship to physical, cognitive, language and social-emotional development across the human life-span. Studies the application of play.

HDFS 667-11 EARLY CHILDHOOD AND PUBLIC POLICY

Research and discuss key early childhood policies currently implemented at federal, state, and local levels. Explore policy proposals for the future.

HIST - History

HIST 267-10 SUSTAINABILITY AND HISTORY

Explores the history of efforts to green the basic institutions of American life, especially the world of business. Considers if we can build a sustainable society.

HIST 267-11 HISTORY OF THE FUTURE

Considers how people in the 20th century imagined the future; the role they thought science and technology would play in future societies; and how and why they were right or wrong in their predictions. Explores these fascinating topics with weekly film showings plus lecture and discussions.

HIST 337-10, 80 TOPICS IN AMERICAN HISTORY: AMONG THE AMERICANS

Takes the measure of contemporary American life and character and launches upon an adventure in moral imagination. Enters upon a longstanding conversation about American virtue and default, about evil done and denied, about the things worth saving.

HIST 337-11 TOPICS IN AMERICAN HISTORY: AMERICAN SPORTS HISTORY

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

HIST 337-12 TOPICS IN AMERICAN HISTORY: AMERICAN ASSASSINS

Examines traumatic events and the people and circumstances surrounding the assassinations of leading political and social figures.

HIST 365-12 JAPAN IN THE 20TH CENTURY

Class connects Japan's past to its present considering what happened to samurai; why Japan industrialized alongside Europe; who the MOGA was; WWII in Asia; How Japan became the second largest global economy; manga & anime. Enrollees will also help set the agenda.

HIST 367-12 THE PROPAGANDA OF EMPIRE

Explores how and why propaganda was generated and disseminated to drive investment, trade, migration, missionary work and military interventions in imperial systems. Teaches and applies basic computational research methods to collect and to analyze primary sources.

HLPR - Health Promotion**HLPR 467-10 MIND, BODY, BEHAVIOR**

The study & application of mind-body behavioral interventions inclusive of stress reduction, relaxation, meditation & yoga, and their collective importance to health, wellness, and performance. Students develop abilities to critically evaluate mind-body research and apply these interventions.

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HLPR 667-11 GRANT WRITING FOR HEALTH PROMO

Explores how to identify grant funding opportunities, write for the funding audience and the timeline of deliverables and budgeting. Students will be given examples and opportunities to serve as reviewers and will complete a grant proposal as a final deliverable for the course.

ITAL - Italian**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. Prereq: any two 200-level ITAL courses and GPA of at least 3.30

ITAL 455-10 CONTEMPORARY ITALY

Examines contemporary Italian politics, art, theater, music, fashion, and cinema, while providing students with opportunities to enhance their communication skills in Italian.

JAPN - Japanese

Introduces Japanese literature at the intermediate level, using works such as zuihitsu, haiku and short stories. Reads the material and explores new grammar and kanji together. Writing practice includes short essays and haiku.

LING - Linguistics & Cognitive Science**LING 267-10 LINGUISTICS OF SIGN LANGUAGES**

Serves as an overview of the linguistics of signed languages (especially American Sign Language): phonology, morphology, syntax, and semantics. It will also cover topics regarding Deaf arts and culture. No prior knowledge of ASL or signed languages is required.

MATH – Math Sciences

MATH 667-10 PROJECTS IN IMAGING; NETWORKS & SIGNALS

Develops a research project that can be theoretical, applied or computational in nature. Studies writing and presentation skills for novel results in the mathematical sciences. Requires permission of instructor.

MCST - Material Culture

MCST 667-12 INTRODUCTION TO THEORIES IN MATERIAL CULTURE STUDIES

Introduces graduate students to the theories and practices of Material Culture Studies. As the investigation of anything that is made or modified by humans, material culture works on the assumption that every object can reveal complex stories about past and present societies.

MEEG - Mechanical Engineering

MEEG 167-10 TECHNICAL COMMUNICATION

Demonstrates to the students, the quality of technical communication expected of them by showing and explaining examples of work, both good and bad, using a fictitious lab exercise.

MEEG 467-23 MULTISCALE MODELING OF MATERIALS

Introduction to Computational Modeling; Materials and Mechanics (crystal structures, defect, deformation); Atomistic Modeling (DFT, MD simulations), Continuum Modeling (FEM Simulations); Scale dependent structural and electronic properties, mechanisms; Multiscale Methods; Integrated Modeling; Multiscale Materials Design.

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MEEG 867-13 ADV BIOMECHANICS: THEORY/EXPERIMENT

Studies how the "classical" (transfer functions) and "modern" (state-space) approaches to feedback control may be combined to obtain a powerful design methodology. Emphasis on the implications that the equations have for design, rather than on their derivation.

MEEG 867-14 MICROSCALE HEAT TRANSFER

Introduction to statistical thermodynamics, kinetic theory of gases; Boltzmann transport theory; fundamentals of electrons, photons, and phonons and their relationship to macroscopic thermodynamic and transport properties. Applications to nanomaterials and device design.

MISY - Management Information Systems

MISY 267-10,11,12 FOUNDATIONS OF BUSINESS ANALYTICS

Introduction to the basic tools and methods of data analytics for business. Includes inferential statistics, predictive models, business processes, and methods of presenting results. Prereq: MATH201. Open to Lerner College majors only.

MISY 367-13 INFORMATION SECURITY & RISK MANAGEMENT

Introduction to the management of information security and risk at both the personal and enterprise levels. Topics considered include viruses, hacking, cyber warfare, mobile security, social networking, denial-of-service, cloud computing and risk assessment.

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.

MSEG - Materials Science**MSEG 467-16 CHARACTERIZATION OF ELECTRONIC MATERIALS AND DEVICES**

Focuses on the fundamentals and practical considerations of the myriad techniques that are used to characterize electronic materials. Includes the theoretical underpinnings of the techniques and discuss applicability and limitations.

MSEG 667-10 THEORY, EXPERIMENT AND APPLICATIONS IN VIBRATIONAL SPECTROSCOPY

Covers the fundamentals of vibrational spectroscopy including normal modes of vibration and conditions for scattering and absorption. Experimental methods discussed includes: FT-IR, Planar Array IR (PA-IR), 2D IR, AFM-IR, RAMAN AND FT Raman spectroscopy.

MSEG 667-16 CHARACTERIZATION OF ELECTRONIC MATERIALS AND DEVICES

Focuses on the fundamentals and practical considerations of the myriad techniques that are used to characterize electronic materials. Includes the theoretical underpinnings of the techniques and discuss applicability and limitations.

MSEG 667-17 IMPACT MODELING & FAILURE OF COMPOSITES

Based on theory and finite element analysis (FEA). Discusses theory and practice of non-linear continuum mechanics based finite element code LS-DYNA with special applications to impact and failure analysis of composites.

MSEG 667-19 MACROMOLECULAR DESIGN AND BIOCONJUGATIONS

Provides an examination of strategies for sequence-specific orthogonality (e.g., "click" chemistry), protection and deprotection schemes, convergent versus divergent syntheses, grafting to versus grafting from approaches, solid-phase synthesis, polymer architectures, and purification.

MSST - Museum Studies**MSST 367-12 MUSEUM EXHIBITIONS AND COLLECTIONS**

Involves object research; label & text writing; proper care, handling, preparation of objects for exhibition; installation & de-installation of exhibitions; evaluation & critiquing techniques; and writing exhibition prospectuses & proposals. Students work in teams and alone.

MUED - Music Education

MUED 267-10 INTRO TO MUSIC EDUCATION

Intro to instructional strategies, assessment, classroom management, dispositions, reflective practice, tonal/aural competencies, classroom vocal and keyboard skills, music national standards, trends in music education, philosophy of music education, music advocacy, and classroom music technology.

MUSC - Music

MUSC 167-10 COLLEGIATE BAND

Concert band ensemble open to students from all University Colleges. No audition needed. Students learn fundamental ensemble playing techniques through performance of standard and modern wind band literature.

MUSC 167-11 ALEXANDER TECHNIQUE

Provides an introduction to the Alexander Technique, a study of mindful, efficient, and freeing use of the body. Self-discoveries made in this course will benefit instrumentalists, vocalists or dancers, and can serve as a guide for moving through your life in a healthy and graceful way.

MUSC 267-10 POPULAR MUSIC OF THE GLOBAL SOUTH

An overview of significant 20th century musical styles from South Africa, Brazil and Southern United States and the role of this music in the social and political struggles in these countries.

MUSC 367-11 BEAT GOES ON PROJECT

Beginner to intermediate level course in which students engage in creating beats, songwriting, audio-visual landscapes, and film scoring with an emphasis on creative processes and products through the use of sound production technology.

PHIL – PHILOSOPHY

PHIL 367-10 RELIGION & PSYCHOLOGY

Explores religion from various psychological points of view; and psychology from various points of view. Studies works by authors which blur the distinctions between these two approaches.

PHIL 465-10 COERCION & EXPLOITATION

Surveys the analysis of coercion and exploitation, and their legal and moral implications. Focuses on whether consensual, mutually advantageous bargains are ever immoral. Applications include plea bargaining, blackmail, drug testing, surrogate motherhood, sweatshops, and consent to sex.

PHYS – Physics & Astronomy

PHYS 667-10 DESIGN & INTERPRETATION OF POWDER X-RAY DIFFRACTION

Reviews basic crystallographic and diffraction concepts. Emphasis on the use of standard software packages that allow detailed structural information to be extracted from powder diffraction patterns.

PHYS 838-10 QUANTUM FIELD THEORY II

Continuation of PHYS822. Coverage of functional methods in field theory, renormalization group, non-Abelian gauge theories, and an introduction to supersymmetry.

PLSC - Plant & Soil Science

PLSC 267-10 WETLAND SOILS AND HYDROLOGY

Overview:Wetland ecosystems. Ecological functions of wetlands and services to society. Characteristics of wetlands with respect to hydrology/soils/plant communities, and wildlife. Wetland types and classification. Wetland identification, delineation, protection, & mitigation. Prereq: CHEM101 or CHEM103

PLSC 267-11 FERMENTATION:BREWING & BEYOND

Encompasses the process of beer brewing and food & spirits that would not exist without fermentation. Covers the history of fermentation, basic microbiology as it relates to fermentation, as well as specific fermented products. Prereqs: BISC207 or PLSC101

PLSC 367-10 URBAN FORESTRY

Introductory course on the care and management of trees and related vegetation in urban areas. Examines urban forest composition, planning, management, and the future of urban forests.

PLSC 467-10 BIOGEOCHEM CYCLING OF NUTRIENT

Physico-chem & microbial processes of nutrient cycling & transformations in ecosystems; covers nat'l & anthropogenic ecosystems to understand environmental impacts by Ag & industry; explores tracer methods for study of nutrient cycling including stable & radio-isotopes, rare elements & biomarkers.

PLSC 467-11 ENVIRONMENTAL FORENSIC&SOCIETY

Emphasizes source tracking of chemicals such as geographic origins of foods, adulteration of liquors, juices, oil spills, authenticity of luxury products, origin of contaminants, and medical wastes in soils and (ground) waters. Focus placed on research tools, methods, and data synthesis.

PLSC 667-10 BIOGEOCHEM CYCLING OF NUTRIENT

Physico-chem & microbial processes of nutrient cycling & transformations in ecosystems; covers nat'l & anthropogenic ecosystems to understand environmental impacts by Ag & industry; explores tracer methods for study of nutrient cycling including stable & radio-isotopes, rare elements & biomarkers.

POSC- Political Science

POSC 150-00 INTRODUCTION TO AMERICAN POLITICS

The foundations, principles and processes of American politics. Topics include the Constitution, political institutions (Congress, presidency, courts), parties, interest groups, campaigns, elections, public opinion and political participation.

POSC 401-10 CRIMINAL PROCEDURES

Examines the constitutional law of criminal procedures through decisions of the U.S. Supreme Court. Topics: due process of law, arrest, search & seizure, electronic surveillance, right to counsel, self-incrimination, trial, and sentencing.

POSC 409-10,80 INTERNATIONAL CRIMES, CRIMINALS & COURTS

The core international crimes, the criminals who commit them, and the courts that try them. Understanding crimes and their mechanisms. Deals with intellectually and emotionally difficult subjects.

POSC 413-10 LGBT POLITICS

Understand how and why the parties have polarized on LGBT issues, explore social movement theory, draw on theories of self-interest and feelings towards those not 'like us', make sense of changing public opinion on LGBT issues, gain a richer understanding not just of LGBT issues but of American politics.

POSC 439-10 GOVERNANCE & POVERTY REDUCTION IN SUB SAHARAN AFRICA

Understand the social, political & economic issues in post-colonial Africa; problems of human development & poverty reduction; identify & discuss strategies to improve governance & development on the continent.

POSC 467-70-0 POWER, INEQUALITY & SOCIAL POLICY

Examines the development of the American welfare state and current conflicts & debates about its performance & future. Improves student's understanding of the history of social welfare policies in the United States & the challenges associated with changing these policies. Meets in Washington, D.C.

POSC 480-10 GOVERNANCE OF NATIONAL RESOURCES IN THE GLOBAL SOUTH

Examines how systems of water governance have developed; focuses on systems of water governance in case studies-South East Asia, Africa & South America; how systems have sought to balance the competing claims to shared water resources as a human right.

PSYC - Psychology

PSYC 367-10 PSYCHOLOGY & LAW

Focusses on applications of concepts and theories from cognitive, social, developmental and clinical psychology, to the administration of justice.

PSYC 667-12 SHARING LEARNING SCIENCE: APPLYING & DISSEMINATION WHAT WE KNOW

Considers how we can share our research data findings on social, cognitive, physical and linguistic realms, with people outside the academy, for the larger good.

PSYC 867-12 SHARING LEARNING SCIENCE: APPLYING & DISSEMINATION WHAT WE KNOW

Considers how we can share our research data findings on social, cognitive, physical and linguistic realms, with people outside the academy, for the larger good.

SOCI – Sociology

SOCI 367-10 SOCIOLOGY OF SOUTHERN ITALY

Examination of the social history & 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. Section meets in Rome.

SPAN - Spanish

SPAN 367-70 SPEAKING/WRITING SKILLS 5&6

Fundamental linguistic support. Enables student to understand and express in a variety of situations which may be unfamiliar, and which require exchanging informational and personal opinions using complex linguistic structures. Course is required for all students in the Language and Culture program.

SPAN 467-10 LA CHILDHOOD FICTION & HUMAN RIGHTS

Analyzes the drawings and environments that children's literature written in Latin America portrays. Considers other modes and media, with an awareness of the omnipresence of ideology.

SPAN 467-12 SPANISH TRANSLATION II: SPECIALIZED

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.

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.

SPAN 467-74 SPANISH GRAMMAR (SUPERIOR LEV)

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 467-75 SPEAKING & WRITING SKILLS 7&8

Fundamental linguistic support. Enables student to understand and express in a variety of situations which may be unfamiliar, and which require exchanging informational and personal opinions using complex linguistic structures. Course is required for all students in the Language and Culture Program.

SPAN 875-10 CONTEMPARY SPANISH NOVEL

Traces the development of the novel of memory from the fictional memoir of the Franco era through the confessional novel of the transition to hybrid metafictional novels of the 21st century. Each novel will be situated in its historical, sociocultural, literary, and critical contexts.

UAPP – Urban Affairs & Public Policy

UAPP 467-70 POWER, INEQUALITY & SOCIAL POLICY.

Examines the development of the American welfare state and current conflicts & debates about its performance & future. Improves student's understanding of the history of social welfare policies in the United States & the challenges associated with changing these policies. Meets in Washington, D.C.

WOMS - Women's Studies**WOMS 311-10 WOMEN IN ANTIQUITY**

Explores the lives of women in the ancient Mediterranean world through an investigation of visual and textual evidence. Topics include ancient domestic life, sexuality, medicine, and religion among powerful women, wives, working women and slaves.