

2017

Curriculum Change 2018-2019

Portland State University

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PSU Curricular Changes - Effective for Academic Year 2018-19									
This list submitted to OrACRAO on: July 26, 2018									
PSU Curricular Change Cycle: Annual									
PSU annual submission date: July of each year									
Name & contact info of person updating this template: Andreen Morris 503-725-4596									
Effective Term	New (N) Modified (M) Deleted (D)	Prefix	Course #	Course Title	Credits	Course Description	Type of Change (for modified classes only)	Comments	
Fall 2018	M	Actg	550	Advanced Financial Reporting	4	Financial reporting for analysts. Studies how financial statements communicate the outcome of a company's operating, financing and investing transactions. Contemporary issues are examined in the context of factors that shape accounting standards and current trends in financial reporting. Prerequisite: Admission to the Master of Science in Finance program.	Prerequisites		
Fall 2018	N	Anth	376U	The Neandertals	4	Examination of the biology, behavior, and evolution of our closest hominin relatives. Exploration of who the Neandertals were and how they lived using paleontological, archaeological, and genetic evidence. Critical evaluations of the available data will encourage scientific thinking and thorough understanding of scientific principles and methods.			
Fall 2018	N	Ar	360	Arab Cinema	4	Focus on conversation and writing skills through the viewing and discussion of films. Topics may include: history of Arab and Arabophone cinema; Arabic literature through film; social themes such as gender, sexuality, national identity; and representations of war and colonialism in Arab cinema. Taught in English.			
Fall 2018	M	ArH	311U	History of Asian Art	4	A survey of art and architecture of Asia from prehistoric times to the 19th century. The art and architecture (including ceramics, sculpture, painting, textiles, and other utilitarian implements-- e.g., ritual bronze vessels of China) of Asia will be presented in context of chronology, source (indigenous or foreign influence), site and in relation to the forces of each society's culture, religion, politics, geography, and history. Buddhism, Hinduism, Confucianism, Shintoism, Taoism, Shamanism, symbolism, and mythology are basic to the arts of Asia. ArH 311: South Asia (India) and Southeast Asia (Sri Lanka, Cambodia, Thailand, Burma, and Indonesia). ArH 312: China and Korea. ArH 313: Japan. This is the first course in a sequence of three: ArH 311, ArH 312, and ArH 313.	Remove prerequisites.		
Fall 2018	M	ArH	312U	History of Asian Art	4	A survey of art and architecture of Asia from prehistoric times to the 19th century. The art and architecture (including ceramics, sculpture, painting, textiles, and other utilitarian implements-- e.g., ritual bronze vessels of China) of Asia will be presented in context of chronology, source (indigenous or foreign influence), site and in relation to the forces of each society's culture, religion, politics, geography, and history. Buddhism, Hinduism, Confucianism, Shintoism, Taoism, Shamanism, symbolism, and mythology are basic to the arts of Asia. ArH 311: South Asia (India) and Southeast Asia (Sri Lanka, Cambodia, Thailand, Burma, and Indonesia). ArH 312: China and Korea. ArH 313: Japan. This is the second course in a sequence of three: ArH 311, ArH 312, and ArH 313.	Remove prerequisites.		
Fall 2018	M	ArH	313U	History of Asian Art	4	A survey of art and architecture of Asia from prehistoric times to the 19th century. The art and architecture (including ceramics, sculpture, painting, textiles, and other utilitarian implements-- e.g., ritual bronze vessels of China) of Asia will be presented in context of chronology, source (indigenous or foreign influence), site and in relation to the forces of each society's culture, religion, politics, geography, and history. Buddhism, Hinduism, Confucianism, Shintoism, Taoism, Shamanism, symbolism, and mythology are basic to the arts of Asia. ArH 311: South Asia (India) and Southeast Asia (Sri Lanka, Cambodia, Thailand, Burma, and Indonesia). ArH 312: China and Korea. ArH 313: Japan. This is the third course in a sequence of three: ArH 311, ArH 312, and ArH 313.	Remove prerequisites.		
Fall 2018	M	ArH	321U	Survey of Korean Art	4	A chronological survey of art and architecture of Korea, and its uniqueness, in the context of East Asian art history. Prehistoric arts, as well as tomb paintings, and artifacts recognizing Buddhism's effect on Korea's sculptural, painting, and architectural heritage. Also treats Confucianism shaping Korean ink painting, folk painting, and porcelains.	Remove prerequisites.		

Fall 2018	M	ArH	329	Islamic Art: Major Themes and Periods	4	Major themes in Islamic Art and/or Architectural History. May be taught as a broad chronological survey or it may focus on a major period or topic (such as Ottoman art and/or architecture), considered in the global context. Expected preparation: ArH 204 (expected of art and art history majors). Open to non-majors. This course may be repeated for up to 12 credits with different topics.	Remove prerequisites.	
Fall 2018	M	ArH	337U	Nature into Art	4	Focuses on a specific theme concerning the relationship of the nature and the environment with the visual arts. Specific themes may include topics such as environmental art, landscape painting and/or photography, landscape architecture, cartography and art, and the representation of animals. Recommended preparation: ArH 205 or ArH 206 (expected of art & art history majors).	Remove prerequisites.	
Fall 2018	M	ArH	339U	History of Architecture	4	A history of architecture from Prehistory to Post- Modernism. This is the first course in a sequence of two: ArH 339 and ArH 340. Recommended preparation: ArH 204 or ArH 205 (expected of art & art history majors).	Remove prerequisites.	
Fall 2018	M	ArH	340	History of Architecture	4	A history of architecture from Prehistory to Post- Modernism. This is the second course in a sequence of two: ArH 339 and ArH 340. Recommended preparation: ArH 206 (expected of art & art history majors).	Remove prerequisites.	
Fall 2018	M	ArH	351U	Ancient Near Eastern and Egyptian Art	4	Near Eastern art and architecture from the Neolithic Revolution to the conquest of Alexander the Great. Explores the beginnings of urbanization, the art and building of the pharaohs, and major empires such as the Assyrians and Sumerians. Recommended preparation: ArH 204 (expected of art & art history majors).	Title, description, remove prerequisites.	
Fall 2018	M	ArH	352U	Ancient Greek Art and Architecture	4	Art in Greece from the Bronze age but focusing on developments from 1000-100 BCE. Topics include Minoan palaces, the development of the nude in sculpture, and the building programs and ideology of classical Athens. Recommended preparation: ArH 204 (expected of art & art history majors).	Title, description, remove prerequisites.	
Fall 2018	M	ArH	353U	Ancient Roman and Etruscan Art and Architecture	4	Art of Italy and the Roman World from 900 BCE-400 CE. Topics include Etruscan funerary traditions, portraiture of the Roman Republic, and how the Roman Empire constructed identity through building and other public arts. Recommended preparation: ArH 204 (expected of art & art history majors).	Title, description, remove prerequisites.	
Fall 2018	M	ArH	356U	Early Medieval Art and Architecture	4	Explores the art and architecture of Early Christian, Insular, Viking, Carolingian, and early Islamic world. Works covered include early Christian catacombs, the Book of Kells, and the so-called desert palaces of Umayyad caliphs in order to explore the themes of monasticism, pilgrimage, and the transmission of ideas around the Mediterranean. Recommended preparation: ArH 204 (expected of art & art history majors).	Title, description, remove prerequisites.	
Fall 2018	M	ArH	357U	Byzantine Art and Architecture	4	Art and architecture of the Byzantine world from the founding to the fall of Constantinople (330-1453 A.D.) Topics include art and politics under Justinian, iconoclasm and icons, and cultural interchange with neighboring Islamic societies. Recommended preparation: ArH 204 (expected of art & art history majors).	Title, description, remove prerequisites.	
Fall 2018	M	ArH	359U	Gothic Art and Architecture	4	Gothic art and architecture across Europe from the 13th to the 16th centuries. Topics include the development of the cathedral, and the rise of the city, manuscript illumination, and artists such as Giotto and Duccio. Recommended preparation: ArH 205 (expected of art & art history majors).	Title, description, remove prerequisites.	
Fall 2018	M	ArH	361U	Northern Renaissance Art	4		Remove prerequisites.	
Fall 2018	M	ArH	371U	Italian Renaissance Art	4		Remove prerequisites.	
Fall 2018	M	ArH	372U	Italian Renaissance Art	4		Remove prerequisites.	
Fall 2018	M	ArH	373U	Italian Renaissance Art	4		Remove prerequisites.	
Fall 2018	M	ArH	376U	Italian Baroque Art	4		Remove prerequisites.	
Fall 2018	M	ArH	377U	Dutch and Flemish Baroque Art	4		Remove prerequisites.	
Fall 2018	M	ArH	378U	Spanish Baroque Art	4		Remove prerequisites.	
Fall 2018	M	ArH	379	Latin American Baroque Art	4		Remove prerequisites.	
Fall 2018	M	ArH	381U	19th Century Art	4	A survey of painting and sculpture in 19th-century Europe and the U.S. This is the first course in a sequence of two: ArH 381: Neoclassicism, Romanticism, and Realism; ArH 382: Impressionism and Post-Impressionism. Expected preparation: ArH 206 (expected of art and art history majors).	Description, remove prerequisites	
Fall 2018	M	ArH	382U	19th Century Art	4	A survey of painting and sculpture in 19th-century Europe and the U.S. This is the second course in a sequence of two: ArH 381: Neoclassicism, Romanticism, and Realism; ArH 382: Impressionism and Post-Impressionism. Expected preparation: ArH 206 (expected of art and art history majors).	Description, remove prerequisites	
Fall 2018	M	ArH	383	Western Art in the 20th Century	4		Remove prerequisites.	
Fall 2018	M	ArH	384	Western Art in the 20th Century	4		Remove prerequisites.	

Fall 2018	M	ArH	385	Western Art in the 20th Century	4		Remove prerequisites.	
Fall 2018	M	ArH	392	History and Contemporary Issues in Photography	4		Remove prerequisites.	
Fall 2018	M	ArH	398	Contemporary Art	4		Remove prerequisites.	
Fall 2018	M	Art	340	Interaction Design Principles	4	Studio course dealing in the fundamentals of Interaction Design, incorporating the concepts of sound Graphic Design principles with User Experience processes. Students will examine a series of interfaces, learn to analyze their effectiveness, and create designs that better serve real human needs. Topics include User Interface design, Systems Thinking, and User Experience research methods. Prerequisites: Art 118 or Art 121 and Art 120.	Description, prerequisites, and course number	
Fall 2018	M	Art	479	Advanced Printmaking--Working Place	4	An advanced laboratory course for student's specializing in printmaking. The intention of this course is to explore and experiment with several print techniques to arrive at a cohesive body of printed work that speaks to an individual vision. Maximum 12 credits. Open to non-majors who have prerequisites and instructor's consent. Prerequisites: Art 270 or Art 271 and Art 30 or Art 371.	Title, prerequisites, repeatability	
Fall 2018	N	ASL	301	Third-Year American Sign Language Term 1	4	This course will assist students in developing improved and advanced vocabulary, receptive and expressive skills, and specific terminology used in the fields of education, medicine, law, and artistic/dramatic performances. Students' confidence and fluency in ASL will improve to ensure effective interaction and communication with Deaf and hard of hearing ASL users. Prerequisite: ASL 203.		
Fall 2018	N	ASL	302	Third-Year American Sign Language Term 2	4	This course aims to improve receptive and expressive fluency of students in two essential elements of American Sign Language—fingerspelling and numbers—in a variety of contexts and settings. Students will develop mastery of hand positioning and movement pertaining to the use of fingerspelling and numbers in a variety of communication settings and contexts. Students will also improve their abilities to utilize ASL numbering systems for time, money, measurements, game scores, and others in a variety of settings and contexts. Prerequisite: ASL 301.		
Fall 2018	N	ASL	303	Third-Year American Sign Language Term 3	4	This course focuses on the advanced utilization of gestures, mime, pantomime, facial expressions, body movements, and handshapes that often accompany non-manual communication and which convey meaningful information in American Sign Language. Strategies for developing fluency and skills in these elements will be presented. Prerequisite: ASL 302.		
Fall 2018	M	Bi	320	Introduction to Organismal Physiology	4	An overview of fundamental principles of physiology. Course covers the physical and chemical mechanisms responsible for how animals, plants and microbes function. Prerequisites: Bi 211, Bi 212, and Bi 213 with a C- or above.	Description, prerequisites.	
Fall 2018	M	Bi	416	Marine Mammals	6	Study of the distinguishing features, classification, origins, evolution, physiology, anatomy, behavior, ecology, and status of groups of marine mammals. Two 2-hour lectures, two 3-hour laboratories. Prerequisites: Bi 387 or Bi 415.	Description	
Fall 2018	M	Bi	516	Marine Mammals	6	Study of the distinguishing features, classification, origins, evolution, physiology, anatomy, behavior, ecology, and status of groups of marine mammals. Two 2-hour lectures, two 3-hour laboratory.	Description	
Fall 2018	N	Bi	522	Bioinformatics an Genomics	3	Introduction to computational tools and databases that enable genome-scale research. Prerequisite: Complete Bi 334 with a C- or better.		
Fall 2018	M	Bi	536	Behavioral Endocrinology	4	Comparative examination of the major hormone systems that regulate behavior across the animal kingdom. Emphasizes the reciprocating nature of hormone and behavior interactions and seeks to understand how natural selection drives the evolution of hormone structure and function. Prerequisite: Bi 320 with a C- or above.	Prerequisites	
Fall 2018	N	Bi	537	Physiological Adaptations to Extreme Environments	3	Cellular, biochemical and physiological adaptations that allow animals to thrive in the Earth's harshest habitats with a focus on what makes species from extreme environments unique. Expected preparation: Bi 320. Prerequisites: Completion of Bi 211, Bi 212, Bi 213 with a C- or better.		
Fall 2018	N	Bi	552	Cancer Biology	3	Provides the fundamentals of cancer biology. Topics include: altered membrane receptor and cytoplasmic signaling; altered cell: cell interactions; dysregulated cell cycle, apoptosis, and senescence; angiogenesis; and altered cellular adhesion. Expected preparation: one quarter of Organic Chem recommended.		
Fall 2018	N	BSt	339	Afro-Futurisms/Black Science Fiction	4	This class begins with the historical roots of Afro-Futurisms/Black Science Fiction. Using selected reading the class will compare and contrast the science fiction and fantasy written by Africans & African Diaspora authors. Will also explore in movies and television the contributions of Black people in science fiction.		

Fall 2018	M	BSt	351U	African American Literatures	4		Remove prerequisites	
Fall 2018	N	BSt	359	The African Diaspora in Europe	4		The primary focus of this course is to understand and explore what it means to be a person and/or community of African descent living in Europe. The methodology will be based on a social, cultural and historical analysis.	
Fall 2018	N	BSt	466 566	History of the Black Panther Party	4		Examination of historical conditions and context that gave birth to the Black Panther Party. Analysis of the political platform, work and ideology of the Party and governmental and societal responses. Issues of race, class, gender and sexuality, the intersections of identity, and the Party's legacy nationally and globally. Prerequisites: Two courses in Black Studies or permission of instructor.	
Fall 2018	N	BSt	489 589	Afro-Latin@ Narratives	4		This course explores through poetry, songs, music, stories, (auto)-biographical accounts and novels the creativity and meaning produced by people of African descent living in or from Latin America. Through examining the narrative expressions of Afro-Latin Americans we can consider the relationship that social historical processes have on narrative production. Prerequisite: Upper-division standing.	
Fall 2018	D	CCJ	220	Crime Literacy	4			
Fall 2018	D	CCJ	317	Punishment and Corrections	4			
Fall 2018	D	CCJ	440	Constitutional Criminal Procedures	4			
Fall 2018	D	CCJ	460	Court Procedures	4			
Fall 2018	D	CCJ	470	Morality, Justice and the Law	4			
Fall 2018	D	CCJ	490	Senior Colloquium	4			
Fall 2018	N	CE	411	Law & Civil/Environmental Engineering	4		Overview of legal issues relevant to civil and environmental engineers, including contract law, environmental law, professional liability/negligence, and property law. This course will consider legal decisions, statutes and administrative rules, and case studies relevant to the practice of civil and environmental engineering. Also offered for graduate-level credit as CE 511 and can be taken only once for credit. Prerequisites: Senior or graduate standing in BSCE, BSENEV, or CEEV.	
Fall 2018	N	CE	412 512	Sustainability in Civil & Environmental Engineering Seminar	1		This course features seminar speakers discussing sustainable practices in the broad discipline of engineering, and optimal collaborations in pursuit of that goal. Examples topics include green building design for zero net energy, urban heat management and minimization, "green vs. "gray" in waste water treatment, and feasibility of energy from biomass.	
Fall 2018	N	CE	416 516	Forensic Structural Engineering	2		Application of engineering principles to investigate failures and performance problems of structures; case studies and examples of actual structural failures.	
Fall 2018	N	CE	497	Transportation & Health	4		Introduction to the linkages between transportation investments, public policy, and behaviors and various related public and individual health outcomes. Content is divided into four modules covering: a) healthy behaviors, b) exposure to unsafe conditions, c) disaster relief/emergency response and d) integration into practice/health impact analyses. Also offered for graduate-level credit as CE 597 and can be taken only once for credit. Prerequisites: CE 351.	
Fall 2018	M	CE	541	Advanced Soil Mechanics	4		Study of the advanced principles of soil behavior related to stress-strain, shear strength, permeability, and consolidation. Prerequisite: CE 341 or graduate standing.	Prerequisites
Fall 2018	N	CE	596	Theories and Methods of Travel Behavior	4		Covers the various theoretical perspectives on travel behavior and the methodological approaches used to analyze and understand behavior. Travel behavior includes the study of the set of transportation choices and outcomes, including: vehicle ownership, activity engagement and scheduling, mode choices, destination choices, and routing decisions. Also offered as CE 696. Prerequisite: Graduate standing or consent of instructor.	
Fall 2018	N	CE	598	Travel Survey Methods & Analysis	4		Focuses on the design, administration, and analysis of various types of surveys used to collect transportation data, including but not limited to household travel surveys, establishment surveys, intercept surveys, and freight/commercial vehicle surveys. Also offered as CE 698 and may be taken only once for credit. Prerequisite: CE 454 or graduate standing.	
Fall 2018	N	CE	696	Theories and Methods of Travel Behavior	4		Covers the various theoretical perspectives on travel behavior and the methodological approaches used to analyze and understand behavior. Travel behavior includes the study of the set of transportation choices and outcomes, including: vehicle ownership, activity engagement and scheduling, mode choices, destination choices, and routing decisions. Also offered as CE 596. Prerequisite: Graduate standing or consent of instructor.	

Fall 2018	N	CE	698	Travel Survey Methods & Analysis	4	Focuses on the design, administration, and analysis of various types of surveys used to collect transportation data, including but not limited to household travel surveys, establishment surveys, intercept surveys, and freight/commercial vehicle surveys. Also offered as CE 598 and may be taken only once for credit. Prerequisite: CE 454 or graduate standing.		
Fall 2018	N	ChLa	335	Chicano/Latin American Film	4	Exploration of Chicano/Latin American film through close readings of representative films from each of the following major periods: silent cinema (1890s-1930s), studio cinema (1930s-1950s), Neorealism/Art Cinema (1950s), the New Latin American Cinema (1960s-1980s), and contemporary cinema (1990s to today). Examine representations to different constructions of gender, race, sexuality, and nationality.		
Fall 2018	M	CI	517	Developing Concepts of Data Analysis	3	Focus attention on data representation, analysis, and how students' ideas develop over time. Work with collection, representation, and interpretation of data. Learn what various graphs and statistical measures show about data, study how to summarize data when comparing groups, and consider whether data provide insight into questions inspiring data collection.	Description	
Fall 2018	N	CI	521	Practicum: Mathematics Leadership	1-3	Enact the varied responsibilities of a mathematics instructional leader, to include: assessing and making recommendations for individual teachers or a school's mathematics program, developing mathematics-focused professional development, assessing and instructing struggling or advanced mathematicians, and communicating with stakeholders - always inquiring into how high-quality teaching ensures mathematics success for all. Prerequisite: CI 519.		
Fall 2018	N	COMM	532	Communication and Technology	4	Examination of several approaches to communication technology and how it affects human behavior and society. Topics include psychological aspects of communication technology; how design plays a role in the way we use the technology and interact with others; and the ways in which communication technology affects social institutions. Expected preparation: core communication courses (Comm 200, Comm 311, Comm 316, Comm 326).		
Fall 2018	N	CR	548	Transitional Justice and Peacebuilding	4	Transitional justice as legal and non-legal initiatives to bring closure, healing, and reconciliation after tragedies. Prerequisite: Upper-division standing.		
Fall 2018	N	CS	431	Introduction to Performance Measurement, Modeling and Analysis	4	A survey of the fundamentals of computer application and system performance. Hands on programming exercises will allow us to apply the techniques to increasingly complex problems. We will use a variety of state of the art tools for measurement, modeling, simulation, and analysis throughout the course. Prerequisites: CS 201 and CS 202 and CS 333.		
Fall 2018	N	CS	435	Accelerated Computing	4	Heterogeneous approaches that use special-purpose processors to accelerate the execution of a variety of applications. GPUs, Intel Xeon Phi, APUs, FPGUs. The sustainability implications of these platforms. Lectures, homeworks, labs, and group programming projects using NVIDIA GPUs and Intel Xeon Phi. Prerequisites: CS 333, CS 415P.		
Fall 2018	M	CS	445	Machine Learning	4	Provides a broad introduction to techniques for building computer systems that learn from experience; conceptual grounding and practical experience with several learning systems; and grounding for advanced study in statistical learning methods, and for work with adaptive technologies used in speech and image processing, robotic planning and control, diagnostic systems, complex system modeling, and iterative optimization. Students gain practical experience implementing and evaluating systems applied to pattern recognition, prediction, and optimization problems. Prerequisites: Mth 261 or Mth 343; CS 202	Prerequisites	
Fall 2018	M	CS	465	Full-stack Web Development	4	This class provides an overview of how the web works and covers the spectrum of a full stack web developer, including both front-end and back-end development for delivering both mobile and desktop web applications.	Title and description	
Fall 2018	N	CS	495	Web Security	4	This course covers web clients, servers, and protocols and how they can be subverted. The class will focus on the highest risk web vulnerabilities, give students practical experience in how they work, and study how they can be prevented. The class will consist mostly of laboratory exercises focused on developing student skills in performing web penetration testing. Prerequisite: CS 333.		
Fall 2018	N	CS	531	Introduction to Performance Measurement, Modeling and Analysis	3	A survey of the fundamentals of computer application and system performance. Hands on programming exercises will allow us to apply the techniques to increasingly complex problems. We will use a variety of state of the art tools for measurement, modeling, simulation, and analysis throughout the course. Prerequisites: Graduate standing; CS 333 or an equivalent introductory course in Operating Systems.		

Fall 2018	N	CS	532	Operating System Foundations	3	Foundational concepts of operating system design including processes, threads, scheduling, concurrent programming, synchronization mechanisms, memory management, virtual address translation, file systems and security. A primary goal of the course is to help graduate students acquire the foundational knowledge necessary to succeed in CS 533.		
Fall 2018	N	CS	535	Accelerated Computing	3	Heterogeneous approaches that use special-purpose processors to accelerate the execution of a variety of applications. GPUs, Intel Xeon Phi, APUs, FPGUs. The sustainability implications of these platforms. Lectures, homeworks, labs, and group programming projects using NVIDIA GPUs and Intel Xeon Phi. Prerequisite: CS 515.		
Fall 2018	M	CS	557	Functional Languages	3	Pavement structure classification and components, wheel loads and design factors, stresses in flexible pavements, subgrade strength and evaluation, design methods, material characteristics, stresses in rigid pavements, design of concrete pavements, joints and reinforcement, condition surveys. Prerequisite: CE 351.	Prerequisites	
Fall 2018	M	CS	565	Full-stack Web Development	3	This class provides an overview of how the web works and covers the spectrum of a full stack web developer, including both front-end and back-end development for delivering both mobile and desktop web applications.	Title and description	
Fall 2018	D	CS	588	Distributed Database Systems	3			
Fall 2018	N	CS	595	Web Security	3	This course covers web clients, servers, and protocols and how they can be subverted. The class will focus on the highest risk web vulnerabilities, give students practical experience in how they work, and study how they can be prevented. The class will consist mostly of laboratory exercises focused on developing student skills in performing web penetration testing.		
Fall 2018	M	CS	696	Network Management and Security	3		Remove dual-level listing	
Fall 2018	D	EAS	361	Fluid Mechanics	4			
Fall 2018	D	EAS	361L	Fluid Mechanics Lab	0			
Fall 2018	M	Ec	437	Public Utility Economics	4	Examines the rationale, economic principles, and institutions of historic economic regulation. Contemporary theory of the firm and regulatory practice with a focus on energy are analyzed. Prerequisites: Ec 311 or Ec 415.	Description, prerequisites	
Fall 2018	M	Ec	537	Public Utility Economics	4	Examines the rationale, economic principles, and institutions of historic economic regulation. Contemporary theory of the firm and regulatory practice with a focus on energy are analyzed. Expected preparation: Ec 311, Ec 314 or Ec 581.	Description	
Fall 2018	M	Ec	538	Energy Economics	4	Economics and structure of energy markets, with a focus on electricity. Examines current policy issues arising from energy production and use. Expected preparation: Ec 311, Ec 415 or Ec 581.	Description	
Fall 2018	N	Ec	576	Implementing Econometrics using Stata and R	4	Nuts and bolts techniques for implementing econometric analysis using Stata software, the R statistical package and a short introduction to SAS. Topics include organizing data, nonparametric smoothing, graphing techniques, regression diagnostics, Stata and Mata programming. Preparation: an econometrics course or statistics courses including regression analysis. Prerequisites: Ec 469 or Ec 570 or permission of instructor.		
Fall 2018	M	ECE	412	Senior Project Development II		Project teams apply structured design methodology from ECE 411 to original projects with assistance of faculty and industrial/community advisers and after initial research, prepare written and oral project proposals. Students keep logs of their design work and submit weekly progress reports. Groups periodically give oral progress reports. Prerequisites: ECE 411.	Prerequisites	
Fall 2018	M	ECE	413	Senior Project Development II	2		Credits from 3 to 2.	
Fall 2018	M	ECE	571	Introduction to System Verilog for Design and Verification	4	Introduction to SystemVerilog: language features to support both design and verification. Good practices for simulation and synthesis, techniques for constructing reusable testbenches. Additional topics may include hardware acceleration and transaction-based verification techniques. Course includes homework and significant final project with presentation. Familiarity with Verilog and finite state machines required. Prerequisites: One of following: ECE 351, ECE 540, ECE 544 or ECE 508: Verilog Workshop, or permission of instructor	Prerequisites	
Fall 2018	M	ECE	593	Fundamentals of Pre-Silicon Validation	4	Introduction to theory, strategy, and methods to validate functionality of digital integrated circuit using simulation based techniques. Topics include complete validation flow, validation environment, stimulus, checking, and coverage. Familiarity with computer architecture and System Verilog is required. A design project is an integral part of this course. Prerequisite: ECE 571 or permission of instructor.	Prerequisites	

Fall 2018	M	ECE	595	Emulation and Functional Specification Verification	4	Introduction to theory and techniques to verify digital circuit designs with emphasis on non-simulation methods. Topics include hardware emulation, formal verification, and abstract system specification. Familiarity with computer architecture and System Verilog is required. A design verification project is an integral part of this course. Prerequisites: ECE 571 or permission of instructor.	Prerequisites	
Fall 2018	M	Ed	585	Intructional Planning for Inclusive Classrooms	3	Addresses principles and skills for organization and presentation of grades 6-12 inclusive standards-based instruction. Includes: student needs analysis, universal design for learning, differentiation, and assistive technology for effectively teaching a diverse group of adolescent learners.	Description and change credits from 4 to 3	
Fall 2018	N	EE	432	Electrical Machine Analysis and Design	4	The principals of magnetostatic and quasi-static analysis will be applied to study different classes of electromechanical devices. Reluctance, induction, permanent magnet and wound rotor synchronous machines will be analyzed using magnetic circuit and harmonic analysis techniques. Electrical machines in wind turbines and in automotive traction motors will be discussed. Prerequisites: EE 348, ECE 317 and ECE 331 or instructor permission.		
Fall 2018	M	EE	520	Random Processes	4	Review of probability, random variables, and expectation followed by a study of the principles and properties of random sequences and random processes. Topics include random vectors, fundamentals of estimation, modeling random sequences with linear systems, stationarity, Markov random sequences, and common random process models. Prerequisites: Stat 351 and ECE 316, graduate standing or permission of instructor.	Prerequisites	
Fall 2018	M	Eng	377U	American Poetry I	4	Study of American poetry from the Colonial period to the early twentieth century.	Course number, title, description, prerequisites, repeatability, grading option	
Fall 2018	M	Eng	378U	American Poetry II	4	Study of American poetry from the early twentieth century to the beginning of the twenty-first century.	Course number, title, description, repeatability, grading option	
Fall 2018	M	Eng	458	Advanced Topics in Romanticism	4	Study of selected aspects of Romantic literature and culture in Britain, with some attention to European Romanticism. Topics may include theories of Romanticism, poetry and poetics, the novel, the essay, autobiography, aesthetics, ecology, animals, politics, queerness, and race. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	460	Advanced Topics in American Literature to 1800	4	Study of early American literature in the context of the history, ideas, and culture of the period. Topics focus on writing's relationship to historical events and movements such as European imperialism; captivity; Atlantic slavery; evangelicalism; the Enlightenment; the Revolution and national formation. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	461	Topics: American Literature 1800-1900	4	Study of nineteenth-century American literature in the context of the history, ideas, and culture of the period. Topics may include literary movements (such as Transcendentalism, sentimentalism, realism); individual authors; genres, modes, or forms; or writing's relation to historical events (such as slavery and abolition, the Civil War, American imperialism, industrialization, the women's rights movement). Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	464	Advanced Topics in American Literature: 20th Century	4	Study of twentieth-century American literature in the context of the history, ideas, and culture of the period. Topics may include literary movements (such as American Modernism or the Harlem Renaissance); individual authors; genres, modes, or forms; or writing's relation to historical events (such as the Cold War, Civil Rights movements, or urbanization). Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	467	Advanced Topics in American Literature and Culture	4	Study of selected aspects of American literature and culture. Topics are unified by theme and may cover multiple historical periods. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Title, description, repeatability, grading option	
Fall 2018	D	Eng	468	American Literature and Culture	4			

Fall 2018	M	Eng	469	Advanced Topics in Asian American Literature and Culture	4	Study of selected aspects of Asian American literature and culture. Topics are unified by theme and may cover multiple historical periods. Topics may include: Asian American and Pacific Islander Studies; comparative and critical ethnic studies; eco-criticism and sustainability; immigration and settler colonialism. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	475	Advanced Topics in Victorian Literature	4	Study of Victorian literature in the context of the history, ideas, and culture of the period. Topics include individual writers and literary movements such as pre-Raphaelitism, imperial romance, and literature of the industrial period. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	480	Advanced Topics in Twentieth-Century British Literature	4	Specialized studies in twentieth-century British literature. Topics include individual writers and literary groups; poetry, prose, and fiction; theories of modernism; technology, politics, propaganda, and the arts; literature and twentieth-century philosophy. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Title, description, repeatability, grading option	
Fall 2018	D	Eng	484	Modern Drama	4			
Fall 2018	D	Eng	485	Contemporary Drama	4			
Fall 2018	D	Eng	486	Contemporary American Novel	4			
Fall 2018	D	Eng	487	Contemporary American Short Story	4			
Fall 2018	M	Eng	488	Contemporary American Poetry	4	Study of significant trends in contemporary American poetry and poetics. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	490	Advanced Topics in Rhetoric and Composition Studies	4	Study of particular figures, theories, issues, and movements, as well as key historical-cultural contexts in both contemporary and historical studies in rhetoric and composition. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	491	History of Literary Criticism and Theory I	4	Historical survey of significant works in the Western critical and philosophical tradition from ancient Greece to the nineteenth century, with a focus on fundamental questions about literary composition, aesthetic judgment, and the nature and function of literature. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	492	History of Literary Criticism and Theory II	4	Historical survey of significant works in the Western critical and philosophical tradition from Marxism to poststructuralism. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	D	Eng	493	Advanced Topics in Feminist Literary Theory	4			
Fall 2018	M	Eng	494	Topics in Critical Theory and Methods	4	Specialized study of important and influential strands in critical theory such as Marxism, psychoanalysis, feminism, postcolonialism, queer theory, and others. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	496	Comics Theory	4	Focus on various critical approaches to comics, exploring interdisciplinary theories and methods and applying these theories to primary texts. Prerequisite: Eng 300 and Wr 301.	Repeatability, grading option	
Fall 2018	M	Eng	498	Ecology, Criticism and Culture	4	Examines ecological perspectives on the study of literature, culture, and critical theory as well as the use of literary analysis and cultural studies to illuminate environmental issues and problems of sustainability. Prerequisites: Eng 300 and Wr 301.	Description, repeatability, grading option	
Fall 2018	M	Eng	511	English Drama	4	Study of important trends, traditions, and movements in English drama, examining drama both as a literary genre and as a complex mix of performance, spectatorship, cultural context, and theater history. Topics may be drawn from a range of historical periods, from medieval drama to the present day. Also offered for undergraduate-level credit as Eng 411 and may be taken only once for credit. Prerequisite: Eng 300.	Description	
Fall 2018	D	Eng	512	English Drama	4			
Fall 2018	M	Eng	520	Caribbean Literature	4	Study of important works and writers from across the Caribbean basin with an emphasis on understanding the historical and theoretical contexts of literary production, the cultural legacies of colonialism, and the linguistic innovations particular to the region.	Description, repeatability, grading option	
Fall 2018	D	Eng	521	African Fiction	4			

Fall 2018	M	Eng	522	African Fiction	4	Study of literary and cultural production from the African continent, focusing on topics such as colonialism, national liberation, globalization, gender, and the relationship between art and politics. Includes some consideration of the question of language and the appropriation of Western literary conventions. Also offered for undergraduate-level credit as Eng 422 and may be taken only once for credit.	Description	
Fall 2018	M	Eng	526	Advanced Topics in Medieval Literature	4	Study of Medieval English literature (c. 800-1500), including Anglo-Saxon works, continental vernacular and Latin medieval writing, and the Middle English vernacular tradition. Students will have some opportunity to learn to read Old and Middle English. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	M	Eng	530	Sixteenth Century Literature	4	Specialized studies in Renaissance English literature. Topics include individual writers and literary groups; sixteenth-century poetry and prose; the English sonnet; the Renaissance epic and pastoral traditions; Elizabethan drama, verse narrative, satire, and invective; humanism; the rise of the professional writer; literature and the visual arts. Expected preparation: Eng 341U and 4 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	535	Advanced Topics in Film and Media	4	Specialized studies in the history, criticism, or theory of film and media culture. Topics may focus on genres, movements, figures, theoretical issues, or advanced historical topics. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major.	Description, repeatability, grading option	
Fall 2018	M	Eng	540	Advanced Topics in Seventeenth Century Literature	4	Specialized studies in seventeenth-century literature. Topics include cavalier and metaphysical poetry; revenge tragedy; prose forms of the early seventeenth century; popular genres of the English civil war; women writers; and restoration drama. Expected preparation: Eng 341U or Eng 342U and 4 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	541	Advanced Topics in Renaissance Literature	4	Study of literature of the English Renaissance (1500–1700), including poetry, prose, drama, and other popular forms. Topics include cultural forces such as Humanism and the Reformation, literary traditions, and historical and political contexts. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Also offered for undergraduate-level credit as Eng 441. Prerequisites: Eng 300.	Title and description	
Fall 2018	D	Eng	543	British Women Writers	4			
Fall 2018	M	Eng	544	British Women Writers	4	Study of the works of British women writers with attention to themes, styles, and characteristic concerns in the light of feminist criticism and scholarship. Prerequisites: Eng 300.	Description	
Fall 2018	M	Eng	545	American Women Writers	4	Study of American women writers, with attention to themes, styles, and characteristic concerns, in the light of feminist criticism and scholarship. Also offered for undergraduate-level credit as Eng 445. Prerequisites: Eng 300.	Title and description	
Fall 2018	D	Eng	546	American Women Writers: 20th Century	4			
Fall 2018	M	Eng	548	Advanced Topics: Major Figures in Literature	4	Study of the works of one or more major authors such as Chaucer, Woolf, Coetzee, or Morrison. Course may be repeated for credit with different authors. Up to 8 credits of this course number can be applied to the English major. Also offered for undergraduate-level credit as Eng 448. Prerequisites: Eng 300.	Title and description	
Fall 2018	M	Eng	549	Advanced Topics in Cultural Studies	4	Study of selected topics in contemporary culture and media, analyzing the production and reception of cultural texts through a range of interdisciplinary and theoretical approaches. Topics may include: major figures/concepts in social theory; politics of consumer culture; globalization and American culture. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	M	Eng	550	Advanced Topics in Eighteenth-Century Literature	4	Study of selected topics in British poetry, prose, and drama (1660-1800). Topics may include major developments (the Enlightenment, the novel, gender and literature, abolitionism, or the culture of sympathy); genres, modes, or forms; or the relation of writing to historical events (slavery, revolution, colonialism, capitalism). Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Also offered for undergraduate-level credit as Eng 450. Prerequisites: Eng 300.	Title and description	
Fall 2018	M	Eng	558	Advanced Topics in Romanticism	4	Study of selected aspects of Romantic literature and culture in Britain, with some attention to European Romanticism. Topics may include theories of Romanticism, poetry and poetics, the novel, the essay, autobiography, aesthetics, ecology, animals, politics, queerness, and race. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	

Fall 2018	M	Eng	560	Advanced Topics in American Literature to 1800	4	Study of early American literature in the context of the history, ideas, and culture of the period. Topics focus on writing's relationship to historical events and movements such as European imperialism; captivity; Atlantic slavery; evangelicalism; the Enlightenment; the Revolution and national formation. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	M	Eng	561	Topics: American Literature 1800-1900	4	Study of nineteenth-century American literature in the context of the history, ideas, and culture of the period. Topics may include literary movements (such as Transcendentalism, sentimentalism, realism); individual authors; genres, modes, or forms; or writing's relation to historical events (such as slavery and abolition, the Civil War, American imperialism, industrialization, the women's rights movement). Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	564	Advanced Topics in American Literature: 20th Century	4	Study of twentieth-century American literature in the context of the history, ideas, and culture of the period. Topics may include literary movements (such as American Modernism or the Harlem Renaissance); individual authors; genres, modes, or forms; or writing's relation to historical events (the Cold War, Civil Rights movements, or urbanization). Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	567	Advanced Topics in American Literature and Culture	4	Study of selected aspects of American literature and culture. Topics are unified by theme and may cover multiple historical periods. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	569	Advanced Topics in Asian American Literature and Culture	4	Study of selected aspects of Asian American literature and culture. Topics are unified by theme and may cover multiple historical periods. Topics may include: Asian American and Pacific Islander Studies; comparative and critical ethnic studies; eco-criticism and sustainability; immigration and settler colonialism. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisite: Eng 300. Expected preparation: Eng 369U and 4 additional upper division Literature credits.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	575	Advanced Topics in Victorian Literature	4	Study of Victorian literature in the context of the history, ideas, and culture of the period. Topics include individual writers and literary movements such as pre-Raphaelitism, imperial romance, and literature of the industrial period. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	D	Eng	577	American Poetry	4			
Fall 2018	D	Eng	578	American Poetry	4			
Fall 2018	M	Eng	580	Advanced Topics in Twentieth-Century British Literature	4	Specialized studies in twentieth-century British literature. Topics include individual writers and literary groups; poetry, prose, and fiction; theories of modernism; technology, politics, propaganda, and the arts; literature and twentieth-century philosophy. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Title, description, repeatability, grading option	
Fall 2018	M	Eng	584	Modern Drama	4	Examines major European, English, and American plays in the period 1880-1940. Expected preparation: 8 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	585	Contemporary Drama	4	Examines major developments in world drama since World War II. Expected preparation: 8 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	586	Contemporary American Novel	4	American novel since 1965, with emphasis upon traditions, themes and trends. Expected preparation: 8 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	587	Contemporary American Short Story	4	The American short story from mid-20th century to the present. Expected preparation: 8 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	588	Contemporary American Poetry	4	Study of significant trends in contemporary American poetry and poetics. Prerequisites: Eng 300.	Description, repeatability, grading option	

Fall 2018	M	Eng	590	Advanced Topics in Rhetoric and Composition Studies	4	Study of particular figures, theories, issues, and movements, as well as key historical-cultural contexts in both contemporary and historical studies in rhetoric and composition. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	M	Eng	591	History of Literary Criticism and Theory I	4	Historical survey of significant works in the Western critical and philosophical tradition from ancient Greece to the nineteenth century, with a focus on fundamental questions about literary composition, aesthetic judgment, and the nature and function of literature.	Description, repeatability, grading option	
Fall 2018	M	Eng	592	History of Literary Criticism and Theory II	4	Historical survey of significant works in the Western critical and philosophical tradition from Marxism to poststructuralism. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	M	Eng	593	Advanced Topics in Feminist Literary Theory	4	Provides in-depth study of specific critical schools within the larger arena of feminist theory. Possible topics will include post colonialism and feminism; feminism and the body; historical perspectives on feminism. Course may be repeated for credit with different topics. Expected preparation: Eng 492 and 4 additional upper division Literature credits. Prerequisites: Eng 300.	Drop 400-level section	
Fall 2018	M	Eng	594	Topics in Critical Theory and Methods	4	Specialized study of important and influential strands in critical theory such as Marxism, psychoanalysis, feminism, postcolonialism, queer theory, and others. Course may be repeated for credit with different topics. Up to 8 credits of this course number can be applied to the English major. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	M	Eng	596	Comics Theory	4	Focus on various critical approaches to comics, exploring interdisciplinary theories and methods and applying these theories to primary texts. Prerequisite: Upper-division standing.	Repeatability, grading option	
Fall 2018	M	Eng	598	Ecology, Criticism and Culture	4	Examines ecological perspectives on the study of literature, culture, and critical theory as well as the use of literary analysis and cultural studies to illuminate environmental issues and problems of sustainability. Prerequisites: Eng 300.	Description, repeatability, grading option	
Fall 2018	N	EnvE	365	Physical Environmental Processes	2	Engineering physics of environmental processes and system dynamics. Relates to separate laboratory course using quantitative techniques for conceptualizing and analyzing movement of energy and material at local and global scales. Co-requisite: EnvE 368. Expected preparation: Admission to EnvE Upper Division. Prerequisite: Ch 222 with Ch 228, Ph 213 with Ph 216, Mth 256		
Fall 2018	N	EnvE	366	Analytic Methods	2	Theory and analytical techniques for assessment of water quality properties important in environmental engineering. Co-requisite: ENVE 369. Prerequisite: Ch 222 with Ch 228, Ph 223 (or Ph 213) with Ph 216, Mth 256.		
Fall 2018	N	EnvE	368	Physical Environmental Process Lab	2	Laboratory and field exercises to accompany Physical Environmental Processes (EnvE 365). Requires concurrent enrollment in EnvE 365. Prerequisites: Ch 222 with Ch 228, Ph 223 (or Ph 213) with Ph 216, Mth 256.		
Fall 2018	N	EnvE	369	Analytical Methods in Environmental Engineering Lab	2	Laboratory and field exercises to accompany Analytical Methods in Environmental Engineering (EnvE 366). Requires concurrent enrollment in EnvE 366. Prerequisites: Ch 222 with Ch 228, Ph 223 (Ph 213) with Ph 216, Mth 256.		
Fall 2018	N	EnvE	370	Sampling, Analysis and Risk Assessment for Environmental Engineering Lab	2	Synthesis of analytical chemistry and water quality knowledge. Laboratory and field exercises to implement water quality assessment project. Interpretation and presentation of project results. Prerequisites: EnvE 366, EnvE 369.		
Fall 2018	M	ESM	343	Environmental Problem Solving: Restoring Ecosystem Damage from Human Impacts	4	Inquiry based course that addresses many problems that can be addressed through environmental restoration. Analysis of potential solutions based on ecological principles and management efficacy. Projects will address site evaluation, tests for effectiveness, and design considerations. Prerequisites: Sci 341U or Sci 342U.	Prerequisites	
Fall 2018	N	Film	363	Topics in Experimental Film and Media Production	4	Introduction to new scenarios for cinema and new reasons for deploying it in different spaces, particularly in public. In using various combinations of cameras, screens, projectors, participants, and spaces it challenges students to design and construct moving image-based works that address unique historical, spatial, and social situations and struggles in public and semi-public spaces. Prerequisites: FILM 131 and either FILM 257 or FILM 258.		
Fall 2018	N	Film	364	Sound: Production and Design	4	Students will study and apply production and post-production sound techniques for fiction and non-fiction film and video applications. The technical aspects and aesthetic considerations of storytelling through sound in lectures, screenings, demonstrations, exercises, creative projects, and class critiques will be assessed. Topics include: principles of sound, production sound recording equipment, positioning microphones, audio software, sound mixing, effects editing, using music, editing dialogue, and careers in production and post-production audio. Prerequisites: FILM 132 and either FILM 257 or FILM 258.		

Fall 2018	N	Film	365	Editing	4	Introduction to the fundamental theories of fiction and non-fiction editing techniques, technologies, and skills required to produce well-edited work. Topics include rhythm, continuity, style, space, and motion contextualized within global film practices. Learn how to use editing to shape and structure moving images and sound to invest them with intention, narrative and meaning. Prerequisites: FILM 131, FILM 132, and either FILM 257 or FILM 258.		
Fall 2018	N	Film	366	Digital Cinematography	4	Students will study and apply camera and lighting techniques for fiction and non-fiction film and video applications. We will address the technical aspects and aesthetic considerations of visual storytelling through lectures, screenings, demonstrations, exercises, creative projects and class critiques. Topics include: pre-production visualization, methods for shooting coverage, principles of composition, employing 2D and 3D space, the moving camera, using available light, production lighting techniques, how focal length impacts the shot, controlling depth of field, and managing exposure. Prerequisites: FILM 131, FILM 132, and either FILM 257 or FILM 258.		
Fall 2018	M	Film	370U	Topics in Film, Media, and Culture	4	Study of a variety of dramaturgical, cultural, and historical issues as they appear in film, television, and other theatrical media. From quarter to quarter topics might include: Shakespeare on Film, '50s Media and Culture, American Cinema, American Culture, Vietnam on Film, Film History, Film Genres, and Hitchcock.	Title	
Fall 2018	N	Film	450	Portfolio and Professional Development	4	Requires students to investigate their interests, values, personality, and skills as the basis for discovery and communication of their personal brand as they begin their careers. Students will generate a branded digital portfolio of their work that includes marketing materials and work samples. Topics include: building a personal brand, designing a website, identifying areas of professional interest, assessing strengths, getting started on a career path, acquiring job search skills, interviewing, freelancing, and networking. This is an advanced production course. Prerequisite: Permission from the instructor is required to register.		
Fall 2018	N	Film	451	Advanced Production Workshop	4	Provides an intensive production experience for advanced students who apply acquired skills to the creation of a significant, sophisticated short film in a chosen genre. Students manage all aspects of production and generate marketing materials and a distribution plan for the finished film. In addition to producing their own work, students are required to crew on fellow classmates' projects and therefore exit the course with high quality assets to add to a reel or portfolio. Prerequisites: Either FILM 359 or FILM 362.		
Fall 2018	N	Film	460	Advanced Topics in Production	4	Advanced study of a variety of specialized skills and/or genres related to digital film production. From term to term, topics might include: Massive Media; Visual Effects; Music Videos; Web Cinema; Urban Media. Course may be repeated for credit with different topics. Prerequisites: Either FILM 362, FILM 359 or permission from the instructor.		
Fall 2018	D	Film	480	Contemporary Film Theory	4			
Fall 2018	D	Film	484	Anatomy of a Movie I: Product of the Studio Era	4			
Fall 2018	D	Film	485	Anatomy of a Movie II: The Independent Film	4			
Fall 2018	D	Film	580	Contemporary Film Theory	4			
Fall 2018	D	Film	584	Anatomy of a Movie I: Product of the Studio Era	4			
Fall 2018	D	Film	585	Anatomy of a Movie II: The Independent Film	4			
Fall 2018	D	Film	586	Topics in Film and the Moving Image	4			
Fall 2018	D	Film	587	Topics in International Film and the Moving Image	4			
Fall 2018	N	Fr	445	Representations of War in French Cinema	4	Explores representations of WWI, WWII and the Algerian War in French films. Combines methods of film analysis and historical inquiry to understand nuances of representations of everyday life during conflicts –methods and skills that students will learn and apply throughout the quarter. Taught in French. Also offered for graduate-level credit as Fr 545 and may be taken only once for credit. Prerequisite: Fr 303.		
Fall 2018	N	Fr	545	Representations of War in French Cinema	4	Explores representations of WWI, WWII and the Algerian War in French films. Combines methods of film analysis and historical inquiry to understand nuances of representations of everyday life during conflicts –methods and skills that students will learn and apply throughout the quarter. Taught in French. Also offered for undergraduate-level credit as Fr 5445 and may be taken only once for credit. Prerequisite: Fr 303.		

Fall 2018	M	G	340U	Life in the Past	4	Origin and development of plants, invertebrate and vertebrate animals on Earth, as interpreted from the study of fossils and the sedimentary rocks in which they occur. Includes plate tectonics and basic geologic principles. Prerequisite: upper-division standing.	Description, prerequisites	
Fall 2018	M	G	341U	Geology of the Oregon Country	4	Origin and geologic history of Oregon. Focus on volcanic and surface processes as well as geologic hazards. Survey of fossils as environmental indicators. Prerequisites: upper-division standing.	Description	
Fall 2018	M	G	342U	Earthquakes & Volcanoes	4	A study of volcanoes and earthquakes as they affect humans and the development of landscapes. Prerequisite: upper division standing. Prerequisite: an introductory science course.	Description, prerequisites	
Fall 2018	M	G	355	Earth and Space Sciences for Elementary Educators	4	A survey of Earth and Space Science concepts for students interested in elementary education. The course is designed around "three-dimensional learning" in the sciences: how to engage science content through science practice and recognition of science themes, as outlined in the Oregon Science Standards.	Title, description.	
Fall 2018	N	G	436	Sensors and Instrumentation for the Earth Sciences	4	This course focuses on the construction and use of electronic instrumentation useful for Earth and Environmental Sciences. Expected preparation: Ph 202 or Ph 212. Some programming experience (e.g., G 324/G 326, G 523). Prerequisites: Ph 201/Ph 202 or Ph 211/Ph 212.		
Fall 2018	M	G	450 550	Earth and Space Sciences for Middle/High School Educators	4	Survey of Earth and Space Science concepts for students interested in middle and high school education. Course is designed around "three-dimensional learning": how to engage content through practices and recognition of themes, following Oregon Science Standards. Offered for graduate-level credit as G 550. May be taken only once for credit.	Title, description.	
Fall 2018	M	G	453	Geology of the Pacific Northwest	4	Survey of the topographic and geologic features of the Pacific Northwest, including mining history and focusing on the close relationship of the region as the leading edge of a moving continental plate. Prerequisite: upper division standing.	Description	
Fall 2018	N	G	462	Hillslope Materials and Processes	4	This class examines the physical, biological, and chemical processes that convert fresh bedrock into mobile regolith and transport materials on hillslopes. Topics include sediment budgets, hillslope hydrology, weathering, soil production and transport, mass movements, landslides, and landscape evolution. Also offered for graduate-level credit as G 562 and may be taken only once for credit. Co-requisite: G 462L. Prerequisites: (G 318 or Geog 320 or ESM 320) and (Ph 201 or Ph 211 or EAS 211) and Mth 251.		
Fall 2018	N	G	480 580	Basin Analysis	4	An integrated look at sedimentary basins and their formation. Sedimentary basins contain valuable resources (water, geothermal, fossil fuels) and record tectonic processes. Basin geometries will be described through hands-on exercises using well log, potential fields, and seismic data. These will be used to constrain mountain building, paleoclimate, and mantle processes. Prerequisites: G 435 for G 480.		
Fall 2018	N	G	536	Sensors and Instrumentation for the Earth Sciences	4	This course focuses on the construction and use of electronic instrumentation useful for Earth and Environmental Sciences. Expected preparation: Ph 202 or Ph 212. Some programming experience (e.g., G 324/G 326, G 523).		
Fall 2018	N	G	562	Hillslope Materials and Processes	4	This class examines the physical, biological, and chemical processes that convert fresh bedrock into mobile regolith and transport materials on hillslopes. Topics include sediment budgets, hillslope hydrology, weathering, soil production and transport, mass movements, landslides, and landscape evolution. Also offered for undergraduate-level credit as G 462 and may be taken only once for credit. Co-requisite: G 562L.		
Fall 2018	M	GSCM	412	Introduction to Enterprise Resource Planning Systems	4		Prefix	See ISQA 412
Fall 2018	M	GSCM	429	Global Transportation and Logistics Management	4	Overview of global logistics including transportation, warehouse location and layout, inventory policies, distribution operations, information systems, and import tariffs. Prerequisites: BA 339, BA 301, and BA 303.	Prefix, title, description, prerequisites	See ISQA 529
Fall 2018	M	GSCM	432 532	Craft Beverage Operations Management	4		Prefix	See ISQA 432 532
Fall 2018	M	GSCM	439	Global Sourcing and Negotiation	4	Deals with developing sound policies and procedures in managing the supply chain. Topics include supplier selection and evaluation, competitive bidding, contract development and administration, value analysis, and standardization. In addition, basic negotiation topics are covered. Prerequisites: BA 301, BA 303, and BA 339.	Prefix, title, description, prerequisites	See ISQA 539
Fall 2018	M	GSCM	440	Governmental Procurement	4		Prefix	See ISQA 440
Fall 2018	M	GSCM	450	Project Management	4		Prefix	See ISQA 450
Fall 2018	M	GSCM	451	Business Forecasting	4		Prefix	See ISQA 451

Fall 2018	M	GSCM	454	Supply and Logistics Negotiations	4		Prefix	See ISQA 454
Fall 2018	M	GSCM	458 558	Purchasing & Logistics within the Food Industry	4		Prefix	See ISQA 458 558
Fall 2018	M	GSCM	459 559	Production Planning and Control	4		Prefix	See ISQA 459 559
Fall 2018	M	GSCM	469 569	Lean Management	4		Prefix	See ISQA 469 569
Fall 2018	M	GSCM	479	Supply Chain Strategy & Sustainability Management	4		Prefix	See ISQA 479
Fall 2018	N	HSMP	581	Population Health: Policy and Practice Implications	3	Introduction to concepts of population health as they relate to policy and practice. In addition to exploring various meanings of the term "population health", the course considers three primary drivers of population health: long-term demographic trends (e.g., population aging, immigration, fertility); social and economic policies (including health policy); and characteristics of the healthcare system. Special emphasis is placed on translating knowledge into effective policies and practice to address population health. Also offered as HSMP 681.		
Fall 2018	N	HSMP	590	Global Health Program Evaluation & Management	3	Program evaluation is a field of study and practice that is applicable across areas and disciplines. This course provides students with the theoretical and practical bases for the trans-discipline of program evaluation. The course emphasizes evaluation in the context of global health programs. Students will develop basic skills in a variety of approaches to evaluation, including techniques that are particularly suitable for evaluating global health programs.		
Fall 2018	N	HSMP	681	Population Health: Policy and Practice Implications	3	Introduction to concepts of population health as they relate to policy and practice. In addition to exploring various meanings of the term "population health", the course considers three primary drivers of population health: long-term demographic trends (e.g., population aging, immigration, fertility); social and economic policies (including health policy); and characteristics of the healthcare system. Special emphasis is placed on translating knowledge into effective policies and practice to address population health. Also offered as HSMP 581.		
Fall 2018	N	Hst	210	The Ancient World	4	An introductory survey into the political, social, economic, and cultural history of the Ancient World, concentrating mainly on the Ancient Near East, Greece, and Rome.		
Fall 2018	N	Hst	280	World War I: Global Perspectives	4	A global view of one of the modern world's formative moments: the First World War. Examines its cultural, political, economic and social history to understand the war's trajectory and consequences across the globe.		
Fall 2018	N	Hst	309	The Roman Republic	4	A study of the political, social, economic, and cultural history of the Roman world between the 8th and 1st centuries BCE.		
Fall 2018	N	Hst	310	The Roman Empire	4	A study of the political, social, economic, and cultural history of the Roman world between the 1st century BCE and the 4th century CE.		
Fall 2018	N	Hst	383	Modern Iraq and Syria	4	A survey course examining the modern history of Iraq and Syria from the late nineteenth century to the present day, with the goal of providing historical context for contemporary political, cultural, economic, and military conditions in both states.		
Fall 2018	N	Intl	366	Cyberwar & Espionage	4	Examination of the use of cyberwarfare and espionage in International Affairs as well as the ethical issues entailed by these activities, and how these may be viewed differently by states, organizations and individuals. Also examines the theoretical foundations that underpin foreign policy debates related to cyberconflict and spying.		
Fall 2018	D	Intl	499	Senior International Experience	4			
Fall 2018	M	ISQA	412	Introduction to Enterprise Resource Planning Systems	4		Prefix	See GSCM 412
Fall 2018	M	ISQA	432 532	Craft Beverage Operations Management	4		Prefix	See GSCM 432 532
Fall 2018	M	ISQA	440	Governmental Procurement	4		Prefix	See GSCM 440
Fall 2018	M	ISQA	450	Project Management	4		Prefix	See GSCM 450
Fall 2018	M	ISQA	451	Business Forecasting	4		Prefix	See GSCM 451
Fall 2018	M	ISQA	454	Supply and Logistics Negotiations	4		Prefix	See GSCM 454
Fall 2018	M	ISQA	458 558	Purchasing & Logistics within the Food Industry	4		Prefix	See GSCM 458 558
Fall 2018	M	ISQA	459 559	Production Planning and Control	4		Prefix	See GSCM 459 559
Fall 2018	M	ISQA	469 569	Lean Management	4		Prefix	See GSCM 469 569
Fall 2018	M	ISQA	479	Supply Chain Strategy & Sustainability Management	4		Prefix	See GSCM 479
Fall 2018	D	ISQA	529	Transportation and Logistics Management	4			
Fall 2018	D	ISQA	529	Purchasing and Supply Chain Management	4			
Fall 2018	N	Jpn	513	Advanced Japanese for the Real World	4	Development of Japanese language skills necessary in work-settings and for practical use. Prerequisite: Completion of Jpn 302 and Jpn 305 or equivalent proficiency level is expected.		
Fall 2018	D	Jpn	516	Advanced Japanese: Reading and Writing	2			

Fall 2018	D	Jpn	517	Advanced Japanese: Reading and Writing	2			
						An introduction to modern Japanese poetry including new forms (shi) and modern variations on traditional forms (tanka, haiku). Students read poems in Japanese, analyze syntax, learn genre requirements, and understand the history of modern Japanese poetry. Prerequisites: Jpn 411, Jpn 412, or Jpn 413 or graduate standing.	Title and prerequisites	
Fall 2018	M	Jpn	523	Introduction to Modern Japanese Poetry	4			
Fall 2018	D	ME	241	Manufacturing Processes	4			
Fall 2018	D	ME	241L	Manufacturing Processes Lab	0			
Fall 2018	M	ME	313	Analysis of Mechanical Components	4	Stress and deflection analysis of structural components including review of stress and strain; curved beams; pressure vessels, impact loading, stability, and energy methods. Failure theory of mechanical components under static and fatigue loads will also be discussed. Prerequisites: EAS 212, ME 213, Mth 261.	Description, prerequisites	
Fall 2018	M	ME	320	Fluid Mechanics	4	Properties of fluids; hydrostatics; fluid dynamics, Bernoulli's Equation; conservation of mass, energy, and momentum; differential analysis; and dimensional analysis. Co-requisite: ME 320L. Prerequisites: EAS 215, Mth 256.	Co-requisite	
Fall 2018	M	ME	437	Mechanical Systems Design	4	Objective of this course is to integrate various analysis methods in the context of design projects with realistic constraints. Emphasis is on defining problems, identifying solution methods, and synthesizing solutions while considering production and economic factors. Teamwork, communication skills, and ability to learn independently is highly emphasized. Prerequisites: ME 240, ME 351, ME 314.	Prerequisites	
Fall 2018	M	ME	450	Advanced Solid Modeling	4	Emphasis is on solid model construction methods using state-of-the-art solid modeling software. Topics include use of parametric geometry, construction and modification of solids, building and animating assemblies, working in groups, building sheet metal parts, drafting, and the presentation of the fundamentals of solids modeling including representation and manipulation of wireframes, surfaces, and solids. Lecture and laboratory. Prerequisite: ME 250.	Title, prerequisite	
Fall 2018	M	ME	475	Joining Processes & Design	4	Course covers manual and robotic welding, brazing, and soldering processes as well as rapid and economical cutting methods. Welding design with steel, stainless steel, and aluminum to provide economy, strength, and crack resistance is emphasized. Heat flow calculations in welding; preheat and crack-preventing calculations are used. Welding codes are covered. Prerequisite: ME 240.	Description, prerequisites	
Fall 2018	M	ME	481	Mechanical Tolerancing	4	Course covers manual and robotic welding, brazing, and soldering processes as well as rapid and economical cutting methods. Welding design with steel, stainless steel, and aluminum to provide economy, strength, and crack resistance is emphasized. Heat flow calculations in welding; preheat and crack-preventing calculations are used. Welding codes are covered. Prerequisites: ME 240, ME 491.	Description, prerequisites	
Fall 2018	M	ME	491	Design Process	4	Design methodologies will be discussed as a framework for solving broadly defined technology problems. Interdisciplinary organizational principles will be presented as tools in the design process and as a foundation for the subsequent project course. Lectures, weekly and term case studies. Prerequisites: ME 314, ME 322, ME 351, Wr 327, ME 240.	Prerequisites	
Fall 2018	N	ME	519	Development Engineering	4	Reviews some of the origins of poverty and the current conditions of people in developing countries, and offers some engineering driven solutions being pursued around the world. The course hopes to empower students to play an active role in international poverty reduction.		
Fall 2018	M	ME	525	Advanced Topics in Building Science	4	Indoor environmental quality and sustainable built environments. Material balance principles applied to fate and transport of pollutants in urban and indoor environments; approaches for quantifying and characterizing sources, transport, transformation, and control of indoor air pollutants; energy conservation and indoor air pollution; quantifying human exposures to air pollutants. Course includes assembly of building science sensors on Arduino platform, calibration, and collection and analysis of primary data. Familiarity with differential equations and intro-level chemistry and fluid mechanics is recommended. Also offered for undergraduate-level credit as ME 425 and may be taken only once for credit.	Description	

Fall 2018	N	ME	546	Scaling and Asymptotic Analysis	4	Scaling and Asymptotic and/or perturbation methods for the systematic simplification of complex problems in engineering analysis are introduced. The techniques learned will find direct application in system modeling, data reduction, and guidance of complex experimentation and/or testing and 3-D computer model benchmarking. Applied mathematical techniques focus on, but are not at all limited to, thermal-fluids sciences. Also offered as ME 646 and may be taken only once for credit. Prerequisite: ME 551.		
Fall 2018	M	ME	550	Advanced Solid Modeling	4	Emphasis is on solid model construction methods using state-of-the-art solid modeling software. Topics include use of parametric geometry, construction and modification of solids, building and animating assemblies, working in groups, building sheet metal parts, drafting, and the presentation of the fundamentals of solids modeling including representation and manipulation of wireframes, surfaces, and solids. Lecture and laboratory.	Title	
Fall 2018	N	ME	556	Mechatronics	4	Students will gain an understanding of mechatronic (mechanical-electrical) systems and apply this knowledge directly in hands-on lab experiments. They will build circuits, collect sensor data, use a microcontroller, and control a motor. The format of the course will be one lecture and one lab per week.		
Fall 2018	N	ME	646	Scaling and Asymptotic Analysis	4	Scaling and Asymptotic and/or perturbation methods for the systematic simplification of complex problems in engineering analysis are introduced. The techniques learned will find direct application in system modeling, data reduction, and guidance of complex experimentation and/or testing and 3-D computer model benchmarking. Applied mathematical techniques focus on, but are not at all limited to, thermal-fluids sciences. Also offered as ME 546 and may be taken only once for credit. Prerequisite: ME 551.		
Fall 2018	N	Mgmt	540	HR Analytics Rapid Evidence Assessments	2	Learn the skills necessary to leverage existing research and evidence in order to produce key HR questions and answers. Topics covered include framing appropriate questions, choosing research sources, conducting rapid evidence assessments, and understanding how to complete a critically appraised topic (CAT).		
Fall 2018	N	Mgmt	541	Introduction to HR Analytics	4	Introduction to the foundations of human resource (HR) analytics. Topics include theory and practice regarding HR information systems, psychological theory, descriptive, predictive, and prescriptive analytics, ethics, legal issues, data privacy/security, and visualizations. Students will engage in case analyses and reflections, and introductory data-management and analytics exercises.		
Fall 2018	N	Mgmt	543	HR Metrics	2	Organizations vary regarding the extent to which they leverage HR metrics and analytics in daily operations. This course focuses on a variety of contemporary applications. Assigned readings and exercises inform students about the advantages and disadvantages of different applications, and how to develop effective HR metrics and analytics.		
Fall 2018	N	Mgmt	552	HR Analytics Capstone	4	Continuation of the HR Analytics Tools and Applications course. It delves deeply into HR analytics, taking students from a beginner to an intermediate level of proficiency in key HR analytical tools and strategies. Emphasis is placed on integrating data analytic approaches culminating in a term-long project. Prerequisite: Mgmt 542.		
Fall 2018	N	Mgmt	553	HR Data Visualization and Storytelling	2	Focuses on the importance of communicating data analytics findings to different audiences in a proficient, convincing, and compelling manner. The art of storytelling with data will focus on assembling key data analytics findings, creating data visualizations, and communicating the information to different stakeholders.		
Fall 2018	M	Mgmt	542	HR Analytics Tools and Applications	4	This course exposes students to HR analytic tools and applications. Students will learn how to analyze data to answer key questions. The course continues the focus on information systems, ethics, and visualizations, with an emphasis on communicating findings. Hands-on exercises and analyses bring to life course topics. Also offered for undergraduate-level credit as Mgmt 442 and may be taken only once for credit.	Title, description, removal of dual-level course	
Fall 2018	M	Mtax	525	Tax Research and Writing	4	Tax research methods applicable to and written communication forms common in professional tax practice; use of professional online tax research tools; legal and professional rules governing tax practitioners.	Title, description	
Fall 2018	M	Mtax	526	Tax Accounting Methods and Periods	4	Determination of taxable year; assignment of items of gross income, deduction and credit to the proper taxable year, including coverage of cash, accrual, and installment methods of accounting; changing of taxable year and accounting method; interest, below-market interest, and original issue discount; claim of right and tax benefit rules.	Title, description	

Fall 2018	M	Mtax	527	Corporate Taxation I	4	Taxation of corporate operations, including 1551 and 1561; transactions between corporations and their shareholders, including transfers to corporations, dividends and other nonliquidating distributions; corporate liquidations.	Title, description	
Fall 2018	M	Mtax	528	Corporate Taxation II	4	Continuation of MTax 527, including S corps; judicial doctrines such as substance over form, business purpose, step transactions and 7701(o); corporate reorganizations, acquisitions, divisions and liquidations of subsidiary corporations; carryover of tax attributes; consolidated returns; alternative minimum tax; penalty taxes and anti-abuse provisions.	Description	
Fall 2018	M	Mtax	530	Taxation of Transactions	2	RecognitionThe legal concept of property and taxation of gains and lossesincome tax consequences resulting from sales, exchanges, and other transactions involvingdispositions of property; determination of adjusted basis, capitaldepreciation deductions and other cost recovery methods; gain or loss, realized and recognized on disposition; applicable tax basis, and holding periodrates; selected nonrecognition events. Prerequisite: required second course in program.	Description, prerequisites	
Fall 2018	M	Mtax	531	Pass-through Entities I	4	Taxation of partnerships and other entities electing to be taxed under Subchapter K, such as LLCs; capitalization; determination of taxable income, allocation of tax items; loss limitations; distributions; 754 elections; recourse and nonrecourse liabilities; disposition of interests; dissolution.	Title, description, prerequisites	
Fall 2018	M	Mtax	532	Pass-through Entities II	4	Continuation of MTax 531, including anti-abuse rules, self-employment tax, at-risk and passive loss limitations, "hot assets," transactions between owners and entity; distributions to retiring and deceased owners. Prerequisite: Mtax 531.	Title, description, prerequisites	
Fall 2018	M	Mtax	533	Financial Accounting for Income Taxes	4	Financial accounting and reporting standards for the effects of income taxes from corporate activities according to ASC 740, including computation of tax expense or benefit, temporary differences, computation of deferred tax assets and liabilities, valuation allowances, presentation and disclosure, and accounting for uncertainty, and other topics. Prerequisite: MTax 527.	Description, prerequisites	
Fall 2018	M	Mtax	535	State and Local Taxation	4	Overview of taxes imposed at state and local level; taxes imposed on corporations and pass-through entities, conformity to the Internal Revenue Code, methods of reporting; allocation and apportionment; nexus; sales and use taxes; business and nonbusiness income; property taxes; exemptions; tax credits and incentives.	Description	
Fall 2018	M	Mtax	537	Tax Case Capstone	3	Provides students with an opportunity to work on complex tax issues. Students work in teams, coached by experienced tax professionals, to develop solutions which will be deliverable to a hypothetical client both in written memo and oral presentation format. Deliverables will be evaluated by a panel of judges. Prerequisites: MTax 528 and MTax 532.	Title, description, prerequisites, or hrs from 4 to 3	
Fall 2018	M	Mtax	539	Taxation of Estates, Gifts, and Trusts	4	Federal estate, gift and generation-skipping tax laws; history and purposes; included assets; valuation; credits and deductions allowed; income taxation of trusts, estates and beneficiaries.	Title, description, prerequisites	
Fall 2018	M	Mtax	540	Practicum/Internship	4	Tax internship or practicum in a public accounting firm or entity tax department; provides opportunity to apply program content to real-world environments, gain appreciation of work expectations and demands, and relate field experiences to master's coursework. Prerequisites: MTax 527 and MTax 531.	Description, prerequisites	
Fall 2018	M	Mtax	544	Professional Practices Seminar	2	Provides students an in-depth look at the business of tax, the requirements of a successful tax career, and some niche tax practice opportunities through live and interactive access to leading regional tax professionals speaking about their careers and areas of expertise.	Description, or hrs from 1 to 2	
Fall 2018	M	Mth	111	Introductory College Mathematics I	4	Introduction to functions, basic properties, graphs and inverse functions. Study of polynomial, rational, exponential, and logarithmic functions. This is the first course in a sequence of two: Mth 111 and Mth 112, which must be taken in sequence. Prerequisite: Mth 095.	Description	
Fall 2018	M	Mth	112	Introductory College Mathematics II	4	Introduction to trigonometric functions, basic properties, graphs, and inverse functions. Includes introduction to vectors, parametric equations, and polar coordinates. This is the second course in a sequence of two: Mth 111 and Mth 112, which must be taken in sequence. Prerequisite: Mth 111.	Description	
Fall 2018	M	Mth	251	Calculus I	4	Differential calculus of functions of a single variable, including limits, the definition and computation of the derivative, and applications of the derivative. This is the first course in a sequence of three: Mth 251, Mth 252, and Mth 253, which must be taken in sequence.	Description	

Fall 2018	M	Mth	252	Calculus II	4	Integral calculus of functions of a single variable, including the Fundamental Theorem of Calculus, numerical integration and applications. This is the second course in a sequence of three: Mth 251, Mth 252, and Mth 253, which must be taken in sequence.	Description.	
Fall 2018	M	Mth	253	Calculus III	4	Infinite series, parametric equations, polar coordinates, conic sections, vector geometry, and the calculus of vector valued functions. This is the third course in a sequence of three: Mth 251, Mth 252, and Mth 253, which must be taken in sequence.	Description	
Fall 2018	M	Mth	311	Introduction to Mathematical Analysis I	4	A rigorous treatment of the concepts of analysis. Properties of the real numbers. Sequences. Functions of a real variable: limits, continuity, and differentiability. This is the first course in a sequence of two: Mth 311, Mth 312 and must be taken in sequence.	Description	
Fall 2018	M	Mth	312	Introduction to Mathematical Analysis II	4	A rigorous treatment of the concepts of analysis. Integration on the real line. Series of real numbers. Series of functions. Uniform convergence. Power series. This is the second course in a sequence of two: Mth 311, Mth 312 and must be taken in sequence. Prerequisite: Mth 311.	Description, prerequisite.	
Fall 2018	M	Mth	411	Introduction to Real Analysis I	3	Analysis on metric spaces, Baire Category, Contraction Mapping, and Stone-Weierstrass theorems. Lebesgue measure and integration theory, functions of bounded variation, absolutely continuous functions. Banach and Hilbert spaces. Bases and duality on Hilbert spaces, linear operators on Banach spaces. Introduction to Fourier series. This is the first course in a sequence of three: Mth 411, Mth 412 and Mth 413 which must be taken in sequence. Prerequisite: Mth 312.	Description.	
Fall 2018	M	Mth	412	Introduction to Real Analysis II	3	Lebesgue measure and integration theory, functions of bounded variation, absolutely continuous functions. This is the second course in a sequence of three: Mth 411, Mth 412 and Mth 413 which must be taken in sequence. Prerequisite: Mth 411.	Description.	
Fall 2018	M	Mth	413	Introduction to Real Analysis III	3	Banach and Hilbert spaces, bases and duality in Hilbert spaces, linear operators on Banach spaces, introduction to Fourier series. This is the third course in a sequence of three: Mth 411, Mth 412 and Mth 413 which must be taken in sequence. Prerequisite: Mth 412.	Description.	
Fall 2018	M	Mth	421	Theory of Ordinary Differential Equations I	3	Vector fields and phase flows in the plane. Linear systems. Existence, uniqueness, and continuity theorems for systems. Additional topics. This is the first course in a sequence of three: Mth 421, Mth 422, and Mth 423 which must be taken in sequence. Prerequisites: Mth 256 and Mth 312.	Description.	
Fall 2018	M	Mth	422	Theory of Ordinary Differential Equations II	3	Nonlinear systems. Equilibria and local stability. Gradient and Hamiltonian systems. Poincare maps and limit sets. Applications and additional topics. This is the second course in a sequence of three: Mth 421, Mth 422, and Mth 423 which must be taken in sequence. Prerequisite: Mth 421.	Description.	
Fall 2018	M	Mth	423	Theory of Ordinary Differential Equations III	4	The two-body problem. The Lorenz system. Homoclinic bifurcations. Chaotic attractors. Horseshoes. Symbolic dynamics and the shift map. Discrete dynamics. Additional topics. This is the third course in a sequence of three: Mth 421, Mth 422, and Mth 423 which must be taken in sequence. Prerequisite: Mth 422.	Description.	
Fall 2018	M	Mth	424 524	Elementary Differential Geometry I	3	Differential geometry of curves and surfaces: parametrizations, global properties of curves, surfaces of dimension three, examples, first and second fundamental form, curvature, geodesics. This is the first course in a sequence of two: Mth 424 and Mth 425 which must be taken in sequence.	Description	
Fall 2018	M	Mth	425 525	Elementary Differential Geometry I I	3	Surfaces of constant curvature, the Gauss-Bonnet theorem; spherical and hyperbolic geometry, elementary Riemannian geometry applications from mechanics and field theory. This is the second course in a sequence of two: Mth 424 and Mth 425 which must be taken in sequence.	Description	
Fall 2018	M	Mth	427	Partial Differential Equations I	3	Solution techniques, qualitative analysis and applications: separation of variables, eigenfunction expansion, Fourier series solutions, Sturm-Liouville problems. This is the first course in a sequence of two: Mth 427 and Mth 428 which must be taken in sequence. Prior knowledge of PDEs (Mth 322) is recommended, but not required. Prerequisites: Mth 256, Mth 253, Mth 254.	Description	
Fall 2018	M	Mth	428	Partial Differential Equations II	3	Higher dimensional equations, heat conduction in a disk, vibrating membrane, spherical problems, Bessel and Legendre functions, Green's functions, Fredholm alternative. Infinite domain problems, Fourier transform solutions, finite difference methods. This is the second course in a sequence of two: Mth 427 and Mth 428 which must be taken in sequence. Prerequisite: Mth 427.	Description, prerequisites	

Fall 2018	M	Mth	434	Set Theory and Topology I	3	DeMorgan's Laws, partially ordered and well-ordered sets, Cardinal and ordinal numbers. The axiom of choice and equivalent formulations. Additional topics. This is the first course in a sequence of three: Mth 434, Mth 435, and Mth 436 which must be taken in sequence. Prerequisite: Mth 311.	Description	
Fall 2018	M	Mth	435	Set Theory and Topology II	3	Cardinal and ordinal numbers. The axiom of choice and equivalent formulations. Introduction to general topology with the notions of interior, closure, topological space, continuity, and homeomorphism. Construction techniques and properties of point-set topology, especially connectedness, compactness, and separation. Additional topics. This is the second course in a sequence of three: Mth 434, Mth 435, and Mth 436 which must be taken in sequence. Prerequisite: Mth 434.	Description, prerequisite.\	
Fall 2018	M	Mth	436	Set Theory and Topology III	3	Covering spaces, fundamental group. Additional topics. This is the third course in a sequence of three: Mth 434, Mth 435, and Mth 436 which must be taken in sequence. Prerequisite: Mth 435.	Description, prerequisite.\	
Fall 2018	M	Mth	441	Introduction to Abstract Algebra I	3	GroupsGroup theory and rings with homomorphism theorems, vector spaces, modules, algebraic theory of fields and Galois theory, lattices, algebras. This is the first course in a sequence of three: Mth 441, Mth 442, and Mth 443 which must be taken in sequence. Prerequisite: Mth 344.	Description	
Fall 2018	M	Mth	442	Introduction to Abstract Algebra II	3	The theory of rings, modules, and fields. This is the second course in a sequence of three: Mth 441, Mth 442, and Mth 443 which must be taken in sequence. Prerequisite: Mth 441.	Description, prerequisite	
Fall 2018	M	Mth	443	Introduction to Abstract Algebra III	3	Topics may include: advanced theory of groups, rings, and fields, as well as linear algebra or Galois theory. This is the third course in a sequence of three: Mth 441, Mth 442, and Mth 443 which must be taken in sequence. Prerequisite: Mth 442.	Description, prerequisite	
Fall 2018	M	Mth	444	Advanced Linear/Multilinear Algebra I	3	Vector spaces, linear transformations, matrices, products, quotients, and duals of vector spaces. Minimal and characteristic polynomials, canonical forms. This is the first course in a sequence of two: Mth 444 and Mth 445 which must be taken in sequence. Prerequisite: Mth 344.	Description, repeatability	Removes repeatability of course.
Fall 2018	M	Mth	445	Advanced Linear/Multilinear Algebra II	3	Multilinear maps, tensor products, exterior algebra. Finite dimensional spectral theory. This is the second course in a sequence of two: Mth 444 and Mth 445 which must be taken in sequence. Prerequisite: Mth 444.	Description, repeatability	Removes repeatability of course.
Fall 2018	M	Mth	457	The Mathematical Theory of Games I	3	Introduction to mathematical game theory and game theoretic analysis. Topics include: combinatorial and strategic games, Perfect Competition, Zermelo's Algorithm, Payoffs, cooperative and non-cooperative games, bargaining, mixed strategies, and Nash Equilibria, Selected applications to economics, biology, computer science, and political science. This is the first course in a sequence of two: Mth 457 and Mth 458 which must be taken in sequence. Prerequisites: Mth 261 and/or Stat 243.	Title, description.	
Fall 2018	M	Mth	458	The Mathematical Theory of Games II	3	Introduction to mathematical game theory and game theoretic analysis. Topics include: Dilemma, search, and differential games. Repeated games and finite automata. Common knowledge, complete and incomplete information, behavioral and evolutionary stable strategies, assessment equilibria. Selected applications to economics, biology, computer science, and political science. This is the second course in a sequence of two: Mth 457 and Mth 458 which must be taken in sequence. Prerequisite: Mth 457.	Title, description	
Fall 2018	M	Mth	461	Graph Theory I	3	Topics in graph theory, including connectivity, matchings, graph algorithms, network flows, graph matrices, isomorphisms, Eulerian and Hamiltonian graphs, spanning trees, decompositions, shortest paths, the matrix-tree theorem, colorings of graphs, planarity and embeddings, Kuratowski's theorem, matroids, and selected applications. This is the first course in a sequence of two: Mth 461 and Mth 462 which must be taken in sequence. Prerequisites: Mth 261, Mth 356.	Description	
Fall 2018	M	Mth	462	Graph Theory II	3	Topics in graph theory, including connectivity, matchings, graph algorithms, network flows, graph matrices, isomorphisms, Eulerian and Hamiltonian graphs, spanning trees, decompositions, shortest paths, the matrix-tree theorem, colorings of graphs, planarity and embeddings, Kuratowski's theorem, matroids, and selected applications. This is the second course in a sequence of two: Mth 461 and Mth 462 which must be taken in sequence. Prerequisite: Mth 461.	Description, prerequisites	
Fall 2018	M	Mth	470	Complex Analysis and Boundary Value Problems I	3	Fundamental concepts of complex analysis. Cauchy's theorem. Analytic functions. Power and Laurent series. Residue Theorem. This is the first course in a sequence of three: Mth 470, Mth 471, and Mth 472 which must be taken in sequence. Prerequisites: Mth 254 and either Mth 256 or Mth 421.	Description	

Fall 2018	M	Mth	471	Complex Analysis and Boundary Value Problems II	3	Fundamental concepts of complex analysis. Calculus of residues and applications. Conformal mappings. Zero-Pole theorem. Infinite products. This is the second course in a sequence of three: Mth 470, Mth 471, and Mth 472. which must be taken in sequence. Prerequisite: Mth 470.	Description, prerequisites	
Fall 2018	M	Mth	472	Complex Analysis and Boundary Value Problems III	3	Fundamental concepts of complex variables, partial differential equations and boundary value problems using Fourier series. This is the third course in a sequence of three: Mth 470, Mth 471, and Mth 472 which must be taken in sequence. Prerequisite: Mth 471.	Description, prerequisites	
Fall 2018	M	Mth	477	Mathematical Control Theory I	3	Mathematical foundations of linear time invariant control systems. Controllability, observability, stabilizability, feedback. Applications. This is the first course in a sequence of two: Mth 477 and Mth 478, which must be taken in sequence. Expected preparation: Mth 253, Mth 254. Prerequisite: Mth 256.	Description	
Fall 2018	M	Mth	478	Mathematical Control Theory II	3	Elements of the calculus of variations and optimal control. Dynamic programming. Pontryagin maximum principle. Applications. This is the second course in a sequence of two: Mth 477 and Mth 478 which must be taken in sequence. Prerequisite: Mth 477.	Description, prerequisites	
Fall 2018	M	Mth	511	Introduction to Real Analysis I	3	Analysis on metric spaces, Baire Category, Contraction Mapping, and Stone-Weierstrass theorems. This is the first course in a sequence of three: Mth 511, Mth 512 and Mth 513 which must be taken in sequence.	Description	
Fall 2018	M	Mth	512	Introduction to Real Analysis II	3	Lebesgue measure and integration theory, functions of bounded variation, absolutely continuous functions. This is the second course in a sequence of three: Mth 511, Mth 512 and Mth 513 which must be taken in sequence. Prerequisite: Mth 511.	Description, prerequisites	
Fall 2018	M	Mth	513	Introduction to Real Analysis III	3	Banach and Hilbert spaces, bases and duality in Hilbert spaces, linear operators on Banach spaces, introduction to Fourier series. This is the third course in a sequence of three: Mth 511, Mth 512 and Mth 513 which must be taken in sequence. Prerequisite: Mth 512.	Description, prerequisites	
Fall 2018	M	Mth	521	Theory of Ordinary Differential Equations I	3	Vector fields and phase flows in the plane. Linear systems. Existence, uniqueness, and continuity theorems for systems. Additional topics. This is the first course in a sequence of three: Mth 521, Mth 522, and Mth 523 which must be taken in sequence.	Description	
Fall 2018	M	Mth	522	Theory of Ordinary Differential Equations II	3	Nonlinear systems. Equilibria and local stability. Gradient and Hamiltonian systems. Poincare maps and limit sets. Applications and additional topics. This is the second course in a sequence of three: Mth 521, Mth 522, and Mth 523 which must be taken in sequence. Prerequisite: Mth 521.	Description	
Fall 2018	M	Mth	523	Theory of Ordinary Differential Equations III	3	The two-body problem. The Lorenz system. Homoclinic bifurcations. Chaotic attractors. Horseshoes. Symbolic dynamics and the shift map. Discrete dynamics. Additional topics. This is the third course in a sequence of three: Mth 521, Mth 522, and Mth 523 which must be taken in sequence. Prerequisite: Mth 522.		
Fall 2018	M	Mth	527	Partial Differential Equations I	3	Solution techniques, qualitative analysis and applications: separation of variables, eigenfunction expansion, Fourier series solutions, Sturm-Liouville problems. This is the first course in a sequence of two: Mth 527 and Mth 528 which must be taken in sequence. Prior knowledge of PDEs (Mth 322) is recommended, but not required.	Description, grading option	Grading option changed to Both Letter and P/NP.
Fall 2018	M	Mth	528	Partial Differential Equations II	3	Higher dimensional equations, heat conduction in a disk, vibrating membrane, spherical problems, Bessel and Legendre functions, Green's functions, Fredholm alternative. Infinite domain problems, Fourier transform solutions, finite difference methods. This is the second course in a sequence of two: Mth 527 and Mth 528 which must be taken in sequence. Prerequisite: Mth 527.	Description, prerequisites, grading option	Grading option changed to Both Letter and P/NP.
Fall 2018	M	Mth	534	Set Theory and Topology I	3	DeMorgan's Laws, partially ordered and well-ordered sets, Cardinal and ordinal numbers. The axiom of choice and equivalent formulations. Additional topics. This is the first course in a sequence of three: Mth 534, Mth 535, and Mth 536 which must be taken in sequence.	Description	
Fall 2018	M	Mth	535	Set Theory and Topology II	3	Introduction to general topology with the notions of interior, closure, topological space, continuity, and homeomorphism. Construction techniques and properties of point-set topology, especially connectedness, compactness, and separation. This is the second course in a sequence of three: Mth 534, Mth 535, and Mth 536 which must be taken in sequence. Prerequisite: Mth 534.	Description, prerequisites	
Fall 2018	M	Mth	536	Set Theory and Topology II	3	Covering spaces, fundamental group. Additional topics. This is the third course in a sequence of three: Mth 534, Mth 535, and Mth 536 which must be taken in sequence. Prerequisite: Mth 535.	Description, prerequisites	
Fall 2018	M	Mth	541	Introduction to Abstract Algebra I	3	Group theory and homomorphism theorems. This is the first course in a sequence of three: Mth 541, Mth 542, and Mth 543 which must be taken in sequence.	Description	

Fall 2018	M	Mth	542	Introduction to Abstract Algebra II	3	The theory of rings, modules, and fields. This is the second course in a sequence of three: Mth 541, Mth 542, and Mth 543 which must be taken in sequence. Prerequisite: Mth 541.	Description, prerequisites	
Fall 2018	M	Mth	543	Introduction to Abstract Algebra III	3	Topics may include: advanced theory of groups, rings, and fields, as well as linear algebra or Galois theory. This is the third course in a sequence of three: Mth 541, Mth 542, and Mth 543 which must be taken in sequence. Prerequisite: Mth 542.	Description, prerequisites	
Fall 2018	M	Mth	544	Advanced Linear/Multilinear Algebra I	3	Vector spaces, linear transformations, matrices, products, quotients, and duals of vector spaces. Minimal and characteristic polynomials, canonical forms. This is the first course in a sequence of two: Mth 544 and Mth 545 which must be taken in sequence.	Description, repeatability	Not repeatable.
Fall 2018	M	Mth	545	Advanced Linear/Multilinear Algebra II	3	Multilinear maps, tensor products, exterior algebra. Finite dimensional spectral theory. This is the second course in a sequence of two: Mth 544 and Mth 545 which must be taken in sequence. Prerequisite: Mth 544.	Description, prerequisites, repeatability	Not repeatable.
Fall 2018	M	Mth	557	The Mathematical Theory of Games I	3	Introduction to mathematical game theory and game theoretic analysis. Topics include: combinatorial and strategic games, Perfect Competition, Zermelo's Algorithm, Payoffs, cooperative and non-cooperative games, bargaining, mixed strategies, and Nash Equilibrium, repeated games and finite automata, common knowledge and incomplete information, the prisoner's dilemma. Selected applications to economics, biology, computer science, and political science. This is the first course in a sequence of two: Mth 557 and Mth 558 which must be taken in sequence.	Title, description.	
Fall 2018	M	Mth	558	The Mathematical Theory of Games II	3	Introduction to mathematical game theory and game theoretic analysis. Topics include: Dilemma, search, and differential games. Repeated games and finite automata. Common knowledge, complete and incomplete information, behavioral and evolutionary stable strategies, assessment equilibria. Selected applications to economics, biology, computer science, and political science. This is the second course in a sequence of two: Mth 557 and Mth 558 which must be taken in sequence. Prerequisite: Mth 557.	Title, description., prerequisite	
Fall 2018	M	Mth	561	Graph Theory I	3	Topics in graph theory, including connectivity, matchings, graph algorithms, network flows, isomorphisms, Eulerian graphs, spanning trees, decompositions, shortest paths, colorings of graphs, and selected applications. This is the first course in a sequence of two: Mth 561 and Mth 562 which must be taken in sequence.	Description	
Fall 2018	M	Mth	562	Graph Theory II	3	Topics in graph theory, including graph matrices, Hamiltonian graphs, the matrix-tree theorem, planarity and embeddings, Kuratowski's theorem, matroids, and selected applications. This is the second course in a sequence of two: Mth 561 and Mth 562 which must be taken in sequence. Prerequisite: Mth 561.	Description, prerequisite	
Fall 2018	M	Mth	570	Complex Analysis and Boundary Value Problems I	3	Fundamental concepts of complex analysis. Cauchy's theorem. Analytic functions. Power and Laurent series. Residue Theorem. This is the first course in a sequence of three: Mth 570, Mth 571, and Mth 572 which must be taken in sequence.	Description	
Fall 2018	M	Mth	571	Complex Analysis and Boundary Value Problems II	3	Fundamental concepts of complex analysis. Calculus of residues and applications. Conformal mappings. Zero-Pole theorem. Infinite products. This is the second course in a sequence of three: Mth 570, Mth 571, and Mth 572 which must be taken in sequence. Prerequisite: Mth 570.	Description, prerequisite	
Fall 2018	M	Mth	572	Complex Analysis and Boundary Value Problems III	3	Partial differential equations and boundary value problems using Fourier series. This is the third course in a sequence of three: Mth 570, Mth 571, and Mth 572 which must be taken in sequence. Prerequisite: Mth 571.	Description, prerequisite	
Fall 2018	M	Mth	577	Mathematical Control Theory I	3	Mathematical foundations of linear time invariant control systems. Controllability, observability, stabilizability, feedback. Applications. This is the first course in a sequence of two: Mth 577 and Mth 578 which must be taken in sequence. Expected preparation: Mth 253, Mth 254.	Description	
Fall 2018	M	Mth	578	Mathematical Control Theory II	3	Elements of the calculus of variations and optimal control. Dynamic programming. Pontryagin maximum principle. Applications. This is the second course in a sequence of two: Mth 577 and Mth 578 which must be taken in sequence. Prerequisite: Mth 577.	Description, prerequisites	
Fall 2018	N	Mth	589	Topics in Mathematical Exposition and Curriculum Development	3	Selected topics in mathematics exposition and curriculum development. Potential topics may include specific mathematical topics (such as algebra, geometry, or statistics) or cross cutting topics (such as ethnomathematics or history of mathematics).		

Fall 2018	M	Mth	581	Topics in Probability for Mathematics Teachers	2-3	Selected topics in probability for mathematics teachers. Topics may include origins and development of probability theory, counting theory, laws of probability, conditional probability, independence, odds, standard discrete and continuous probability distributions, expected values, moment generating functions, and numerous computer simulations. With departmental approval may be repeated for credit. Prerequisites: Stat 244 and two upper-division courses approved for math major credit or Stat 452 or Stat 462.	Description, prerequisites	
Fall 2018	M	Mth	582	Topics in Statistics for Mathematics Teachers	2-3	Selected topics in statistics for mathematics teachers. Potential topics include descriptive statistics (measures of center, variability, skewness, etc.), inferential statistics (one and two population problems), Central Limit Theorem, modeling and simulation techniques, and research design techniques. With departmental approval may be repeated for credit. Prerequisites: Stat 244 and two upper-division courses approved for math major or Stat 452 or Stat 462.	Description, prerequisites	
Fall 2018	M	Mth	583	Topics in Geometry for Mathematics Teachers	2-3	Selected topics in geometry for mathematics teachers. Potential topics include inductive and deductive reasoning, analytic and metric geometry, isometry and symmetry, and hyperbolic, spherical and/or taxicab geometry. With departmental approval may be repeated for credit. Prerequisite: Mth 338.	Description, prerequisites	
Fall 2018	M	Mth	584	Topics in Algebra for Mathematics Teachers	2-3	Selected topics in algebra for mathematics teachers. Potential topics may include algebraic structures (groups, rings, fields, vector spaces), equivalence, function, operation, well-defined-ness, equation solving, algorithms, and proving using geometric, symbolic, and verbal representation systems. With departmental approval may be repeated for credit. Prerequisite: Mth 344.	Description, prerequisites	
Fall 2018	M	Mth	585	Topics in Analysis for Mathematics Teachers	2-3	Selected topics in analysis for mathematics teachers. Potential topics include functions, limits, continuity, derivatives, integration, completeness, covariation, sequences and series, differential equations, complex analysis, and topology. With departmental approval may be repeated for credit. Prerequisite: Mth 311.	Description, prerequisites	
Fall 2018	M	Mth	587	Topics in Discrete Mathematics for Mathematics Teachers	2-3	Selected topics in discrete mathematics for teachers. Potential topics include set theory, logic, elementary probability theory, relations, recursions, algorithms, counting theory, permutations, finance mathematics, combinations, graph theory, algorithms, logic, and number theory. With departmental approval may be repeated for credit. Prerequisite: Mth 356.	Description, prerequisites	
Fall 2018	M	Mth	588	Topics in Computing for Mathematics Teachers	1-3	Selected topics and tools for mathematical computing for mathematics teachers. As an example, a simple but powerful set of programming and graphical tools in 'C' may be introduced and used to explore a wide range of mathematical topics including statistics, probability, trigonometry, analytic geometry, calculus and modeling. With departmental approval may be repeated for credit. Prerequisites: Mth 271 or CS 161 and Mth 344.	Description, prerequisites	
Fall 2018	M	Mus	381	Music for Elementary Teachers	4	Musical skills and concepts for the elementary classroom teacher. Integration projects focus on deeper learning through musical experiences	Title, description	
Fall 2018	N	Mus	550	Collaborative Piano Literature Strings	3	Introduction to the instruments from the string family through in-depth study of the instruments themselves and standard duo repertoire.		
Fall 2018	N	Mus	551	Collaborative Piano Literature Winds and Brass	3	Introduction to the instruments from the woodwind and brass family through in-depth study of the instruments themselves and standard duo repertoire.		
Fall 2018	N	Mus	552	Advanced Keyboard Techniques	3	This course is designed to provide pianists with skills needed to function successfully in many different professional environments. Many of these skills were previously common among pianists such as transposition, harmonization, and figured bass reading but fell out of favor over time. Other advanced skills were born out of today's professional requirements such as playing from a chord chart, using electronic instruments, and extended keyboard techniques.		
Fall 2018	N	NAS	342	Indigenous Gardens & Food Justice	4	This course examines impacts of colonization on local/traditional foods and health; ethnobotany; and revitalization practices of Indigenous land, water and food sovereignty. Students partner with Native American communities on site design and implementation of edible/medicinal gardens and participate in restoration and creative place-based projects on public lands.		
Fall 2018	N	NAS	348	Indigenous Practices for Environment Sustainability	4	This course examines Traditional Ecological Knowledge and Indigenous methodologies and how they affect/inform environmental sustainability, education and land/water management practices and policies. Students spend time in natural areas exploring relationship-building, creative place-based projects, and analysis of current issues facing social/environmental justice in Native American communities.		
Fall 2018	N	NAS	392	Indigenous Ways of Knowing	4	This course presents a basic world view of Indigenous peoples identifying useful concepts, terms, intellectual frameworks and strategies in their struggles toward liberation and self-determination. Combining feminist, anti-racist theory and tribal critical race theory, this course explores Indigenous philosophy as a means to transform a Eurocentric consciousness.		

Fall 2018	N	NAS	411	Nationhood: Tribal Sovereignty, Governance and Policy	4	Nationhood examines prevalent theories and strategies for pursuing Indigenous self-determination from both inside and outside the state-centric global capital system. This course looks to distinguish between Indigenous place-based cultures and Western time-oriented heritages by utilizing position and land occupation as an ontological framework for understanding relationships. Prerequisite: Upper-division standing.		
Fall 2018	N	NAS	426	Tribal Critical Race Theory	4	This course involves the discourse on Native American Studies from the perception of Indigenous storytellers, artists, and activists whose compelling productions undertake critical examinations of imperialism, history, writing and theory-- focusing on strategies of resistance. These productions will help us challenge myths about Indigenous peoples which replicate and reproduce stereotypes. Prerequisite: NAS 201.		
Fall 2018	N	NAS	442	Decolonizing Methodologies: Insurgent Research and Indigenous Education	4	Decolonizing Methodologies will provide students the analytical tools and methods necessary for conducting applied research, as well as exploration of the practical, ethical, and political issues involved in conducting research with Indigenous communities. This course integrates a post-colonial research utilizing a decolonized lens -- encouraging students to engage in community-based research. Prerequisite: NAS 201.		
Fall 2018	M	PA	528	Leadership for the Nonprofit Sector	3	Examination of the challenges nonprofit leaders face in working across organizations, jurisdictions, and sectors to address entrenched social problems. This course operates from the assumption that a collaborative, systems-based approach to leadership is essential for sustained success. Through this course, students will learn essential leadership concepts and practices to expand their abilities to address and negotiate leadership challenges that arise when stakeholders come together to plan, make decisions, and take action in organizational, community, and sector-wide settings.	title, description	
Fall 2018	N	PA	530	Higher Education Policy	3	Seminar explores critical issues and opportunities facing today's higher education. Also examines the organization and governance of colleges and universities in the contemporary policy arena. The overarching theme of this course is how interactions and tensions between higher education institutions and policy makers and public influence and shape universities.		
Fall 2018	M	PA	578	Collaborative Governance Practicum	3	In this culminating practicum students participate in discussions with faculty experts and fellow students as they apply the knowledge and skills gained in core courses to a community-based problem, issue or project of their choosing.	Co-requisite	Removed co-requisite of PA 577.
Fall 2018	M	PAP	690	Research Design for Politics and Policy	4	This course will introduce the logic of social science research and provide a brief overview of the various methods that are commonly used. The focus is on developing design skills that will help clarify research ideas, organize research design and research questions of interest to students.		Cross-list with PS 594.
Fall 2018	M	Ph	211	General Physics (with Calculus) I	4	Introductory physics for students majoring in science and engineering. The student will explore statics and dynamics using the methods of calculus. This is the first course in a sequence of three: Ph 211, Ph 212, and Ph 213 and must be taken in sequence. Corequisite: Ph 214. Prerequisite: Mth 251.	Title, description, prerequisites	
Fall 2018	M	Ph	212	General Physics (with Calculus) II	4	Introductory physics for students majoring in science and engineering. The student will explore topics in electricity and electromagnetism using the methods of calculus. This is the second course in a sequence of three: Ph 211, Ph 212, and Ph 213 and must be taken in sequence. Corequisite: Ph 215. Prerequisite: Ph 211 and Mth 252.	Title, description, prerequisites	
Fall 2018	M	Ph	213	General Physics (with Calculus) III	4	Introductory physics for students majoring in science and engineering. The student will explore topics in thermodynamics, and optics using the methods of calculus. This is the third course in a sequence of three: Ph 211, Ph 212, and Ph 213 and must be taken in sequence. Corequisite: Ph 216. Prerequisite: Ph 212 and Mth 252.	Title, description, prerequisites	
Fall 2018	M	Ph	221	General Physics (with Calculus) I	4	Introductory physics for students majoring in engineering. The student will explore topics in statics and dynamics using the methods of calculus. This is the first course in a sequence of three: Ph 221, Ph 222, and Ph 223 and must be taken in sequence. Corequisites: Ph 214. Prerequisite: Mth 251.	Title, description, prerequisites	
Fall 2018	M	Ph	222	General Physics (with Calculus) II	4	Introductory physics for students majoring in engineering. The student will explore topics in electricity and electromagnetism using the methods of calculus. This is the second course in a sequence of three: Ph 221, Ph 222, and Ph 223 and must be taken in sequence. Corequisite: Ph 215. Prerequisite: Ph 221 and Mth 252.	Title, description, prerequisites	

Fall 2018	M	Ph	223	General Physics (with Calculus) III	4	Introductory physics for students majoring in engineering. The student will explore topics in thermodynamics, and optics using the methods of calculus. This is the third course in a sequence of three: Ph 221, Ph 222, and Ph 223 and must be taken in sequence. Corequisite: Ph 216. Prerequisite: Ph 222 and Mth 252.	Title, description, prerequisites	
Fall 2018	N	Ph	231	General Physics I with Life Science and Medical Applications	4	This is a general physics course with a focus on life science and medical applications. In Ph 231 students explore mechanics and thermal physics. This is the first course in a sequence of three: Ph 231, Ph 232, and Ph 233 and it is recommended they be taken in this order. Co-requisite: Ph 234. Prerequisite: Mth 112 or Aleks Placement Test at 75%.		
Fall 2018	N	Ph	232	General Physics II with Life Science and Medical Applications	4	This is a general physics course with a focus on life science and medical applications. In Ph 232 students explore fluids and electromagnetism. This is the second course in a sequence of three: Ph 231, Ph 232, and Ph 233 and it is recommended they be taken in this order. Co-requisite: Ph 235. Prerequisite: Mth 112 or Aleks Placement Test at 75%.		
Fall 2018	N	Ph	233	General Physics III with Life Science and Medical Applications	4	This is a general physics course with a focus on life science and medical applications. In Ph 233 students explore waves and optics. This is the third course in a sequence of three: Ph 231, Ph 232, and Ph 233 and it is recommended they be taken in this order. Co-requisite: Ph 236. Prerequisite: Mth 112 or Aleks Placement Test at 75%.		
Fall 2018	N	Ph	234	Lab for General Physics I with Life Science and Medical Applications	1	This is a general physics lab course with a focus on life science and medical applications. Students conduct lab exercises exploring mechanics and thermal physics. This is the first course in a sequence of three: Ph 234, Ph 235, and Ph 236 and it is recommended they be taken in this order. Co-requisite: Ph 231. Prerequisite: Mth 112 or Aleks Placement Test at 75%.		
Fall 2018	N	Ph	235	Lab for General Physics II with Life Science and Medical Applications	1	This is a general physics lab course with a focus on life science and medical applications. Students conduct lab exercises exploring fluids and electromagnetism. This is the second course in a sequence of three: Ph 234, Ph 235, and Ph 236 and it is recommended they be taken in this order. Co-requisite: Ph 232. Prerequisite: Mth 112 or Aleks Placement Test at 75%.		
Fall 2018	N	Ph	236	Lab for General Physics III with Life Science and Medical Applications	1	This is a general physics lab course with a focus on life science and medical applications. Students conduct lab exercises exploring waves and optics. This is the third course in a sequence of three: Ph 234, Ph 235, and Ph 236 and it is recommended they be taken in this order. Co-requisite: Ph 233. Prerequisite: Mth 112 or Aleks Placement Test at 75%.		
Fall 2018	M	Ph	571	Physical and Human Dimensions of Climate Change	4	A holistic course on global change science connecting atmospheric change, climate theory and the human response to global warming. Lays a foundation for understanding the complex issues of climatic change, its linkages and feedbacks. Policy options to manage the climate are examined using models, their predictions, and uncertainties. This is the same course as ESM 471 and may be taken only once for credit. Also offered for undergraduate-level credit as Ph 471 and may be taken only once for credit. Prerequisites: PH 211- 213; Mth 251-253, Mth. 256	Title, description, and prerequisites	
Fall 2018	N	PHE	321U	Introduction to Health Policy	4	This course presents an overview of health policymaking and describes health policy at the state and federal levels. In addition to the policy process, special emphasis is placed on the role of health services and public health managers and other advocates, and the role they play in crafting policy. The course examines new developments in health policy as they are introduced during the duration of the course and follows them throughout their journey.		
Fall 2018	N	PHE	322U	Health Services Administration	4	Understanding the functions of management and administration is essential for anyone assuming administrative roles in health services delivery organizations (e.g., hospitals, clinics, and nonprofits). This course introduces the six classic management functions, and illustrates health services applications of topics such as strategic planning, risk management, working in/with teams, and changing trends in health care. Students will develop knowledge and the interdisciplinary skills needed to effectively work in administration in various types of health services organizations.		
Fall 2018	M	PHE	326U	Drug Education	4	Examines various approaches to drug education, harm reduction and treatment, while engaging students in furthering their own education on drugs and their impacts on the individual and society. Reviews current and controversial issues, and innovative solution options.	Description	

Fall 2018	N	PHE	418	Lactation Education I: Introduction to Human Lactation	4	The first in the lactation education series. Students will develop skills to assess and counsel families experiencing common breastfeeding challenges. Assessment tools and techniques will be introduced. Student will gain strategies for working with diverse adult learners and develop professional communication skills for the health care setting. This is the first course in a sequence of three: PHE 418, PHE 419, PHE 420 and must be taken in sequence. Prerequisite: Instructor approval.		
Fall 2018	N	PHE	419	Lactation Education II: Advanced Lactation Care	4	The second in the lactation education series. Students will develop evaluation and support techniques to address complex maternal and infant breastfeeding challenges. Attention will be given to critically understanding and utilizing evidence-informed information to guide direct lactation support and communication with the health-care team. Students will deepen knowledge of use of referrals and resources to support the parent-baby dyad. This is the second course in a sequence of three: PHE 418, PHE 419, PHE 420 and must be taken in sequence. Prerequisite: PHE 418.		
Fall 2018	N	PHE	420	Lactation Education III: Clinical Consideration in Lactation	2	The third in the lactation education series. This course prepares students for working with complex cases including prematurity, medically fragile infants, and infants or parents with special medical or nutritional needs. Students will strengthen their understanding of the IBLCE Code of Professional Conduct, the IBLCE Scope of Practice, the ILCA Standards of Practice plus additional policies that govern the practice of International Board Certified Lactation Consultants (IBLCEs). Students completing this course as part of the Lactation Education series are prepared for clinical experience and are eligible to apply for the Lactation Practicum. This is the third course in a sequence of three: PHE 418, PHE 419, PHE 420 and must be taken in sequence. Prerequisite: PHE 419.		
Fall 2018	N	PHE	426	Advanced Topics in Health Services Administration	4	This advanced course will build upon knowledge attained in previous courses in the HSMP curriculum. Content addresses advanced discussion of topics regarding systems, policy and organization in health services administration practice. Current issues/events will be emphasized. The course employs techniques that capitalize on group participation and peer-to-peer learning to stimulate sharing of diverse perspectives and increase the participants' level of engagement with historically marginalized viewpoints. Prerequisite: PHE 350.		
Fall 2018	N	PHE	427	Introduction to Health Informatics	4	An introduction to health informatics, the field devoted to the optimal use of data, information, and knowledge to advance individual health, health care, public health, and health-related research. Students will learn the application of informatics skills and knowledge to health-related problems. Prerequisite: Upper-division standing.		
Fall 2018	N	PS	429	American Immigration Politics and Policy	4	Exploration of American immigration politics over time and into the current era. Expected preparation: PS 101 or PS 102. Prerequisites: Upper-division standing.		
Fall 2018	N	PS	594	Research Design for Politics and Policy	4	This course will introduce the logic of social science research and provide a brief overview of the various methods that are commonly used. The focus is on developing design skills that will help clarify research ideas, organize research design and research questions of interest to students.		
Fall 2018	N	Psy	413	Ecopsychology	4	Course explores a range of topics regarding the human-nature relationship, including humans as an inseparable from nature, influences of built and natural environments on mind and behavior, psychological theory and strategies for addressing environmental problems, evolutionary and cultural factors, and the use of nature in therapy. Discussions, lecturettes, experiential, guest-speakers. Also offered for graduate-level credit as Psy 413 and may be taken only once for credit. Prerequisites: Psy 200, Psy 204, and Psy 321.		
Fall 2018	N	Psy	513	Ecopsychology	4	Course explores a range of topics regarding the human-nature relationship, including humans as an inseparable from nature, influences of built and natural environments on mind and behavior, psychological theory and strategies for addressing environmental problems, evolutionary and cultural factors, and the use of nature in therapy. Discussions, lecturettes, experiential, guest-speakers. Also offered for undergraduate-level credit as Psy 413 and may be taken only once for credit. Prerequisites: Psy 200, Psy 204, and Psy 321.		
Fall 2018	N	Psy	525	Categorical Data Analysis	4	Introduction to categorical data analyses. Topics include: review of discrete probability distributions and descriptive statistics, simple proportions and chi-square, contingency table analyses, matched pairs analyses, loglinear models, logistic and probit regression models, propensity scores, ordinal and multinomial logistic regression, generalized linear models, and categorical measurement issues. Prerequisites: Psy 521/Psy 621 and Psy 522/Pys 622.		

Fall 2018	N	Psy	526	Multilevel Regression	4	Multilevel regression models can be used to analyze hierarchically structured data, such as educational studies, and longitudinal data. Material is presented with an applied researcher's perspective in mind, covering fundamental concepts, basic mathematical and statistical underpinnings, and illustrations using computer software. Topics include: random coefficients, interclass correlation coefficient, explained variance, cross-level interactions, centering, model assumptions and diagnostics, binary and ordinal outcomes, and growth curve models. This course assumes prior knowledge about multiple regression analysis. Prerequisites: Psy 521/621 and Psy 522/622 or equivalent approved by instructor.		
Fall 2018	N	Psy	625	Categorical Data Analysis	4	Introduction to categorical data analyses. Topics include: review of discrete probability distributions and descriptive statistics, simple proportions and chi-square, contingency table analyses, matched pairs analyses, loglinear models, logistic and probit regression models, propensity scores, ordinal and multinomial logistic regression, generalized linear models, and categorical measurement issues. Prerequisites: Psy 521/Psy 621 and Psy 522/Pys 622.		
Fall 2018	N	Psy	626	Multilevel Regression	4	Multilevel regression models can be used to analyze hierarchically structured data, such as educational studies, and longitudinal data. Material is presented with an applied researcher's perspective in mind, covering fundamental concepts, basic mathematical and statistical underpinnings, and illustrations using computer software. Topics include: random coefficients, interclass correlation coefficient, explained variance, cross-level interactions, centering, model assumptions and diagnostics, binary and ordinal outcomes, and growth curve models. This course assumes prior knowledge about multiple regression analysis. Prerequisites: Psy 521/621 and Psy 522/622 or equivalent approved by instructor.		
Fall 2018	M	Soc	339	Marriage & Intimacy	4	Introduction to sociological and social psychological perspectives on intimate relationships, marriage, and diverse family forms. Examination of the effects of historical and current social contexts and the role of gender, race, and class in shaping personal choices and experiences. Emphasis is on sociological theory and research.	Description	
Fall 2018	N	Soc	417	Law & Society	4	Examination of different sociological and sociolegal theories and empirical research on the social origins, processes, functions, and actors of the social reality known as law. Consideration of law as a social institution that shapes and is shaped by society, including how law reinforces and/or ameliorates class, gender, and racial inequalities as well as fundamental issues such as free speech and privacy. Prerequisite: Soc 200.		
Fall 2018	N	Soc	466	Sociology of Dying and Death	4	Exploration of the nature of dying and death in the U.S. Topics include: where death occurs, how social policy affects the experience of dying, how medical perspectives affect the experience of dying, how death affects family members, and race, class, gender differences in dying and death. Prerequisite: Upper-division standing.		
Fall 2018	D	Soc	472	Contemporary Sociological Theory	4			
Fall 2018	M	Soc	537	Qualitative Data Analysis	4	Introduction to three techniques for analyzing qualitative data: software-based analysis using ATLAS.ti, Grounded Theory, and Thematic Analysis. Practical orientation, emphasizing hands-on experience with these techniques. Most useful for students engaged in data collection. Prerequisite: Soc 592.		
Fall 2018	N	Soc	566	Sociology of Dying and Death	4	Exploration of the nature of dying and death in the U.S. Topics include: where death occurs, how social policy affects the experience of dying, how medical perspectives affect the experience of dying, how death affects family members, and race, class, gender differences in dying and death. Prerequisite: Upper-division standing.		
Fall 2018	N	Soc	579	Food, Justice, and Social Movements	4	This seminar examines growing social movements around food and agriculture. Includes theoretical and conceptual frameworks for understanding historical and current dynamics in the global food and agriculture system, and debates over land grabs, food price crises, hunger, and the role of biotechnology, agribusiness, and low-input peasant agriculture. Case studies examine social movements around land and food in the global South and North. Concludes with alternative models and emerging paradigms, including food sovereignty and food justice. Also offered as Soc 679.		
Fall 2018	M	Soc	637	Qualitative Data Analysis	4	Introduction to three techniques for analyzing qualitative data: software-based analysis using ATLAS.ti, Grounded Theory, and Thematic Analysis. Practical orientation, emphasizing hands-on experience with these techniques. Most useful for students engaged in data collection. Prerequisite: Soc 592.		

						This seminar examines growing social movements around food and agriculture. Includes theoretical and conceptual frameworks for understanding historical and current dynamics in the global food and agriculture system, and debates over land grabs, food price crises, hunger, and the role of biotechnology, agribusiness, and low-input peasant agriculture. Case studies examine social movements around land and food in the global South and North. Concludes with alternative models and emerging paradigms, including food sovereignty and food justice. Also offered as Soc 579.		
Fall 2018	N	Soc	679	Food, Justice, and Social Movements	4			
Fall 2018	M	Soc	695	Advanced Quantitative Methods	4		Title	
Fall 2018	M	SpEd	512	Diagnostic Assessment	3-4	The focus of this course is the legal requirements and professional skills required for conducting non-biased, standardized, academic assessments. Students will develop knowledge and skills in: collecting relevant background information; selecting, administering, and interpreting assessments; developing academic goals and objectives; preparing meaningful reports; and conducting meetings to convey assessment results. Prerequisites: Mth 211, Mth 212, SpEd 418 and Admission to program	Description, change credits from 3 to 3-4, and add 400-level	
Fall 2018	M	SpEd	522	Comprehensive Individualized Assessment I	3	Applies knowledge and skills for functional assessment and applied behavior analysis in the design and implementation of an individualized curriculum for individuals with significant and multiple disabilities. Emphasizes curricular content for life skills, communication, social, motor, and cognitive/functional academic domains. Provides instructional strategies for routines-based, naturalistic, and teacher-directed learning. This is the first course in a sequence of two: SpEd 522 and SpEd 523. Prerequisite: Admission to the Special Educator Licensure Program or MS in Special Education.	Description, change credits from 3-4 to 3	
Fall 2018	M	SpEd	523	Comprehensive Individualized Assessment II	3	Applies knowledge and skills for functional assessment and applied behavior analysis in the design and implementation of an individualized curriculum for individuals with significant and multiple disabilities. Emphasizes curricular content for life skills, communication, social, motor, and cognitive/functional academic domains. Provides instructional strategies for routines-based, naturalistic, and teacher-directed learning. This is the second course in a sequence of two: SpEd 522 and SpEd 523. Prerequisite: Admission to the Special Educator Licensure Program or MS in Special Education.	Description, change credits from 3-4 to 3	
Fall 2018	M	SpEd	525	Student Teaching	6-15		Add 400-level	
Fall 2018	M	SpEd	526	IEP and Collaborative Teaming	4	This course is about the processes and skills involved in collaborative teaming and consultation within schools settings. Throughout the student teaching experience, course participants will learn about their role in the IEP process, experience a full range of professional responsibilities including instructional and non-instructional roles, and prepare an edTPA portfolio. Prerequisite: Admission to the Special Educator Licensure Program or MS in Special Education.	Title, description, and change credits from 3 to 4	
Fall 2018	M	SpEd	530	Families and Advocacy	3	This course investigates practical strategies in the areas of student support and advocacy, school-family collaboration and transition planning. Person-centered planning and teaching self-determination skills will be addressed. Course participants will examine collaborative skills needed to empower students and families to work effectively with school professionals in K-12 and transition settings. Prerequisite: Admission to the Special Educator Licensure Program or MS in Special Education.	Title and description	
Fall 2018	N	SpEd	532	Inclusive Practices	2	This course prepares teacher candidates to use evidence-based practices to support students with diverse learning needs to gain access to the general education curriculum. Incorporating Universal Design for Learning as a framework, teacher candidates will plan, implement and assess study skills and learning strategies for students in all academic areas. Also offered for undergraduate-level credit as SpEd 432 and may be taken only once for credit. Prerequisite: Admission to the program.		
Fall 2018	M	SpEd	537	Reading Assessment and Instruction (Elementary)	3-4		Change credits from 3 to 3-4	
Fall 2018	M	SpEd	538	Reading Assessment and Instruction (Secondary)	3-4		Change credits from 3 to 3-4	
Fall 2018	M	SpEd	540	Foundations of Education for the Visually Impaired Learner	3	Provides historical educational background for students with visual impairments, common eye conditions, basic eye anatomy, and overview of instructional strategies with emphasis on the expanded core curriculum. Introduces Grade I braille and tactile graphics production. Addresses instructional considerations for diverse learners with vision loss, including additional disabilities and deafblindness.	Title, description	

Fall 2018	M	SpEd	545	Introduction to Orientation and Mobility and Independent Living Skills	3	Introduces the historical development and field of orientation and mobility (O&M). Provides instruction in basic O&M and human guide techniques. Emphasizes evidence-based curricular content for independent living skills; psychosocial, motor, and concept development domains. Addresses instructional considerations for diverse1 learners with vision loss, including additional disabilities and deafblindness.	Title, description	
Fall 2018	M	SpEd	548	Positive Behavior Support in the Classroom	3	This course will teach research-based strategies within a positive behavior support framework to promote desired classroom behavior and maximize instructional time. Prevention, teaching and consequence strategies (positive and corrective) will be taught for implementation ranging from school-wide intervention to classroom-wide instruction to individualized function-based support for students with intensive needs. Also offered for undergraduate-level credit as SpEd 448 and may be taken only once for credit. Prerequisite: Admission to the Special Educator Licensure Program.	Course number, title, and description	
Fall 2018	N	SpEd	549	Orienation and Mobility Methods	3	Examine the foundations of learning and teaching Orientation and Mobility. Activities and synchronous online lectures introduce the principles of concept development, spatial orientation, and environmental analysis as related to the independent travel of individuals who are visual impairments including those with additional disabilities, deafblindness and/or from diverse backgrounds. Prerequisites: SpEd 540, SpEd 545, SpEd 541.		
Fall 2018	N	SpEd	550	Orientation and Mobility Assessment and Instruction - Children	3	Provides an overview of O&M assessment and instruction for infants, preschoolers, elementary and transition age students with vision loss, including those from diverse backgrounds and additional disabilities and deafblindness. Examines methods in team instruction, consultation and itinerant teaching. Includes 25 hours of field-based experiences in the school setting. Prerequisites: SpEd 540, SpEd 541, and SpEd 545.		
Fall 2018	N	SpEd	551	Orientation and Mobility Assessment and Instruction - Adults	3	Examines demographics and service delivery models for adults with visual impairments from diverse backgrounds, including those with health conditions and sensory impairments. Addresses O&M assessment and instruction while considering individual travel environments and emerging technologies. Includes 25 hours of field-based experiences with adults receiving O&M training. Prerequisites: SpEd 540, SpEd 541, SpEd 545.		
Fall 2018	N	SpEd	552	Orientation and Mobility Advanced Techniques	4	Instruction in navigation methods used by persons with vision loss. Students complete 5+ hours lab based work per day under simulated conditions in indoor and outdoor environments. Course covers the knowledge base of the instructional needs of persons with visual impairments including those from diverse backgrounds, additional disabilities and deafblindness. Prerequisites: SpEd 540, SpEd 541, SpEd 545.		
Fall 2018	N	SpEd	577	Interagency Collaboration	2	Focuses on service coordination that unifies school personnel and community agencies to strategically use collective expertise to plan the transition from school to adult life with students and families for the development and well-being of youth. Strategies for effective leadership and community resource mapping are employed.		
Fall 2018	M	SpHr	370	Phonetics & Acoustics	4		Prerequisites	
Fall 2018	M	SpHr	371	Anatomy and Physiology of Speech and Swallowing	4	A study of the anatomy and physiology of the respiratory, phonatory, and articulatory systems for speech, with applications to speech disorders. The physiology of swallowing and swallowing disorders is also covered. Prerequisite: SpHr 222.	Prerequisites	
Fall 2018	N	SpHr	491	Principles of Behavior Analysis: Clinical Applications	4	The aim of this course is to examine key principles of behavior, including: assessment, behavior modification, and measurement. While the course will discuss how principles of behavior can be applied across all populations, specific attention will be given to individuals with communication challenges and how to be meet the needs of individuals with such challenges. Prerequisite: Upper-division standing.		
Fall 2018	N	SpHr	555	Assessment and Treatment of Dysphagia in Adults	2	Introduction to dysphagia and related disorders in adults. Covers the following topics: 1) anatomy and physiology of swallowing; 2) types of acquired dysphagia; 3) clinical swallowing examination; 4) common methods of instrumental swallowing examination, including radiographic studies, fiber-endoscopic examinations and manometry; and 5) Dysphagia Intervention.		
Fall 2018	N	SpHr	556	Assessment and Treatment of Dysphagia in Pediatrics	2	Introduction to dysphagia and related disorders in children. Covers the following topics: 1) anatomy and physiology of swallowing; 2) types of acquired dysphagia; 3) clinical swallowing examination; 4) common methods of instrumental swallowing examination, including radiographic studies, fiber-endoscopic examinations and 5) Dysphagia Intervention.		

Fall 2018	D	SpHr	565	Dysphagia	4			
Fall 2018	N	SpHr	588	Advanced Assessment and Intervention for Bilinguals	2		This course is focused on clinical language assessment and intervention for bilingual, bicultural, and non-mainstream populations within the field of speech-language pathology. Students learn how to select, administer and synthesize results from various assessment tools (e.g., standardized normed-referenced, criterion-referenced tests, dynamic assessment and parent interviews) to diagnose or rule out language impairment in bilinguals. Intervention goals and models are also addressed. While the course addresses several languages and cultures, it focuses on general principles.	
Fall 2018	M	Stat	243	Introduction to Probability and Statistics I	4		A basic course in statistical analysis including presentation of data, descriptive statistics, probability, probability distributions, sampling distributions, estimation and use of statistical computer packages. A broad nontechnical survey designed primarily for non-math students who need to utilize the subject in their own fields. Not approved for major credit. This is the first course in a sequence of two: Stat 243 and Stat 244 which must be taken in sequence.	Description
Fall 2018	M	Stat	244	Introduction to Probability and Statistics II	4		A basic course in statistical analysis including estimation, tests of significance, experimental design and analysis of variance, linear regression and correlation, nonparametric statistics, selected topics, applications, and use of statistical computer packages. A broad nontechnical survey designed primarily for non-math students who need to utilize the subject in their own fields. Not approved for major credit. This is the second course in a sequence of two: Stat 243 and Stat 244 which must be taken in sequence. Prerequisite: Stat 243.	Description
Fall 2018	M	Stat	461	Introduction to Mathematical Statistics I	3		Theory of probability, distribution of random variables, expectation and bivariate distributions. This is the first course in a sequence of three: Stat 461, Stat 462, and Stat 463 which must be taken in sequence.	Description
Fall 2018	M	Stat	462	Introduction to Mathematical Statistics II	3		Functions of random variables – one dimensional and higher dimensional, sampling distributions, Central Limit Theorem, point and interval estimation. This is the second course in a sequence of three: Stat 461, Stat 462, and Stat 463 which must be taken in sequence.	Description
Fall 2018	M	Stat	463	Introduction to Mathematical Statistics III	3		Testing of hypotheses, analysis of variance, analysis of categorical data, introduction to regression and correlation and nonparametric tests. This is the third course in a sequence of three: Stat 461, Stat 462, and Stat 463 which must be taken in sequence.	Description
Fall 2018	M	Stat	465	Experimental Design: Theory and Methods I	3		A theoretical and applied treatment of experimental design; analysis of variance, checking model adequacy; block designs; Latin squares; factorial designs; fractional factorial designs. All sections will illustrate real world applications with computer usage. This is the first course in a sequence of two: Stat 465 and Stat 466 which must be taken in sequence. Prerequisite: Stat 464/Stat 564.	Title and Description
Fall 2018	M	Stat	466	Experimental Design: Theory and Methods II	3		A theoretical and applied treatment of experimental design; fixed and random effects models; split-plot designs; nested designs; relation to regression analysis; analysis of covariance. All sections will illustrate real world applications with computer usage. This is the second course in a sequence of two: Stat 465 and Stat 466 which must be taken in sequence. Prerequisite: Stat 465/Stat 565.	Title and Description
Fall 2018	M	Stat	467	Applied Probability I	3		Basic concepts of probability, conditional probability, conditional expectation, discrete-time Markov chains, branching processes, Poisson processes. Prerequisite: Stat 461/Stat 561 or Stat 451/Stat 551.	Description
Fall 2018	M	Stat	468	Applied Probability II	3		Basic concepts of probability, conditional probability, conditional expectation, discrete-time Markov chains, branching processes, Poisson processes, continuousContinuous-time Markov chains, birth and death processes, queues and inventory, renewal processes. This is the second course in a sequence of two: Stat 467 and Stat 468 which must be taken in sequence. Prerequisite: Stat 467.	Description, prerequisites
Fall 2018	M	Stat	561	Mathematical Statistics I	3		Provides a foundation in the theory and methods of statistical inference. Topics include foundations of probability, random variables and distribution functions, moment generating functions, and common families of distributions. This is the first course in a sequence of three: Stat 561, Stat 562, and Stat 563 which must be taken in sequence.	Description
Fall 2018	M	Stat	562	Mathematical Statistics II	3		Provides a foundation in the theory and methods of statistical inference. Topics include multivariate distributions, transform methods, conditional distributions, covariance, distributions of sample statistics, and convergence theorems. This is the second course in a sequence of three: Stat 561, Stat 562, and Stat 563 which must be taken in sequence.	Description

Fall 2018	M	Stat	563	Mathematical Statistics III	3	Provides a foundation in the theory and methods of statistical inference. Topics include point estimation, evaluating estimators, hypothesis testing, confidence intervals, and asymptotic results for statistical tests. This is the third course in a sequence of three: Stat 561, Stat 562, and Stat 563 which must be taken in sequence.	Description	
Fall 2018	M	Stat	565	Experimental Design: Theory and Methods I	3	A theoretical and applied treatment of experimental design; analysis of variance, checking model adequacy; block designs; Latin squares; factorial designs; fractional factorial designs. All sections will illustrate real world applications with computer usage. This is the first course in a sequence of two: Stat 465 and Stat 466 which must be taken in sequence. Prerequisite: Stat 464/Stat 564.	Title and Description	
Fall 2018	M	Stat	566	Experimental Design: Theory and Methods II	3	A theoretical and applied treatment of experimental design; fixed and random effects models; split-plot designs; nested designs; relation to regression analysis; analysis of covariance. All sections will illustrate real world applications with computer usage. This is the second course in a sequence of two: Stat 465 and Stat 466 which must be taken in sequence. Prerequisite: Stat 465/Stat 565.	Title and Description	
Fall 2018	M	Stat	567	Applied Probability I	3	Basic concepts of probability, conditional probability, conditional expectation, discrete-time Markov chains, branching processes, Poisson processes. Prerequisite: Stat 461/Stat 561 or Stat 451/Stat 551.	Description	
Fall 2018	M	Stat	568	Applied Probability II	3	Basic concepts of probability, conditional probability, conditional expectation, discrete-time Markov chains, branching processes, Poisson processes, continuous-time Markov chains, birth and death processes, queues and inventory, renewal processes. This is the second course in a sequence of two: Stat 467 and Stat 468 which must be taken in sequence. Prerequisite: Stat 567.	Description, prerequisites	
Fall 2018	N	Stat	671	Statistical Learning I	3	Bayesian theory of classification, the bias/variance trade-off, linear and quadratic discriminant analysis, Bayesian logistic regression, neural networks, Gaussian processes and structured learning. This is the first course in a sequence of three courses on Statistical Learning: Stat 671, Stat 672, Stat 673. Prerequisites: Stat 561 and Stat 562 and Stat 563.		
Fall 2018	N	Stat	672	Statistical Learning II	3	Bayesian networks, k-means, mixture models, the expectation maximization algorithm, Markov random fields, Gibbs distributions, belief propagation algorithms, variational inference, Markov chain Monte Carlo. This is the second course in a sequence of three courses on Statistical Learning: Stat 671, Stat 672, Stat 673. Prerequisites: Stat 561 and Stat 562 and Stat 563.		
Fall 2018	N	Stat	673	Statistical Learning III	3	This sequence is designed for graduate students in Math/Stat or Engineering. The focus of this third course is research topics in statistical learning to be determined each time this course is taught. This is the third course in a sequence of three courses on Statistical Learning: Stat 671, Stat 672, Stat 673. Prerequisites: Stat 561 and Stat 562 and Stat 562.		
Fall 2018	N	SW	522	Trauma Informed Care	3	Prepares students to apply Trauma Informed Care principles. Reviews trauma and toxic stress (neurobiology, adverse childhood experiences, and resiliency) and uses this knowledge to evaluate behavior, policies, and procedures. Examines how TIC complicates and complements others approaches with a specific focus on the intersection with equity, inclusion, and cultural responsiveness. TIC is beneficial to a variety of disciplines in a variety of settings including judicial/corrections, veterans' services, housing, healthcare, education, and child-welfare.		
Fall 2018	N	SW	548	Advanced Social Work Practice with Latinx	3	Provides a foundation of Latinx social work in outpatient mental health and integrated health settings. Examines Latinx cultural diversity, health disparities, values, attitudes, traditions, spirituality and offers general guidelines to integrate these cultural factors in effective behavioral/mental health screens and evaluations as well as interventions to address consumers' needs. Prerequisites: SW 530 or SW 589.		
Fall 2018	N	SW	557	Supervision in Social Work Practice	3	Explores the knowledge and skills for effective social work supervision, emphasizing a collaborative, developmental, reflective and competency-based approach. Attention is paid to the cross cultural, sociopolitical, and ethical influences on supervision and the supervisory relationship.		
Fall 2018	M	SW	562	Loss & Grief Across the Lifespan	3	Examination of loss and grief in relation to death and diverse non-death experiences across the lifespan. Review of theory, research, and best practices for social workers helping with bereavement processes, grief integration, and meaning making for individuals, families, and across communities. Unique cultural and spiritual perspectives discounted or devalued through dominant discourses are brought to light. Prerequisite: SW 530.	Title, description, prerequisites	

Fall 2018	M	SW	589	Advanced Standing Seminar	4	Students who successfully complete this seminar will demonstrate the competencies to enter the advanced year of the MSW program. This seminar will provide a connection between the BSW curriculum and advanced MSW curriculum, and evaluate students' readiness for advanced practice. The course requires students to demonstrate foundational social work skills, critical self-reflection, and academic readiness for graduate course work.	description, credit hours	
Fall 2018	N	Swah	331	Language, Literacy & Leadership: A Community Based Learning Course	4	Students learn to help students from other cultures (e.g. Swahili) succeed in the US. Through classroom study and community involvement, students of the class will obtain knowledge and skills applicable to societal problems. They will tutor individuals and small groups and gain understanding of other communities and their challenges.		
Fall 2018	N	SySc	340U	Big Data and the Modern World	4	Overview of data science, big data, and its impact society including its promise, limitations, and ethical considerations.		
Fall 2018	N	SySc	435 535	Modeling and Simulation with R and Python	4	Computer modeling & simulation using general purpose tools, R and Python. Covers statistical and simulation-based approaches for simulating dynamics, Monte Carlo methods for addressing uncertainty and risk, and interacting agents to incorporate heterogeneity and network effects. This course is also offered for graduate-level credit as SySc 535 and may only be taken once for credit. Recommended preparation: Basic probability & statistics and exposure to calculus; exposure to writing scripts (e.g. Matlab, Mathematica, R, etc.). Prerequisites: Stat 241 or Stat 241 and Mth 252.		
Fall 2018	N	SySc	440 540	Introduction to Network Science	4	Interdisciplinary introduction to network science, complex systems research, and social psychological concepts. In depth exposure to foundations of network science, including classical topics: random graphs, small world networks, etc. Discussion of social processes such as social contagion, opinion formation, etc. Introduction to advanced topics: community detection and (social) network interventions. Also offered for graduate-level credit as SySc 540 and may be taken only once for credit. Recommended preparation: Basic linear algebra, probability, statistics, and scripting tools such as Matlab, Mathematica, or R. Prerequisites: Stat 241 or Stat 243 and Mth 261.		
Fall 2018	N	SySc	445 545	Application of Data Science	4	Introduction to data science as a profession and toolset, including its role in various types of projects, from exploration to discovery to prediction. Surveys current methods and technologies, emphasizing what's possible, feasible, and practical in terms of modeling and interactive visualization. Complements courses focused on specific methods and tools. Prerequisites: Stat 241 or Stat 243, and CS 161.		
Fall 2018	D	SySc	512	Quantitative Methods of Systems Science	4			
Fall 2018	D	SySc	529 629	Business Process Modeling and Simulation	4			
Fall 2018	D	SySc	553 653	Manufacturing Systems and Simulation	4			
Fall 2018	D	SySc	555	Systems Planning and Management	3			
Fall 2018	M	Tur	330U	Popular Culture and Literature in Turkey	4	Development of popular culture and literature in modern Turkey. Impact of Westernization, modernization, journalism, and urban and European migration. Popular literature, films, and media interacting with Marxism, feminism, and Islamism. Conducted in English.	Title and description	
Fall 2018	N	USP	439	Workforce Development	4	Introduction to policies and practices for workforce development. Topics discussed include labor market dynamics, failures and inequities; tools and methods for urban labor market analysis; and workforce development policies for skill investment, job matching and career development toward goals of household, business, community and regional economic development. Also offered for graduate-level credit as USP 539. Prerequisite: Uppder-division standing.		
Fall 2018	D	USP	539	Statistical Methods in Regional Science and Planning	2			
Fall 2018	N	USP	539	Workforce Development	3	Introduction to policies and practices for workforce development. Topics discussed include labor market dynamics, failures and inequities; tools and methods for urban labor market analysis; and workforce development policies for skill investment, job matching and career development toward goals of household, business, community and regional economic development. Also offered for undergraduate-level credit as USP 439.		

Fall 2018	N	USP	548	Public Transportation Planning and Policy	3	Public transit ridership and investments have been growing for the past two decades as regions around the world grapple with worsening congestion, growing concerns about climate change, health, and social equity, and a reinvigoration of urban living and sustainable lifestyles. This course will introduce students to processes, policies and rules concerning the planning of public transit systems and the development of new transit investments, focusing mostly on buses and light rail.		
Fall 2018	N	WLL	438	Language and Technology	4	Examination of the communicative dynamics, cultures, and educational possibilities of digital environments as they are used in social, professional and world language education settings. Students will analyze and assess a variety of online environments for their own language learning or can choose to focus on research or pedagogical projects. Also offered for graduate-level credit as WLL 538 and may be taken only once for credit. Prerequisite: Upper-division standing.		
Fall 2018	N	WLL	538	Language and Technology	4	Examination of the communicative dynamics, cultures, and educational possibilities of digital environments as they are used in social, professional and world language education settings. Students will analyze and assess a variety of online environments for their own language learning or can choose to focus on research or pedagogical projects. Also offered for undergraduate-level credit as WLL 438 and may be taken only once for credit.		
Fall 2018	N	Wr	411 511	Internship	1-4	Students apply their academic training and skills in the workforce, further developing those skills and learning new skills in the process. Students develop a better understanding of the value to employers of their education in literature, writing, and/or publishing. Integrating an internship with reflection and professional development enhances the experience. Prerequisite: Permission of instructor.		
Fall 2018	N	Wr	566	Digital Skills	4	Gives hands-on training in digital skills and surveys developmental trends in writing in computational environments: webpages, computer programs, word processing programs, multimodal essays. Learn core principles and methods of web design, web management, media history, and present-day uses of authoring software. Assess scholarly articles about writing and reading in computational environments.		
Fall 2018	N	Wr	578	Digital Marketing for Book Publishers	4	This course examines the contexts and impacts of digital book marketing on the book industry, authors, and readers. Also offered for undergraduate-level credit as Wr 478 and may be taken only once for credit.		
Fall 2018	M	WS	260	Introduction to Women's Literature	4	Study of literature written by and about women across historical periods and genres. This is the same course as Eng 260 and may be taken only once for credit.	Title and description	
Fall 2018	M	WS	372U	Topics in Literature, Gender and Sexuality	4	Study of representations of gender and sexuality in literature and related cultural forms. This is the same course as Eng 372U. Course may be repeated for up to 8 credits with different topics.	Description, repeatability, grading option	
Fall 2018	N	WS	442	Women Writers in Global Contexts	4	Study of the works of women writers from the postcolonial and non-Western world. This is the same course as Eng 442 and may be taken only once for credit.		
Fall 2018	D	WS	443	British Women Writers	4			
Fall 2018	M	WS	444	British Women Writers	4	Study of the works of British women writers with attention to themes, styles, and characteristic concerns in the light of feminist criticism and scholarship. This is the same course as Eng 444 and may be taken only once for credit. Prerequisite: Upper-division standing.	Description	
Fall 2018	M	WS	445	American Women Writers	4	Study of American women writers, with attention to themes, styles and characteristic concerns, in the light of feminist criticism and scholarship. This is the same course as Eng 445. Also offered for graduate-level credit as WS 545 and may be taken only once for credit. Prerequisite: Upper-division standing.	Description	
Fall 2018	D	WS	446	American Women Writers	4			