

# February 2019

## Course Number Change

### General Studies

GENSTDS

#### Autumn 2019 Semester

#### 1201.01T College Orientation

*Previous Number: 1201T*

**U** ½

Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.

### Italian

ITALIAN

#### Summer 2019 Term

#### 1101.71 Italian Distance Learning I

*Previous Number:  
1101.61*

**U** 4

This online version of Italian 1101.01 is designed for development of listening, reading, speaking, writing skills and cultural competency. Taught in Italian. Note: Online courses are not for everyone; the successful student is organized, self-motivated, and comfortable with technology.

Prereq: Not open to students with credit for 1101, 1101.01, 1101.02, 1101.03, 1101.61, or 5101. This course is available for EM credit. GE for lang course.

*Campus: COL*

*Components: LEC REC*

#### Summer 2019 Term

#### 1102.71 Italian Distance Learning II

*Previous Number:  
1102.61*

**U** 4

This online version of Italian 1102.01 is designed for development of listening, reading, speaking, writing skills and cultural competency. Taught in Italian. Note: Online courses are not for everyone; the successful student is organized, self-motivated, and comfortable with technology.

Prereq: 1101, 1101.01, 1101.02, 1101.03, 4 cr hrs of 1101.61, or 1101.71. Not open to students with credit for 1102, 1102.01, 1102.02, 1102.03, 1102.61, or 5101. This course is available for EM credit. GE for lang course.

*Campus: COL*

*Components: LEC REC*

#### Summer 2019 Term

#### 1103.71 Italian Distance Learning III

*Previous Number:  
1103.61*

**U** 4

This online version of Italian 1103.01 is designed for development of listening, reading, speaking, writing skills and cultural competency. Taught in Italian. Note: Online courses are not for everyone; the successful student is organized, self-motivated, and comfortable with technology.

Prereq: 1102, 1102.01, 1102.02, 1102.03, 4 cr hrs of 1102.61, or 1102.71. Not open to students with credit for 1103, 1103.01, 1103.02, 1103.03, 1103.61, or 5101. This course is available for EM credit. GE for lang course.

*Campus: COL*

*Components: LEC REC*

### Public Health: Environmental Health Sciences

PUBHEHS

#### Autumn 2019 Semester

#### 6390 Major Human Diseases in Global Public Health

*Previous Number: 7390*

**G** 3

Public health is focused on preventing illnesses and injuries or intervening to decrease the impact to populations of people. Emphasize on basic physiology, pathophysiology, and clinical evaluation of major human diseases that have significant global public health impact epidemiologically, politically, and economically with a focus on disease causes and prevention.

Prereq: Not open to students with credit for 7390.

## Autumn 2019 Semester

**5805      Theories and Biological Basis of Substance Misuse***Previous Number: 3805***U G      3**

The focus of this course is to explore traditional and contemporary theories, and their supporting evidence, related to substance misuse and the etiology of substance use disorders (including addiction). Satisfactory completion of introductory psychology and introductory biology course content is preferable/recommended, but not required.

Prereq: Jr, Sr, or Grad standing; or permission of instructor. Not open to students with credit for 3805.

## Autumn 2019 Semester

**5806      Diagnosis and Treatment of Substance Use Disorders***Previous Number: 3806***U G      3**

The focus of this undergraduate elective course is to introduce and review concepts and current issues related to screening, assessment, diagnosis, and treatment planning for individuals with alcohol and other drug [AOD] use problems.

Prereq: 5805.

## Autumn 2019 Semester

**5807      Preventing Substance Misuse***Previous Number: 3807***U G      3**

Introduces students to evidence-based strategies and techniques that are used to prevent individuals from developing a substance use disorder; focuses on prevention as a science and highlights several theories and methodologies that govern prevention practice. Designed to meet chemical dependency educational content for Ohio's Licensed Chemical Dependency Board's Prevention Professional creds.

Prereq or concur: 5805.

## Autumn 2019 Semester

**5808      Group & Relationship Approaches in Substance Misuse Treatment***Previous Number: 3808***U G      3**

Content includes review of the evidence base and techniques for contemporary and historical models of substance abuse intervention and prevention, including vulnerability, risk, resilience and protective factors. This course is designed to meet chemical dependency educational content for Ohio's Licensed Chemical Dependency Board's Prevention Professional credentials.

Prereq: 5805. Not open to students with credit for 3808.

## New Course

**Anthropology****ANTHROP**

## Spring 2020 Semester

**5627      Migrants and Refugees: The Anthropology of Mobility****U G      3**

This course is an anthropological investigation of human mobility with a focus on the movement of migrants and refugees. Credit for 2202 is recommended but not required.

**Business Admin: Management Sciences****BUSMGT**

## Summer 2019 Term

**7334      Sports Analytics****G      1½**

Analytical techniques and quantitative methods are on the rise in many areas of industry, and, of late, have entered the sports realm. Students will expand their critical thinking skills, explore the current state of sports analytics, summarize data creatively, improve data-based decision making, and optimize output in real-world situations as well as improve presentation skills to the non-quant.

Prereq: Enrollment in SMB-Analytics program, or permission of instructor.

**Business Admin: Management & Human Rsrcs****BUSMHR**

### Summer 2019 Term

#### 7194.67 Discovery Workshop

G 1½

The basis for any new venture is having a compelling value proposition that can be feasibly executed and translated into a viable, sustainable business model. In other words, being able to Create Value, Deliver Value and Capture Value. For the Discovery Workshop, we will only focus on the first piece of the overall equation, which is Value Creation.

### Summer 2019 Term

#### 7270 Leadership and Organizations

G 1½

This course covers the role of leadership in management and the use of power and influence to motivate individuals and effect organizational change. It provides students with the opportunity to develop personalized leadership development plans based on current literature, case study, and behavioral assessments.

Prereq: Enrollment in SMB-Analytics program, or permission of instructor.

## Business Admin: Marketing & Logistics

BUSML

### Summer 2019 Term

#### 2223 Professional Sales Readiness

U 1½

Introduction to sales career roles, relationship building, and the consultative process, with an emphasis on individual strengths and personal branding.

### Autumn 2019 Semester

#### 4389 Logistics Technology & Application II - ERP Systems

U 1½

Introduction to enterprise resource planning (ERP) systems with emphasis on understanding the differences between the major ERP systems on the market and using an ERP system to complete exercises for common business functions.

Prereq: 4386.

### Autumn 2019 Semester

#### 6295 Social Impact

G 3

Students will learn about the unique challenges and business environment facing non-profit organizations through the design, execution, and presentation of a socially-impactful consulting project with/for a local non-profit organization.

Prereq: MBA 6293, or permission of instructor.

## Chemistry

CHEM

### Autumn 2019 Semester

#### 1205 Foundations of General Chemistry

U 2

Chemistry 1205 is a preparatory course for under-prepared students previously enrolled in Chemistry 1210/1610. Chemistry 1205 will prepare students to continue on and complete Chemistry 1210/1610 in a subsequent semester. The textbook for Chem 1205 will be the same textbook used in Chem 1210/1610.

Prereq: Failed or withdrew from Chem 1210 or 1610, or Math 1075 or Math placement N.

## Community Leadership

COMLDR

### Autumn 2019 Semester

#### 5000 Leadership for Community Change

U G 3

Leading change in a community setting is important to addressing complex, adaptive community challenges.

This course will teach students how to work with a community (of place, interest, etc.) through the difficult process of change by engaging them in leadership development. This course is meant to serve as an advanced course for students learning about leadership.

Prereq: ENR 3500, or permission of instructor.

## Computer Science and Engineering

CSE

**Autumn 2019 Semester****4256 Programming in Python****U 1**

Python programming for students well-versed in programming with another imperative language.  
Prereq: 2122, 2123, or 2231; and 2321. This course is graded S/U.

**Consumer Sciences: Hospitality Management****CSHSPMG****Autumn 2019 Semester****3191.02 Healthcare Environmental Services Internship****U 3**

Supervised and practical experience at a department approved internship site related to environmental services in healthcare. Includes investigation and analysis of assigned problems and documentation of experience.  
Prereq or concur: 2200 and 3200. This course is graded S/U.

**Autumn 2019 Semester****3200 Infection Prevention in Healthcare and Hospitality****U 3**

An application and discussion of introductory Microbiology, Epidemiology, Infection Prevention and Sanitation in healthcare and hospitality facilities.

**Electrical and Computer Engineering****ECE****Autumn 2019 Semester****5078 Empowering the Entrepreneurial Electrical and Computer Engineer****U G 3**

This course teaches entrepreneurial minded engineers the process of value creation from their ECE relevant technology or inventions. Topics covered will include self-assessment as an entrepreneur and innovator, assessment new venture planning and project management, leadership and team building.  
Prereq: 3010, 3020, 3030, 3040, or 3050; or Grad standing in Engr. Not open to students with credit for 5194.13.

**Autumn 2019 Semester****5234 Si and Wide Band Gap Power Devices****U G 3**

Basic design and operation of Si and Wide Band Gap (WBG: SiC, GaN and ultra wide band gap semiconductors) power devices and the applications of commercial devices in power electronics applications. Trade-offs between various devices. Static and dynamic operation. Comparison of Si and SiC devices and design differences.  
Prereq: 3030, or Grad standing in Engr or Physics. Not open to students with credit for 5194.07.

**Autumn 2019 Semester****5560 Advanced Hardware Architecture Design Techniques****U G 3**

This course introduces highly-practical methodologies and techniques that can be broadly used to improve the efficiency and achieve speed-area-power tradeoffs in the design of application-specific hardware implementation architectures for various algorithms. Efficient implementation architectures of commonly used arithmetic and digital signal processing functional blocks will also be discussed.  
Prereq: 2050, and prereq or concur: 3561 or 3050; or Grad standing in Engr; or permission of instructor. Not open to students with credit for 5194.08.

**Autumn 2019 Semester****6533 Infrared Detectors and Systems****G 3**

This course covers the basics of infrared photodetectors and systems. It will include basic geometrical optics, radiometry, figures of merit and types of infrared detectors.  
Prereq: 5530, or permission of instructor. Not open to students with credit for 5194.10.

**Economics****ECON**

**Autumn 2019 Semester****8876 Industrial Organization IV: Empirical Research Methods****G 3**

Recently developed techniques for estimating market power and costs with incomplete data, with applications to antitrust economics. The goal is to give you an understanding of state of the art empirical tools, with the purpose of preparing students for research.  
Prereq: 8714, and permission of instructor.

**Engineering****ENGR****Autumn 2019 Semester****6850S Translating Engineering Research to K-8 (TEK8)****G 3**

Guides graduate students through the development of design challenges inspired by prior research experiences. Develops the skills to teach engineering in under-resourced schools & recognize how to relay engineering skills to diverse populations. Design challenges are created to be age-appropriate for middle school, low cost, & facilitated by someone with little technical background in <90 minutes.

**Engineering Education****ENGREDU****Autumn 2019 Semester****8999 Research in Engineering Education for Dissertation****G 1 - 18**

Research in Engineering Education for Dissertation.  
Prereq: Enrollment in EngrEdu Grad program. Repeatable. This course is graded S/U.

**Educational Studies: Special Education****ESSPED****Summer 2019 Term****5191.01 Supervised Teaching in Special Education: Deaf & Hard of Hearing****U G 8**

This course is designed to assist preservice teachers in developing the necessary skills required for beginning level inservice teachers in P-12 settings for d/Deaf and hard of hearing children. Candidates are expected to perform all activities required of a typical classroom teacher.  
Prereq: 5189, Grad standing, and permission of instructor.

**Food, Agricultural, and Biological Engineering****FABENG****Summer 2019 Term****5350 Sustainable Land and Water Systems****U G 2**

An interdisciplinary analysis of interactions of land and water systems, and how upstream management and behavior impacts downstream aquatic systems. A primary focus will be the analysis, comparison and solutions related to eutrophication of coastal systems. This will be supported with research in related disciplines, field experiences, and exploration of stakeholder viewpoints and behaviors.  
Prereq: One course in Biology, EarthSc, Econ, EEOB, Engr, Psych, or PubHlth, or equiv.; or Grad standing.

**General Studies****GENSTDS****Autumn 2019 Semester****1201.02T College Orientation for Transfer Students****U 1/2**

Introduction to the advanced steps and opportunities for success in a life-long journey of becoming an educated person as you integrate into the University and ATI communities.

**Health and Rehabilitation Sciences****HTHRHSC**

**Autumn 2019 Semester****5100 Introduction to Assistive Technology****U G 3**

Students learn how to develop and implement assistive technology (AT) devices and services. The course includes information on disability, computer access/technology, alternative and augmentative communication, electronic cognitive devices, driver's rehabilitation, low vision technologies, seating and wheeled mobility, electronic activities of daily living, and home automation.

Prereq: Permission of instructor.

**Law****LAW****Summer 2019 Term****6060 Analysis of Client Files for LL.M.****L 2**

Practice skills through a series of reading/writing based simulations. Each simulation will include a client file and short library of related materials. Students will review the designated materials and then complete an assigned task from a supervising attorney.

Prereq: Enrollment in LLM program.

**Mechanical Engineering****MECHENG****Autumn 2019 Semester****6661 Advanced CAE Simulation for Structural Design****G 4**

Advanced FE modeling of nonlinear structural problems; min. weight design and topology optimization. Includes boundary, geometric and material nonlinearities, both rate independent and dependent. The emphasis is on modeling decision making and validation. This is not a traditional FE theory class but a hands-on, software-intensive modeling and simulation class with a significant lab component.

Prereq: 5139; or Grad standing in AeroEng, CivilEn, MatScEn, or MechEng.

**Microbial Infection and Immunity****MII****Autumn 2019 Semester****4998 Undergraduate Research in Microbial Infection and Immunity****U 1 - 5**

This course provides an opportunity for individualized study in the fields microbial infection and immunity. This research-focused course will allow students the opportunity to participate in a research environment under the supervision of one of the department's faculty members.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.

**Autumn 2019 Semester****5100 Current Topics in Virus-Host Interactions****U G 1**

Weekly members of the Viruses and Emerging Pathogens thematic area of the OSU Infectious Disease Institute will present a seminar on their cutting-edge virology research followed by a discussion. Topics will include basic virology, antiviral immunity, vaccines, viral pathogenesis, and virus discovery.

Prereq: Micrbio 3704 or 5149, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**Autumn 2019 Semester****7400 Current Topics in Virus-Host Interactions****G 1**

Weekly members of the Viruses and Emerging Pathogens thematic area of the OSU Infections Disease Institute will present a seminar on their cutting-edge virology research followed by a discussion. Topics will include basic virology, antiviral immunity, vaccines, viral pathogenesis, and virus discovery.

Prereq: BSGP 7000 or equiv., or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**Molecular Genetics****MOLGEN**

**Autumn 2019 Semester****2690 Genes and Society****U 3**

This team taught, interdisciplinary course (crosslisted as PHILOS 2690) provide science-based exposure to topics in classical and modern genetics but with an emphasis on social and ethical issues. Together we will discuss what genes are, and how they work, and how your genome influences traits and behaviors in the context of social beliefs and philosophy.

Prereq: Not open to students with credit for Philos 2690. Cross-listed in Philos.

**Nursing Advancement****NRSADV****Summer 2019 Term****3116 Evidence-Based Coaching in Interprofessional Practice****U 3**

Introduction to evidence-based coaching approaches for lifestyle behavior change as integrated within interprofessional practice.

Prereq: Enrollment in Primary Care Workforce Development Certificate (Category 1b), or Registered Nurses (RNs) in Primary Care Workforce Development Certificate (Category 4); or permission of instructor.

**Optometry****OPTOM****Summer 2019 Term****6440.02 Ophthalmic Dispensing****O 1 - 6**

Clinical experience in ophthalmic design and dispensing; education and experience in dispensary management.

Prereq: 2nd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**Summer 2019 Term****6450.07 Community Outreach****O 1 - 12**

Clinical experience in specialized phases of eyecare: community outreach.

Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**Summer 2019 Term****7450.04 Student Health Care****O 1 - 12**

Clinical experience in specialized phases of eyecare: student health care.

Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**Philosophy****PHILOS****Autumn 2019 Semester****2690 Genes and Society****U 3**

This team taught, interdisciplinary course (crosslisted as MOLGEN 2690) provides science-based exposure to topics in classical and modern genetics but with an emphasis on social and ethical issues. Together we will discuss what genes are, and how they work, and how your genome influences traits and behaviors in the context of social beliefs and philosophy.

Prereq: Not open to students with credit for MolGen 2690. Cross-listed in MolGen.

**Physical Therapy****PHYSTHR****Autumn 2019 Semester****6489 Acute Care Integrated Clinical Experience****G 1/2**

This course is designed to provide the student with an integrated clinical experience reflecting didactic preparation to date. This is a part time acute care clinical experience at an affiliated inpatient acute care facility with the goal of practicing techniques from the acute care components of the curriculum and documentation.

Prereq: Enrollment in the Doctorate in Physical Therapy program. This course is graded S/U.

**Public Affairs, John Glenn College****PUBAFRS**

**Autumn 2019 Semester**

**5506 Administration of Criminal Justice Policy**

**U G 3**

Students will become familiar with the structure of the criminal justice system and the application of public management and organizations theory to the criminal justice system. Many of the applications will focus on Ohio, but the theories and concepts are broadly applicable to the American system of criminal justice.

**Autumn 2019 Semester**

**6530 Negotiation for the Public Sector**

**G 1**

Negotiation skills have been identified as critical for effective, successful public management and leadership. Explores the major concepts and theories of negotiation to improve negotiation skills. Through readings, role play exercises and class discussion, students develop an understanding of individual negotiation styles and core approaches to negotiation and dispute resolution.  
Prereq: Grad standing, or permission of instructor.

**Public Health**

**PUBHLTH**

**Autumn 2019 Semester**

**3998 Undergraduate Public Health Research Seminar**

**U 2**

This seminar is designed for undergraduate students that are public health majors or pre-majors that are considering getting involved with research. In this seminar, students will learn about broad categories of research (for example, human subjects versus laboratory) and the ethical considerations for different types of research studies.

Prereq: Enrollment in the Public Health major or pre-major, or permission of instructor. This course is graded S/U.

**Autumn 2019 Semester**

**7015 Public Health Data Analytics II**

**G 3**

The focus of this course is on the appreciation of data analytics as applied to current and emerging public health issues.

Prereq: 5015, or permission of instructor.

**Respiratory Therapy**

**RESPTHR**

**Autumn 2019 Semester**

**7700 Ethical Issues in Advanced Practice**

**G 2**

Focus on ethical issues in advanced Respiratory Therapy practice. Ethical principles, case studies and simulated clinical scenarios in advanced respiratory care will be reviewed as students develop skills in analyzing, synthesizing and integrating ethics to support their positions.

Prereq: Enrollment in Master of Respiratory Therapy (MRT) program.

**Slavic Languages and Literatures**

**SLAVIC**

**Autumn 2019 Semester**

**2365.99 Sports, Socialists, and Society in Russia and Eastern Europe (Online)**

**U 3**

This course looks at the development of sports as a substitute and arena for battle between countries, as well as the rise of sports culture more generally in Central and Eastern Europe in terms of nationhood, politics, and corporeality. In this course, students will learn about the history and culture of sports, spectatorship, fandom, the Cold War, and Central and Eastern Europe.

GE cultures and ideas and diversity global studies course.

**Speech and Hearing Science**

**SPHHRNG**

**Autumn 2019 Semester**

**6751 Clinical Seminar in Speech and Language Disorders I**

**G 1**

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.  
This course is graded S/U.

**Autumn 2019 Semester**

**6752 Clinical Seminar in Speech and Language Disorders II**

**G 1**

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.  
Prereq: 6751. This course is graded S/U.

**Autumn 2019 Semester**

**6753 Clinical Seminar in Speech and Language Disorders III**

**G 1**

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.  
Prereq: 6752. This course is graded S/U.

**Autumn 2019 Semester**

**6754 Clinical Seminar in Speech and Language Disorders IV**

**G 1**

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.  
Prereq: 6753. This course is graded S/U.

**Autumn 2019 Semester**

**6755 Clinical Seminar in Speech and Language Disorders V**

**G 2**

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.  
Prereq: 6754. This course is graded S/U.

**Autumn 2019 Semester**

**6770 Topics in Pediatric Medical Speech-Language Pathology**

**G 2**

Introduction to specialty topics related to complex pediatric medical conditions and their relevance to speech-language pathologists in all clinical settings.  
Prereq: 6761, 6762, 6763, and 6764.

**Remove from Limbo**

**Geography**

**GEOG**

**Autumn 2019 Semester**

**8902 Applied Climatology**

**G 3**

Analysis of climatic and environmental change on various time scales; human impact on climate; theory and application of long-range and climate forecasting.  
Prereq: 5941 (623.01) or permission of instructor. Not open to students with credit for 823.

**History of Art**

**HISTART**

**Autumn 2019 Semester**

**4630 American Art**

**U 3**

A study of architecture, painting, and sculpture in America.  
Prereq: Soph standing, and 2002 (202), and English 1110 (110). Not open to students with credit for 330 or 530. GE VPA course.

**Kinesiology: Sport, Fitness, and Health Program**

KNSFHP

**Autumn 2019 Semester****1151 Strength Training II****U 1**

Strength and power training; advanced anaerobic and speed conditioning.

Prereq: 1148.04 or 1149.04, or EduPAES 1148.04 or 1149.04, or equiv. Repeatable to a maximum of 2 cr hrs or 3 completions.

**Music**

MUSIC

**Autumn 2019 Semester****7740 Studies in Music before 1600****G 3**

Introduction to scholarly issues in the music of the Middle Ages and the Renaissance.

Prereq: 2243 (243) or equiv, 4531 (531) or equiv; and grad standing. Not open to students with credit for 740 or 741.

**Veterinary Clinical Sciences**

VETCLIN

**Summer 2019 Term****8844.12 Advanced Large Animal Internal Medicine: Toxicology****G 1**

Review and update on toxic agents in large animals.

Prereq: DVM or equiv; or permission of instructor.

**Remove from Withdrawal****Occupational Therapy**

OCCTHER

**Summer 2019 Term****6230 Orthopedics in Occupational Therapy****G 4**

Students will use their knowledge of anatomy, kinesiology, client factors, and medical conditions to better analyze the occupations and performance skills of adults with orthopedic and musculoskeletal conditions.

Prereq: Enrollment in the Doctorate of Occupational Therapy program.

**Update Course****Advanced Computing Center for the Arts and Design**

ACCAD

**Autumn 2019 Semester****5002 3D Computer Animation: Form, Light and Motion I****U G 3**

Overview of 3D computer animation components and stages of production.

Prereq: 5001 for students enrolled in the MIP (Moving Image Production) program.

**Aeronautical and Astronautical Engineering**

AEROENG

**Autumn 2019 Semester****4517 Design of Space Vehicles and Systems I****U 3**

Feasibility study of a space mission, elements of mission design and design methodologies of spacecraft subsystems, and preliminary sizing.

Prereq: 3521 and 3543 and 3570 and 3580, and Sr standing, and enrollment as AeroEng-BS student (No pre-majors can enroll in this course). Prereq or concur: 4550.

Components: LEC LAB

**Spring 2020 Semester****4518 Design of Space Vehicles and Systems II****U 3**

Continuation of 4517: Preliminary and detailed design of space vehicle components. Design of a space vehicle/system, and mission scenarios simulation via computer software.  
 Prereq: 4517, and enrollment as AeroEng-BS student (No pre-majors can enroll in this course).

Components: LEC LAB  
 REC

**Business Admin: Finance****BUSFIN****Autumn 2019 Semester****7200 Financial Software Applications****G 3**

This hands-on course covers the application of financial software tools and financial modeling. Exposure to real world applications used in corporate finance, investment banking, private equity, and asset management. Apply models relating to project analysis, capital budgeting, financial statement analysis, equity intrinsic values, capital structure, portfolio mgmt, leveraged buyouts, and M&A.

Prereq: MBA 6223, or enrollment in SMB-Finance program.

**Business Admin: Management & Human Rsrcs****BUSMHR****Autumn 2019 Semester****7244 Negotiations****G 3**

Highlight the components of an effective negotiation and teach students to analyze their own behavior in negotiations. Largely experiential, course provides students with an opportunity to develop their skills by participating in negotiations and integrating their experiences with the principles presented in the assigned readings and course discussions.

Prereq: Enrollment in Fisher College of Business graduate programs. Not open to students with credit for 7240, 7241, or 7345.

**Communication****COMM****Autumn 2019 Semester****2131 Business and Professional Speaking****U 3**

Train students in public speaking and developing interpersonal skills for business and the professions.

Campus: COL MRN

**Electrical and Computer Engineering****ECE****Summer 2019 Term****5023 Introduction to Data Converters and Phase-Locked Loops****U G 3**

This course focuses on fundamentals of data converters and timing circuits, including discrete-time analog/mixed signal analysis and signal conditioning for asynchronous and synchronous computing. The topics include analog switches, sampling circuits, switched-capacitor amplifiers and filters, ADCs, DACs, PLLs, DLLs and discrete-time neural networks.

Prereq: 4021, or Grad standing in Engr or Physics.

**Autumn 2019 Semester****5037 Solid State Electronics and Photonics Laboratory****U G 4**

Introduction to laboratory techniques for semiconductor device fabrication including photolithography, oxidation, diffusion, chemical processes, reactive ion etching, and metallization; fabrication and measurements of visible light emitting diodes (LED) and GaN High Electron Mobility Transistor (HEMT).

Prereq or concur: 3030, and acceptance in ECE, MSE or EngPhysics major; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.

### Autumn 2019 Semester

#### 5833 Organic and Printed Flexible Electronics

U G 3

Conducting organic small molecules and polymers (structural, optical and electrical properties); printable metal-oxide semiconductors; Printing techniques, organic light emitting diodes; transport and carrier injection; organic transistors; organic lasers.

Prereq: 3030, or permission of instructor for non-ECE majors; or Grad standing in engineering, biological sciences, or math and physical sciences. Not open to students with credit for 7833 or 5194.04.

### Summer 2019 Term

#### 7020 Advanced Data Converters and Phase-Locked Loops

G 3

A comprehensive overview of the most recent system architectures of data converters and phase-locked loops.

Provides a good understanding how performance specifications and process technology limitations lead to implementation decisions. The presented principles are illustrated by examples and real life case studies.

Prereq: 5021 or 5023, or permission of instructor.

## Environment and Natural Resources

ENR

### Autumn 2019 Semester

#### 5210 US Environmental Impact Assessment

U G 3

Study of impact of human activity in natural resources through evaluation of environmental impact.

Prereq: Jr, Sr, or Grad standing.

### Autumn 2019 Semester

#### 5270 Soil Fertility

U G 3

Provides a broad overview of the principles of soil fertility, plant nutrition, & nutrient management in managed ecosystems. Covers foundational information on the cycling of individual nutrients in soil, including the biotic and abiotic factors that influence these dynamics. Exposure to many contemporary issues around nutrient management and basic practical skills for managing nutrients.

Prereq: 3000, or Grad standing, or permission of instructor.

### Autumn 2019 Semester

#### 7520 Environmental Science and Law

G 3

This course introduces students to the laws and legal systems that address environmental issues, with an emphasis on the significance of science and technology. Interdisciplinary case-studies will complement the coursework.

Prereq: 4000, or Grad standing, or permission of instructor.

## Entomology

ENTMLGY

### Autumn 2019 Semester

#### 1101 Insect Biology

U 4

Acquaints people with the incredible biological diversity represented by the largest group of living animals, the insects. Insects will be used to illustrate important biological principles and functions as well as the scientific process.

Prereq: Not open to students with credit for 1111, 3000, 4000, or 4600. GE nat sci bio course.

*Campus: COL NWK*

## Environmental Engineering

ENVENG

### Autumn 2019 Semester

#### 5218 Measurement and Modeling of Climate Change

U G 3

A study of the atmospheric boundary layer, its interaction with the land surface and vegetation in particular, and hand-on experience with micrometeorological and eddy-covariance instrumentation and data analysis.

Prereq: CivilEn 2060, and CSE 1221 or 1222 or Engr 1221, and enrollment in the CivilEn or EnvEng major program; or Grad standing; or permission of instructor.

## Food Science and Technology

FDSCTE

**Autumn 2019 Semester**

**5600 Food Chemistry**

**U G 3**

Describe the sources and compositions of food components. Develop a relationship between the composition of the individual food components and their chemical and physical properties. Understanding the chemistry of food components during processing and storage.

Prereq: 2400 and Chem 2510, or Grad standing. Prereq or concur: Biochem 4511.

**Autumn 2019 Semester**

**5730 Technical Problem Solving**

**U G 3**

Analysis of technical problems in food science; fostering creative thinking to the approach and solution of problems; preparation and oral presentation of paper.

Prereq: 5600 or 5710, and 5536 or 4536, and 5400, 5410, 5420, 5430, 5450, or MeatSci 4510, and Sr standing; or Grad standing.

**French**

**FRENCH**

**Summer 2019 Term**

**1803.03 Global May Paris**

**U 3**

This course is on the cultural history of the city of Paris, it takes places on a study abroad trip to Paris in May.

Prereq: Not open to students with credit for 1803.01. GE cultures and ideas course.

**Industrial and Systems Engineering**

**ISE**

**Summer 2019 Term**

**4999 Undergraduate Research for Thesis**

**U 1 - 4**

Opportunity for undergraduates to conduct research in Integrated Systems Engineering.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

**Law**

**LAW**

**Autumn 2019 Semester**

**8896.60 Sem: Transitional Justice**

**L 2**

This seminar will explore the diverse range of transitional justice mechanisms in post-conflict societies and compare and analyze them in view of various demands for justice.

**Mathematics**

**MATH**

**Autumn 2019 Semester**

**3345 Foundations of Higher Mathematics**

**U 3**

*Campus: COL LMA MRN*

Introduction to logic, proof techniques, set theory, number theory, real numbers.

Prereq: Major or minor in Math, CSE, CIS, ECE, IMME, STAT, STEMED-PRE or STEMED-BS, and:

If Math, IMME, STAT, STEMED-PRE or STEMED-BS:

Prereq: A grade of C- or above in 2153, 2162.xx, 2173, or 2182H.

If CIS, CSE or ECE:

Prereq: A grade of C- or above in CSE 2321; and a grade of C- or above in 1161.xx, 1172, 1181H, 1534, 1544,

1152, or 4181H.

**Optometry**

**OPTOM**

**Summer 2019 Term**

**6450.02 Advanced Ophthalmic Dispensing**

**O 1 - 6**

Ophthalmic Dispensing: Advanced clinical experience in ophthalmic design, dispensing, and dispensary management.

Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**Summer 2019 Term****7190 Intermediate Clinical Diagnostic Reasoning in Optometry****O 1**

Using a problem-based learning format, optometric cases will be utilized to further develop clinical diagnostic and management skills requiring basic and clinical science integration.

Prereq: 3rd yr standing in Optom.

**Summer 2019 Term****7450.12 Practice-based Care****O 1 - 12**

Clinical experience in specialized phases of eyecare: practice-based care.

Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**Public Affairs, John Glenn College****PUBAFRS****Spring 2020 Semester****6045 Fundamentals of Budgeting and Financial Administration****G 2**

Focuses on planning and financial decision-making in public and nonprofit organizations. It provides a higher-level understanding of government and nonprofit budgeting processes.

**Summer 2020 Term****7573 Qualitative Methods for Public Policy and Management****G 3**

Explores qualitative decision-making methods specific to public affairs context using statistics, economics, public budgeting, finance, policy, and modeling theories.

Repeatable to a maximum of 6 cr hrs.

**Public Health: Environmental Health Sciences****PUBHEHS****Autumn 2019 Semester****7375 Quantitative Microbial Risk Analysis Modeling****G 3**

This course will outline the fundamental sciences and their application in microbial risk modeling. Students will engage in lectures and project-based learning culminating in a functioning microbial risk model.

Prereq: Grad level Stat course, or permission of instructor.

**Social Work****SOCWORK****Autumn 2019 Semester****4188.02 Undergraduate Field Seminar****U 2**

Integration of knowledge and practice; problem solving and discussion of social work practice issues, values, and ethics. Taken concurrently with field practicum.

Prereq: 3502. Concur: 4189.

**Theatre****THEATRE****Autumn 2019 Semester****5961 Playwriting****U G 3***Campus: COL LMA*

Students will write 10-minute plays as exploratory exercises, analyze contemporary plays to deepen familiarity with the theatrical form, and, as a final project, write a one-act play which will receive a staged reading. Seminar and Workshop.

**Withdraw Course****Computer Science and Engineering****CSE**

**Autumn 2019 Semester**

**4254 Programming in Lisp**

**U 1**

Lisp programming for students well-versed in programming with another language.  
Prereq: 2231. Not open to students with credit for 459.31. This course is graded S/U.

**Autumn 2019 Semester**

**4255 Programming in Perl**

**U 1**

Syntax and pragmatics of Perl programming; Perl mechanisms for text and file processing, scripting, client-server programming, etc.; powerful ways to combine these mechanisms.  
Prereq: 2231, 2331, and 2421. Not open to students with credit for 459.51. This course is graded S/U. Cross-listed in ISE 5811.

**Nursing**

**NURSING**

**Autumn 2019 Semester**

**7200 Adult Acute Care Nurse Practitioner Skills**

**G 2**

Development of essential skills for assessment, monitoring and management of acutely and critically ill adults.  
Prereq: 7450 (704) and 7410 (705). Not open to students with credit for 835.