

CONSTRUCTION MANAGEMENT

Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.

More Info (<http://registrar.ufl.edu/soc/>)

Courses at the University of Florida, with the exception of specific foreign language courses and courses in the online Master of Arts in Mass Communication program, are taught in English.

School Information

The mission of the M. E. Rinker, Sr. School of Construction Management is to be the center of excellence for construction. The Rinker School will pursue this by promoting professional and ethical behavior in education and practice, advancing the industry by creating new knowledge through research and scholarly activities, educating individuals in principles, knowledge, and skills required to be successful in their professional careers, and providing service and transferring knowledge to the citizens of Florida, the construction industry, professional societies, the nation, and the world.

Website (<https://dcp.ufl.edu/rinker/>)

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Curriculum

- Combination Degrees
- Construction Management
- Construction Management Certificate
- Emergency Management Certificate
- Emergency Medical Services Management Certificate
- Fire and Emergency Services UF Online
- Senior Fire Officer Certificate

Courses

BCN 1001 Introduction to Construction Management 1 Credit

Grading Scheme: S/U

Familiarizes pre-construction students with the nature and functioning of the construction industry and the building construction curriculum. Emphasizes the specific safety regulations pertaining to the construction industry. (S-U)

BCN 1210 Construction Materials 3 Credits

Grading Scheme: Letter Grade

Sources, properties and uses of construction materials.

BCN 1251C Construction Drawing 3 Credits

Grading Scheme: Letter Grade

Provides basic working knowledge of architectural graphics, practice in instrumental drawing and experience in free hand sketching.

BCN 1582 International Sustainable Development 3 Credits

Grading Scheme: Letter Grade

An overview of international trends in reducing the environmental impacts of land development and construction. Surveys best practices in a dozen countries around the world. (N and S)

Attributes: General Education - International, General Education - Social Science

BCN 2405C Construction Mechanics 4 Credits

Grading Scheme: Letter Grade

Introduces the evaluation of structural behavior as it relates to buildings, the properties of structural materials and the structural behavior of load-resisting members. Primarily for building construction majors.

Prerequisite: PHY 2004 and PHY 2004L.

BCN 3012 History of Construction 3 Credits

Grading Scheme: Letter Grade

Traces Western building technology from prehistoric man to the present. Development of the art and science of building. (H and N)

Attributes: General Education - Humanities, General Education - International

BCN 3027C Principles of Construction Management 3 Credits

Grading Scheme: Letter Grade

Examines the role of various players involved in the construction and the administration of a construction project. Importance of ethical conduct in all aspects of construction business and operations. Development of advanced writing and presentation skills for construction professionals.

Prerequisite: junior standing or higher or instructor permission.

BCN 3223C Soils and Concrete 3 Credits

Grading Scheme: Letter Grade

Studies the construction process to include soils, demolition, earth-moving equipment, foundations, concrete mix design and concrete placement techniques. Includes field visits and soils and concrete laboratories.

Prerequisite: BCN 1210 and BCN 2405C and BCN 3224C.

BCN 3224C Construction Techniques 3 Credits

Grading Scheme: Letter Grade

Studies the vertical construction process to include wooden platform frame construction, cast-in-place and pre-cast concrete construction and steel erection. Included are masonry construction, interior and exterior finishes, vertical transportation systems, roofing and other building components.

Prerequisite: BCN 1210 and BCN 1251C.

BCN 3240C Equipment and Methods for Heavy/Highway Construction 3 Credits

Grading Scheme: Letter Grade

Theory and practice of equipment utilization and construction methods. Analysis of costs through production rates. Optimizing crew and equipment. Labor and heavy equipment production. Earthwork (sitework) execution methods and inspection.

Prerequisite: junior standing or higher.

BCN 3255C Graphic Communication in Construction 3 Credits

Grading Scheme: Letter Grade

Studies construction communication tools, including the use of computer-aided drafting (applications of 4-D modeling in construction), blueprint reading, free hand sketching, model building, piece-based simulations and the Internet.

Prerequisite: BCN 1251C.

BCN 3281C Construction Methods Laboratory 2 Credits

Grading Scheme: Letter Grade

Construction aspects of surveying with field and classroom exercises in the use of transit, level, chain and related equipment.

BCN 3431C Structures 3 Credits

Grading Scheme: Letter Grade

Examines the material properties, code requirements, analysis and construction procedures for steel and reinforced concrete structures.

BCN 3521C Electrical Systems 2 Credits

Grading Scheme: Letter Grade

Principles and practices of electrical systems, including code provisions and cost estimations.

BCN 3611C Construction Estimating 1 3 Credits

Grading Scheme: Letter Grade

Classification of work, quantity survey techniques and basic estimating principles applied to simple construction projects.

Prerequisite: BCN 3027C and BCN 3224C and BCN 3255C.

BCN 3700 Construction Contracts 3 Credits

Grading Scheme: Letter Grade

Function of the construction industry, construction contracting practices and construction contracts and delivery methods.

Prerequisite: BCN 3027C.

BCN 3730 Construction, Safety, Health and the Environment 3 Credits

Grading Scheme: Letter Grade

Construction safety issues, concerns, requirements and procedures. The analysis includes costs, planning, administration, inspection, prevention, loss control and drug-free workplace. Understanding of the major health issues encountered on construction sites. Appreciation for the need to be environmentally responsible.

BCN 4105 Sustainable Housing: Putting the 3 E's into Residential Practice 3 Credits

Grading Scheme: Letter Grade

Sustainability is more than just building green; it's the balance and intersection of "the 3 e's:" environment, economics, and social equity. Examine approaches to advancing sustainable housing in ways that postindustrial residential planning and building practices have thus far neglected to address.

Prerequisite: junior standing or higher.

BCN 4237 Roofing Systems 3 Credits

Grading Scheme: Letter Grade

Studies and analyzes building various roof systems including design, materials, installation, inspection and maintenance. Includes damp-proofing and waterproofing techniques.

BCN 4252 Introduction to Building Information Modeling 3 Credits

Grading Scheme: Letter Grade

Learn current Building Information Modeling (BIM) software to identify design errors and improve the construction process.

Prerequisite: BCN 3255C.

BCN 4423C Temporary Structures 3 Credits

Grading Scheme: Letter Grade

Studies the temporary structures that contractors have to build in order to construct the primary structure. This includes formwork, scaffolding and equipment for hoisting materials, personnel and erecting structures.

Prerequisite: BCN 3431C and senior standing.

BCN 4510C Mechanical Systems 4 Credits

Grading Scheme: Letter Grade

Principles and practices of building piping systems, hydraulics and pumps, comfort conditioning systems for building, heating and refrigeration equipment, building code considerations, plan reading and cost estimation.

Prerequisite: senior standing.

BCN 4594 Building Energy Modeling 3 Credits

Grading Scheme: Letter Grade

As energy becomes a more precious commodity, it is crucial to design and operate high performance buildings. A solid foundation of energy engineering and sustainability principles is essential to achieving these higher performance standards.

Prerequisite: junior standing or higher.

BCN 4612C Construction Estimating 2 3 Credits

Grading Scheme: Letter Grade

Analysis and determination of cost of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for commercial construction projects. A cost-control system is introduced and implemented with sample field-generated problems.

Prerequisite: BCN 3611C and senior standing.

BCN 4709C Construction Project Management 3 Credits

Grading Scheme: Letter Grade

Understanding the various forms of project delivery methods (Design-Bid-Build, Design-Build, and Construction Management) and the underlying principles for choosing the appropriate system. Recognizing the complexity of the preconstruction process including conceptual estimating and scheduling, life cycle costing, constructability reviews, value engineering, risk management and special contract requirements. Understanding management and administration of a construction project.

Prerequisite: BCN 4612C and senior standing.

BCN 4712C Leadership and Management in Construction 3 Credits

Grading Scheme: Letter Grade

Leadership and management principles for construction professionals with a major emphasis on the diverse workforce, ethical issues in construction and the development of negotiation and conflict-resolution skills.

Prerequisite: senior standing.

BCN 4720 Construction Planning and Control 3 Credits

Grading Scheme: Letter Grade

Computer application of cost and manpower estimates as construction scheduling and management techniques.

Prerequisite: BCN 3611C and senior standing.

BCN 4723 Design-Build Delivery Methods 3 Credits

Grading Scheme: Letter Grade

Theory and practice of design-build contract delivery method. Includes an explanation of the history of design-build, the advantages and disadvantages of design-build as a delivery method and a thorough analysis of the major components of design and construction.

Prerequisite: junior standing or higher.

BCN 4753 Construction Finance 3 Credits

Grading Scheme: Letter Grade

Basic principles and applications of construction finance with an emphasis on the acquisition and management of construction loans, mortgages and construction accounting.

Prerequisite: senior standing.

BCN 4787C Construction Capstone Project 3 Credits**Grading Scheme:** Letter Grade

A construction project is simulated with each student being responsible for designing, developing, estimating, scheduling, contracting and administering the work for the completion of a small commercial, residential or light industrial project.

Prerequisite: BCN 4612C and BCN 4720 and BCN 4753 and senior standing.

BCN 4880 Management of Heavy/Highway Construction 3 Credits**Grading Scheme:** Letter Grade

Theory and practice of construction planning, methods and project management. Project control from conception through the construction phase: procurement of design professional, prime contractor, subcontractor, construction manager, project/program manager. Also includes definition of and delineation between each entity, construction contract types, delivery systems, heavy/highway plans reading, quality assurance/quality control, nuances of planning and bidding a unit price project, and project administration.

Prerequisite: junior standing or higher.

BCN 4905 Special Studies in Construction 1-4 Credits**Grading Scheme:** Letter Grade

Special areas of study in construction adjusted to the needs of individual students. Enrollment upon recommendation of director only.

BCN 4949 Construction Management Internship 3 Credits**Grading Scheme:** S/U

Minimum two-term employment in construction management. Requires advance approval. Internship work reports and oral presentation also required. (S-U)

BCN 4956 International Studies in Construction 1-4 Credits**Grading Scheme:** Letter Grade

Provides a mechanism by which coursework taken as part of an approved study abroad program can be recorded on the UF transcript and counted toward graduation. The course focus is on the construction industry in the host country. Course content varies and may address various construction issues including local construction techniques, construction materials and the influence on construction of the local culture, traditions, architecture, history and political climate.

EMS 1055 Emergency Medical Responder 3 Credits**Grading Scheme:** Letter Grade

Introduces a basic understanding of pre-hospital emergency medicine; explore issues in patient assessment, distinguishing medical scenarios from trauma scenarios, taking appropriate actions and precautionary measures to ensure patient safety, and treating a patient's injuries within the scope of their certification.

EMS 1055L Lab for Emergency Medical Responder 1 Credit**Grading Scheme:** Letter Grade

Practical applications of pre-hospital emergency medicine, including medical and trauma skills, basic anatomy, and physiology as related to EMR requirements. Practice the skills learned in the Emergency Medical Responder course. Offered only on UF main campus.

EMS 4315 Analytical Approaches to EMS 3 Credits**Grading Scheme:** Letter Grade

Focuses on the practice and principles of emergency medical services systems management, including effective daily operations within an EMS organization. Topics include purpose of analysis; analysis in parallel professions; problem identification; foundational analysis; data collection; financial analysis; cost-benefit analysis; policy and impact analysis; and project development.

Prerequisite: junior or senior standing.

FES 2941 Emergency Management Internship 3 Credits**Grading Scheme:** S/U

Gain experience in an emergency management situation to identify and apply best practices in the development of preparation, planning, responding, recovering, and mitigating disasters; participate in supervised disaster management work activities that provide experiential learning in emergency management.

FES 3004 Political and Legal Foundations of Fire Protection 3 Credits**Grading Scheme:** Letter Grade

Examines the legal aspects of fire service and the political and social impacts of legal issues; reviews the American legal system and covers legal and political issues involving employment and personnel matters, administration and operations, and planning and code enforcement with regard to the fire service.

Prerequisite: junior standing or higher.

FES 3015 Principles of Fire and Emergency Services Management 3 Credits**Grading Scheme:** Letter Grade

Fundamentals of management underlying the solution of problems of organization and operation of fire and emergency services agencies. (S) (WR)

Prerequisite: junior standing or higher.

Attributes: General Education - Social Science, Satisfies 6000 Words of Writing Requirement

FES 3033 Fire and Emergency Services Labor Issues 3 Credits**Grading Scheme:** Letter Grade

Determinants of demand for labor and labor supply. Labor market equilibrium and changes in the equilibrium due to changes in unionization, public policies and technology. Study of the effects of skill, job amenities and discrimination on wage differentials. A review of PERC, FSLA and unions is included.

Prerequisite: junior standing or higher.

FES 3153 FES Communication and Informational Technology 3 Credits**Grading Scheme:** Letter Grade

Communications systems used in fire and emergency services such as high frequency voice/data, Internets and Intranets, satellite communications, GPS and GIS. An introduction, examination, equipment assessment, implementation program and maintenance management module are provided for each system covered.

Prerequisite: junior standing or higher.

FES 3223 Foundations of EMS 3 Credits**Grading Scheme:** Letter Grade

Covers the design and operation of EMS systems, service delivery, and echelons of care. The history of EMS, interface of public and private organizations and review of the various personnel who comprise these systems, will be examined in relation to their impact on the health care delivery system.

Prerequisite: junior standing or higher.

FES 3227 Ambulance Operations 3 Credits**Grading Scheme:** Letter Grade

Overview of the application of management principles to the provision of medical transport services. Includes an analysis of the economic, geographic, temporal, and clinical characteristics of ambulance demand, the key processes for providing transport services, and an evaluation of industry best practices.

Prerequisite: junior standing or higher.

FES 3233 EMS Safety and Risk Management 3 Credits**Grading Scheme:** Letter Grade

Introduces the risk management principles of an EMS agency. Emphasizes safety from the perspective of the field provider.

Prerequisite: junior standing or higher.**FES 3263 Public Safety Educator 3 Credits****Grading Scheme:** Letter Grade

Introduces the EMS professional to the education system as it relates to EMS education. Explores issues in curriculum development, teaching, program direction, and development.

Prerequisite: junior or senior standing.**FES 3284 Management of Emergency Medical Services 3 Credits****Grading Scheme:** Letter Grade

Personnel and resource management issues in providing emergency medical services function. Quality assurance, utilization review techniques, and practices and techniques for delivery of services and distribution of resources are included.

Prerequisite: junior standing.**FES 3285 Advanced Leadership Issues in Emergency Medical Services 3 Credits****Grading Scheme:** Letter Grade

Organizational development issues in providing emergency medical services function in the fire-based, hospital-based and third-service environments. Establishing and directing emergency medical services' work teams is also covered.

Prerequisite: junior standing.**FES 3533 Community Risk Reduction for Emergency Services 3 Credits****Grading Scheme:** Letter Grade

Provides a theoretical framework for the understanding of the ethical, sociological, organizational, political, and legal components of community risk reduction, and a methodology for the development of a comprehensive community risk reduction plan.

Prerequisite: junior or senior standing.**FES 3720 Strategic Planning for FES 3 Credits****Grading Scheme:** Letter Grade

Provides the conceptual framework for the development of a strategic plan for emergency management, fire protection, and emergency medical service. Also provides guidance through the process of the needs, resources, and capabilities of the organization and how to establish a plan to achieve improved performance.

Prerequisite: junior standing.**FES 3753 Fire and Emergency Services Financial Management 3 Credits****Grading Scheme:** Letter Grade

Planning, developing, presenting, funding and implementing a budget for a fire and emergency services agency. Additional topics include special taxing districts, bond issues and fund-raising campaigns.

Prerequisite: junior standing.**FES 3755 Fire and Emergency Services Capital Equipment and Facilities 3 Credits****Grading Scheme:** Letter Grade

Procedures for the acquisition, utilization and disposition of fire and emergency services apparatus and station facilities. Specification and purchasing of apparatus are included. An examination of facility siting, building design and land acquisition and financing is conducted. Additional material addresses special capital purchases such as communications, safety and operational equipment.

Prerequisite: FES 3753 and junior standing.**FES 3780 Analytical Approaches to Fire Protection 3 Credits****Grading Scheme:** Letter Grade

Examines the tools and techniques of rational decision making in fire and emergency services agencies, including data collection, statistics, probability, decision analysis, utility modeling, resource allocation, and cost benefit analysis.

Prerequisite: junior or senior standing.**FES 3782 Applications of Fire Research 3 Credits****Grading Scheme:** Letter Grade

Examines methodology for analyzing fire-related research; provides a framework for independent research in fire dynamics, fire test standards, fire safety, fire modeling, structural fire safety, life-safety, firefighter safety, automatic detection and suppression, risk analysis and loss control, applied research, and fire-related research trends.

Prerequisite: junior or senior standing.**FES 3803 Multi-Agency Incident Command 3 Credits****Grading Scheme:** Letter Grade

Managing complex incidents that may require response from fire-rescue, emergency medical services, law enforcement and/or other public safety sectors. Use of the incident management system is emphasized.

Prerequisite: junior standing.**FES 3815 Command and Control at Catastrophic Fire-Rescue Incidents 3 Credits****Grading Scheme:** Letter Grade

Incident command at multiple-alarm incidents, emphasizing rapid fireground decision-making, safety, personnel accountability and communications. Settings for scenarios include multi-family occupancies, hotels, high-rises, healthcare facilities and large retail centers.

Prerequisite: junior standing.**FES 3822 Disaster Policy in Emergency Management 3 Credits****Grading Scheme:** Letter Grade

Describes the functional demands that emergency managers should be aware of in crafting effective emergency management plans, policies, and programs. Addresses how public policy choices impact emergency planning and the consequences of a disaster event. Emphasizes the emergency planning process.

Prerequisite: junior or senior standing.**FES 3823 Fire and Emergency Services Integrated Operations 3 Credits****Grading Scheme:** Letter Grade

The broad issues involved in comprehensive emergency management at the local level. The emergency management cycle of preparedness, mitigation, response and recovery is emphasized as are the legal, operational and administrative aspects of state and federal interface.

Prerequisite: junior standing.**FES 4003 Fire and Emergency Services Administration 3 Credits****Grading Scheme:** Letter Grade

Demonstrates the importance of persuasion and influence, budgeting, anticipation of challenges and change, and management tools for analyzing and solving problems; explores how the leadership of a fire and emergency services department develops internal and external cooperation to achieve the department's mission.

Prerequisite: junior or senior standing.

FES 4014 Foundations of Emergency Management 3 Credits**Grading Scheme:** Letter Grade

Examines the history and the principles establishing Emergency Management in the United States. Describes the "Four Phases of Emergency Management," relates processes to codes and laws governing Emergency Management, and examines Emergency Management and the terrorist threat.

Prerequisite: junior or senior standing.**FES 4023 Fire and Emergency Services Ethical Practices and Leadership 3 Credits****Grading Scheme:** Letter Grade

The role of agency leadership and its impact on the continuing professionalization of the fire and emergency services. Examines traditional and evolving definitions, practices and skills in leadership behavior, including discussions of power, influence, ethics and organizational behavior.

Prerequisite: senior standing.**FES 4034 Regulatory Issues in Fire and Emergency Services 3 Credits****Grading Scheme:** Letter Grade

Introduces safety, health and environmental regulations on the state and federal levels that impact the delivery of fire and emergency services. OSHA, EPA and NFPA regulatory requirements are introduced along with methods and techniques to implement compliance programs.

Prerequisite: FES 4003 and senior standing.**FES 4045 Fire and Emergency Services Human Resource Management 3 Credits****Grading Scheme:** Letter Grade

Major human resource management functional areas for fire and emergency services agencies. Topics include organizational employment planning, employment regulation, job analysis, performance assessment, recruitment and regulation, job analysis, performance assessment, recruitment and selection, training and development, employee/labor relations and compensation.

Prerequisite: FES 3015 and senior standing.**FES 4055 Fire and Emergency Services Public Relations 3 Credits****Grading Scheme:** Letter Grade

Implementation of principles and methods in advocating factual claims and policy proposals: propositional analysis, evidence as demonstration, effective reasoning processes and ethics in controversy. Also focuses on public speaking and presentations, especially in the areas of technology, defense of budgets and political leadership.

Prerequisite: senior standing.**FES 4224 Management of Mass Casualty Incidents 3 Credits****Grading Scheme:** Letter Grade

Covers systematic approaches to triage, treatment and transport in response to large-scale emergency medical services incidents. Resource planning and coordination with hospital systems is also emphasized.

Prerequisite: senior standing.**FES 4226 EMS Special Operations 3 Credits****Grading Scheme:** Letter Grade

Discusses the various special roles in which EMS personnel may serve, such as hazardous materials, water rescue, and technical rescue.

Prerequisite: junior or senior standing.**FES 4234 EMS Community Risk Reduction 3 Credits****Grading Scheme:** Letter Grade

Provides a theoretical framework for the understanding of the ethical, sociological, organizational, political, and legal components of community risk reduction, and a methodology for the development of a comprehensive community risk reduction plan.

Prerequisite: junior or senior standing.**FES 4244 Legal, Political, and Regulatory in EMS 3 Credits****Grading Scheme:** Letter Grade

Introduces the EMS professional to the legal aspects of Emergency Medical Services. Explores issues in malpractice, consent and refusal of treatment, OSHA, employment issues, and risk management. EMS students gain insights into the legal liabilities in Emergency Medical Services.

Prerequisite: junior or senior standing.**FES 4274 Quality Management and Research in Emergency Services 3 Credits****Grading Scheme:** Letter Grade

Introduces the EMS professional to benefits of quality improvement, the history of quality in EMS, measuring quality, and the uses of quality in EMS.

Prerequisite: junior or senior standing.**FES 4585 Management of Fire Prevention Programs 3 Credits****Grading Scheme:** Letter Grade

Planning, promoting and executing fire prevention functions, including an emphasis on legal responsibilities, needs assessments, negotiation and planning activities.

Prerequisite: senior standing.**FES 4685 Fire Investigation and Analysis 3 Credits****Grading Scheme:** Letter Grade

Examines the technical, investigative, legal, and social aspects of arson, including principles of incendiary fire analysis and detection, environmental and psychological factors of arson, legal considerations, intervention, and mitigation strategies.

Prerequisite: senior standing.**FES 4804 Disaster Recovery and Mitigation 3 Credits****Grading Scheme:** Letter Grade

Provides the opportunity to understand real world disaster response efforts through academic study and interactive applied activities. Topics include the Incident Command System (ICS), Emergency Operations Center (EOC) management, Resource Management (RM), and Command-Communications-Coordination (C3).

Prerequisite: junior or senior standing.**FES 4820 Critical Incident Management for Emergency Managers 3 Credits****Grading Scheme:** Letter Grade

Examines disaster planning and emergency management. Focuses on the four phases of planning, mitigation, response, and preparedness. Includes FEMA and federal government NIMS ICS-700 and ICS-800 certifications.

Prerequisite: junior or senior standing.

FES 4825 Disaster Planning and Control 3 Credits

Grading Scheme: Letter Grade

Examines concepts and principles of community risk assessment, planning and response to fires and natural and human-caused disasters, including National Incident Management System–Incident Command Systems (NIMS ICS), mutual aid and automatic response, training and preparedness, communications, civil disturbances, terrorist threats/incidents, hazardous materials planning, mass casualty incidents, earthquake preparedness, and disaster mitigation and recovery.

Prerequisite: FES 3823 and senior standing.

FES 4835 Natural Disaster Phenomena in Florida 3 Credits

Grading Scheme: Letter Grade

Natural disasters prevalent in Florida: past, present, and future, including hurricanes, flooding, freezes, and agricultural emergencies. Also addresses planning, operations, mitigation, recovery, and evaluation concerns.

Prerequisite: junior or senior standing.

FES 4884 Introduction to Terrorism in Emergency Management 3 Credits

Grading Scheme: Letter Grade

Introduces the fundamental concepts, theories, principles, and practice of terrorism and terrorist events.

Prerequisite: junior or senior standing.

FES 4905 Special Studies in Fire and Emergency Services 1-3 Credits

Grading Scheme: Letter Grade

Special areas of study in fire and emergency services adjusted to the needs of individual students.

Prerequisite: instructor permission.

FES 4935 Current Issues in Fire and Emergency Services 3 Credits

Grading Scheme: Letter Grade

Information and direction for fire service administrators on current legislative, legal, labor and/or technology concerns facing fire and emergency services agencies.

Prerequisite: senior standing.

FFP 4507 Management of Fire-Related Human Behavior 3 Credits

Grading Scheme: Letter Grade

Focuses on human behavior in emergencies; examines research on human behavior, systems models, life-safety education, and building design, exploring a best-practice building life-safety system in terms of psychology and sociology joined with engineering and education to produce best outcomes of human survivability in emergencies.

Prerequisite: Junior or Senior standing.
