

831 Pavement Design and Analysis II
Spring. 3(3-0)
Theoretical models for analysis of pavement systems. Evaluation and application of current design practices related to elastic and plastic theory. Formulation of improved design procedures.

835 Engineering Management of Pavement Networks
Spring of even years. 3(3-0)
Theoretical and statistical analysis of pavement networks. Engineering monitoring. Determination of distress mechanisms and engineering solutions. Assignment of priorities to engineering actions.

837 Civil Infrastructure Materials
Fall. 3(3-0)
Elastic and inelastic behavior and modeling of materials for civil infrastructure; design for desired properties and response of infrastructure components and systems. Constituents, manufacturing, stiffness, strength, failure, and durability of pavements, structural concretes, and fiber reinforced polymer composites.

841 Traffic Flow Theory
Spring. 3(3-0)
Microscopic and macroscopic traffic flow models, Queueing theory. Gap acceptance. Simulation models for network analysis. Intelligent vehicle highway systems.

843 Simulation and Optimization of Urban Traffic Flow
Fall of even years. 3(3-0) RB: (CE 841)
Statistical analysis of highway geometric designs and operational-control strategies with respect to the optimal flow of traffic: intersection, arterial, network design and control models. Traffic simulation. System management and optimization.

844 Highway and Traffic Safety
Fall of odd years. 3(3-0)
Analysis of highway geometric design alternatives and operational-control strategies with respect to accident probabilities. Statistical methods of pattern identification. Countermeasure selection and evaluation methodology. Risk management.

846 Statewide Transportation Network Evaluation
Spring of odd years. 3(3-0)
Transportation system measures, needs studies, sufficiency ratings. Cost allocation models, programming and budget constraints. Corridor analysis, transportation economics, demand elasticity.

847 Simulation Models for Transportation Applications
Fall of even years. 3(3-0)
Simulation models for analysis and optimization of transportation systems. Experimentation with planning and traffic simulation models for signal timing and capacity analysis.

849 Transportation Research Methods
Spring. 3(3-0)
Application and interpretation of quantitative methods and design of experiments for transportation research; ANOVA, non-parametric, discriminant analysis, factor analysis, multivariate regression, SPSS.

850 Intelligent Transportation Systems (ITS)
Fall of odd years. 3(3-0) RB: Traffic and Transportation engineering
Technical and policy aspects emerging from the application of advanced technologies to transportation problems. Intelligent Transportation Systems (ITS) user services requirements, available and emerging technologies, case studies of ongoing operational tests, legal institutional and planning issues related to ITS development and deployment.

851 Transportation and the Environment
Spring of even years. 3(3-0) RB: B.S. in Civil Engineering with emphasis on transportation or environmental engineering R: Open only to graduate students in the College of Engineering.
The impact of transportation systems on the environment. Elements of Environmental Impact Statements. Policy options and their consequences. Alternatives for reducing environmental impact.

872 Finite Element Method
Fall, Spring. 3(3-0) Interdepartmental with Mechanical Engineering. Administered by Department of Mechanical Engineering. SA: AE 809, MSM 809
Theory and application of the finite element method to the solution of continuum type problems in heat transfer, fluid mechanics, and stress analysis.

890 Independent Study in Civil Engineering
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to Civil Engineering master's students. Approval of department.
Research problems of limited scope not pertaining to thesis accomplished under CE 899 or CE 999.

891 Selected Topics in Civil Engineering
Fall, Spring, Summer. 2 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course.
Selected topics in new or developing areas of civil engineering.

892 Master's Research Project
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Open only to master's students in the Civil Engineering major. Approval of department.
Master's degree Plan B individual student research project. Original research, research replication, or survey and reporting on a research topic.

893 Master's Design Project
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to master's students in the Civil Engineering major. Approval of department.
Master's degree Plan B individual student civil engineering design project.

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 24 credits in all enrollments for this course.
Master's thesis research.

990 Independent Study in Civil Engineering
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to Civil Engineering doctoral students
Research problems of limited scope not pertaining to thesis accomplished under CE 999.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 72 credits in all enrollments for this course.
Doctoral dissertation research.

CLASSICAL STUDIES CLA

Department of French, Classics, and Italian College of Arts and Letters

120 Latin and Greek Roots of English Words
Spring. 3(3-0)
Prefixes, suffixes, and roots of English vocabulary from Greek and Latin word elements.

122 Latin and Greek Roots of Medical Terminology
Fall. 3(3-0)
Prefixes, suffixes, and roots of medical vocabulary from Greek and Latin word elements.

140 Greek and Roman Mythology
Fall. 3(3-0)
Introduction to Greek and Roman myths, with emphasis on myth as social discourse and as an influence on ancient poets and thinkers.

160 Myth, Legend, and J.R.R. Tolkien
Spring. 3(3-0)
Myth and myth-making in Tolkien's The Lord of the Rings and his other works. Ways of reading myth and legends that served as Tolkien's sources and inspiration.

190 Introduction to Classics
Fall of odd years. 3(3-0)
Introduction to classical Greek and Roman culture and to the methods of studying the ancient world. Topics from history, literature, epigraphy, papyrology, medicine, religion, and technology.

201 The Greek and Roman World in Film
Spring of even years. 3(3-0)
Portrayals of Greek and Roman cultures in film with emphasis on the interactions between the ancient and modern worlds.

292 Introduction to Ancient Studies
Fall. 2(1-2) Interdepartmental with Arts and Letters; History of Art; History. Administered by College of Arts and Letters.
Methods and current trends in the study of the Greek and Roman world. Visits to library and museum collections.

309 Greek Civilization
Fall. 3(3-0) SA: CLA 210
Survey of salient aspects of ancient Greek civilization and modern approaches to its study.

Classical Studies—CLA

- 310 Roman Civilization**
Spring. 3(3-0) SA: CLA 211
Survey of salient aspects of Roman civilization and modern approaches to its study.
- 333 Roman Law (W)**
Fall of even years. 3(3-0) P:M: Completion of Tier I writing requirement. R: Not open to freshmen.
Introduction to Roman private law using a case study approach.
- 360 Ancient Novel in English Translation (W)**
Spring of even years. 3(3-0) P:M: Completion of Tier I writing requirement. R: Not open to freshmen.
Ancient Greek and Roman novels. The role of popular literature in Greco-Roman society.
- 400 Senior Seminar: Women in Ancient Greece and Rome (W)**
Spring of odd years. 3(3-0) Interdepartmental with Women's Studies. P:M: Completion of Tier I writing requirement. R: Not open to freshmen or sophomores.
Image, role, and status of women in Greek society as seen through literary sources.
- 412 Senior Seminar: Greek & Roman Religion (W)**
Spring of even years. 3(3-0) P:M: Completion of Tier I writing requirement. R: Not open to freshmen and sophomores.
Study of Greek and Roman beliefs and cults with emphasis on society, politics and interactions of paganism and christianity.
- 460 Senior Seminar: Love and Desire in the Ancient World (W)**
Spring of even years. 3(3-0) P:M: Completion of Tier I writing requirement. R: Not open to freshmen and sophomores.
Greek and Roman conceptions, attitudes, beliefs and responses to love, sex and desire.
- 491 Topics in Classical Studies**
Spring of even years. 3(3-0) RB: (CLA 210)
R: Open only to juniors or seniors.
Special topics supplement regular course offerings.
- 499 Senior Thesis**
Fall, Spring. 1(1-0) P:M: (CLA 309 or CLA 310 or CLA 333 or CLA 360) R: Open only to seniors in Classical Studies. C: CLA 400 concurrently, CLA 416 concurrently, CLA 460 concurrently.
Senior thesis capstone under the direction of a faculty member.

COMMUNICATION COM

Department of Communication College of Communication Arts and Sciences

- 100 Human Communication**
Fall, Spring, Summer. 3(3-0)
Process and functions of communication. Principles underlying communication behavior. Practice in analyzing communication situations and in speaking and writing.
- 200 Methods of Communication Inquiry**
Fall, Spring, Summer. 4(4-0) RB: Completion of University mathematics requirement.
Nature and conduct of communication inquiry. Significant questions about communication and finding systematic answers.
- 225 An Introduction to Interpersonal Communication**
Fall, Spring, Summer. 3(3-0)
Principles and practices of interpersonal communication. Emphasis on effective and responsible interpersonal communication.
- 240 Introduction to Organizational Communication**
Fall, Spring, Summer. 4(4-0)
Theories, systems, structures and processes of organizational communication. Organizational cultures. Communication in multinational organizations and in individual, leadership, supervisor-subordinate and small group situations.
- 275 Effects of Mass Communication**
Fall, Spring, Summer. 3(3-0)
Major social effects of mass media on audience behavior. Political communication. Media effects on children. Message strategies producing attitude change. Interrelationships between mass media and interpersonal communication.
- 315 Information Gathering and Interviewing Theories**
Fall of odd years. 3(3-0) P:M: (COM 200 or concurrently) R: Open only to juniors or seniors in the Communication major.
Information gathering as a relational process. Interaction through the asking and answering of questions.
- 325 Interpersonal Influence and Conflict**
Fall, Spring. 3(3-0) P:M: (COM 200 or concurrently) R: Open only to juniors or seniors in the Colleges of Business, Communication Arts and Sciences, and Education.
Theories, processes and models of interpersonal influence and conflict. Conflict resolution, persuasion, and compliance-gaining.
- 340 Leadership and Group Communication**
Spring. 3(3-0) P:M: (COM 200) R: Open only to juniors or seniors in the Colleges of Business, Communication Arts and Sciences, and Education.
Theory and research on dyadic and group relations within organizations. Leadership, motivation, networks, decision making, and organizational taxonomy.

- 375 Audience Response to Media Entertainment**
Spring. 3(3-0) P:M: (COM 200) R: Open only to juniors or seniors in the Colleges of Business, Communication Arts and Sciences, and Education.
Theory and research on audience responses to media entertainment. Models of audience responses, reactions to violence in media, and children and the media.
- 391 Topics in Verbal, Intercultural, or Gender Communication**
Fall, Spring. 4(4-0) A student may earn a maximum of 8 credits in all enrollments for this course. P:M: (COM 200) RB: One 200 level course in Communication. R: Open only to juniors or seniors in the Colleges of Business, Communication Arts and Sciences, and Education.
Verbal interaction, cultural diversity or gender communication.
- 399 Special Topics in Communication**
Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (COM 200) R: Open only to juniors or seniors in the Colleges of Business, Communication Arts and Sciences, and Education.
Contemporary issues in communication.
- 425 Communication in Close Relationships (W)**
Fall, Spring. 4(4-0) P:M: (COM 225 or COM 325 or COM 200) RB: Completion of Tier I writing requirement. R: Open only to juniors or seniors or graduate students in the Department of Communication.
In-depth treatment of current research and of theoretical and methodological issues.
- 440 Organizational Communication Structure (W)**
Fall. 4(4-0) P:M: (COM 200 and COM 240) RB: Completion of Tier I writing requirement. R: Open only to juniors or seniors or graduate students in the Department of Communication.
Systems approaches to information processing and communication structures in organizations.
- 475 Communication Campaign Design and Analysis (W)**
Fall. 4(4-0) P:M: (COM 275 and COM 200) RB: Completion of Tier I writing requirement. R: Open only to juniors or seniors or graduate students in the Department of Communication.
Design and analysis of campaigns presented through mediated channels including electronic and print media.
- 490 Independent Study**
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Not open to freshmen or sophomores. Approval of department; application required.
Directed study under faculty supervision.
- 493 Internship**
Fall, Spring, Summer. 1 to 7 credits. A student may earn a maximum of 7 credits in all enrollments for this course. R: Open only to juniors or seniors in the Department of Communication. Approval of department; application required.
Supervised practical experience in a professional environment.