

- 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 of even years. 3(3-0)
Prefixes, suffixes, and roots of English 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.
- 210 Greek Civilization**
Fall. 3(3-0)
General survey of salient aspects of ancient Greek civilization and modern approaches to its study.
- 211 Roman Civilization**
Spring. 3(3-0) SA: CLA 310
Ancient Roman civilizations and modern approaches to their study.
- 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.
- 350 Greek and Roman Literature in English Translation**
Fall of even years. 3(3-0) R: Not open to freshmen.
Representative works of major Greek and Roman authors.
- 360 Ancient Novel in English Translation**
Spring of odd years. 3(3-0) R: Not open to freshmen.
Translation of the ancient Greek and Roman novel. Interpretation of assigned novels. The role of popular literature in Greco-Roman society.
- 400 Women in Classical Greek Society**
Spring of odd years. 3(3-0) Interdepartmental with Women's Studies. R: Not open to freshmen or sophomores.
Image, role, and status of women in Greek society as seen through literary sources.

Classical Studies-CLA

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. 3(3-0) RB: (LTN 402) R: Ap-
proval of department.
Scholarly research and writing with a focus on spe-
cific problems, under faculty supervision.

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: Comple-
tion of University mathematics requirement.
Nature and conduct of communication inquiry. Sig-
nificant questions about communication and finding
systematic answers.

**225 An Introduction to Interpersonal
Communication**
Fall, Spring, Summer. 3(3-0)
Principles and practices of interpersonal communi-
cation. Emphasis on effective and responsible inter-
personal communication.

**240 Introduction to Organizational
Communication**
Fall, Spring, Summer. 4(4-0)
Theories, systems, structures and processes of
organizational communication. Organizational cul-
tures. 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: (COM 200 or concur-
rently) R: Open only to juniors or seniors
in the Communication major.
Information gathering as a relational process. Inter-
action through the asking and answering of ques-
tions.

325 Interpersonal Influence and Conflict
Fall, Spring. 3(3-0) P: (COM 200 or concur-
rently) 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, persua-
sion, and compliance-gaining.

340 Leadership and Group Communication
Spring. 3(3-0) P: (COM 200) R: Open only
to juniors or seniors in the Colleges of Busi-
ness, Communication Arts and Sciences,
and Education.
Theory and research on dyadic and group relations
within organizations. Leadership, motivation, net-
works, decision making, and organizational taxon-
omy.

**375 Audience Response to Media
Entertainment**
Spring. 3(3-0) P: (COM 200) R: Open only
to juniors or seniors in the Colleges of Busi-
ness, Communication Arts and Sciences,
and Education.
Theory and research on audience responses to
media entertainment. Models of audience re-
sponses, reactions to violence in media, and chil-
dren 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: (COM 200) RB: One 200
level course in Communication. R: Open
only to juniors or seniors in the Colleges of
Business, Communication Arts and Sci-
ences, and Education.
Verbal interaction, cultural diversity or gender com-
munication.

399 Special Topics in Communication
Spring. 3(3-0) A student may earn a maxi-
mum of 6 credits in all enrollments for this
course. P: (COM 200) R: Open only to jun-
iors 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: (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 De-
partment of Communication.
In-depth treatment of current research and of theo-
retical and methodological issues.

**440 Organizational Communication Structure
(W)**
Fall. 4(4-0) P: (COM 200 and COM 240)
RB: Completion of Tier I writing require-
ment. 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: (COM 275 and COM 200)
RB: Completion of Tier I writing require-
ment. 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 stu-
dent may earn a maximum of 3 credits in all
enrollments for this course. R: Not open to
freshmen or sophomores. Approval of de-
partment; application required.
Directed study under faculty supervision.

493 Internship
Fall, Spring, Summer. 1 to 7 credits. A stu-
dent 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.

**494 Practicum in Communication Research
and Instruction**
Fall, Spring, Summer. 1 to 4 credits. A stu-
dent may earn a maximum of 6 credits in all
enrollments for this course. R: Open only to
sophomores or juniors or seniors in the De-
partment of Communication. Approval of
department; application required.
Structured participation in departmental research
teams and applied practice in the community.

800 Applied Communication Research I
Fall. 3(3-0)
Communication research methods and strategies
used commonly in practical research settings

801 Communication Research I
Fall. 4(4-0)
Communication research strategy and methodology.
Scientific process. Derivation and test of hypothe-
ses. Methods of research design.

802 Communication Research II
Spring. 4(4-0) RB: (COM 801)
Further consideration of communication research
strategy and methodology. Topics include systems
theory, cybernetics, and transactional approach.

815 Organizational Communication I
Fall. 3(3-0)
Emphasis on dyadic and group processes and
organizational intervention strategies. Topics include
managing diversity, organizational structure, and
communication productivity.

820 Communication Theory and Process
Fall. 3(3-0)
Role that theory plays in different areas of com-
munication scholarship.

**821 Mass Communication Theory and
Research**
Fall, Spring. 3(3-0) SA: TC 821
Current mass communication research and theories,
including exposure patterns, diffusion of news and
social effects of mass media.

828 Cross-Cultural Communication
Spring. 3(3-0)
Problems in communicating across cultural bounda-
ries, focusing on the processes, theories, and meth-
ods in the study of intercultural communication.

830 Applied Communication Research II
Spring. 3(3-0)
Thesis production. Reporting and evaluating the
results of communication research.