

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.

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 3 credits. 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. 3 to 5 credits. 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.

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.

CLASSICAL STUDIES CLA

Department of Romance and Classical Languages 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.

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)
Ancient Roman civilizations and modern approaches to their study.
SA: CLA 310

292. Introduction to Ancient Studies
Fall. 2(1-2) Interdepartmental with Arts and Letters; History of Art; and History. Administered by 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 and sophomores.
Image, role, and status of women in Greek society as seen through literary sources.

491. Topics in Classical Studies
Spring of even years. 3(3-0) P: CLA 210. R: Open only to juniors and seniors.
Special topics supplement regular course offerings.

499. Senior Thesis
Fall, Spring. 3(3-0) P: (LTN 402) R: Approval of department.
Scholarly research and writing with a focus on specific 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(3-2) P: 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) Interdepartmental with Telecommunication. Administered by Telecommunication. R: Not open to freshmen.
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) R: Open only to juniors or seniors.
Information gathering as a relational process. Interaction through the asking and answering of questions.

Descriptions—Communication of Courses

325. Interpersonal Influence and Conflict

Fall, Spring. 3(3-0) R: Open only to juniors or seniors.

Theories, processes and models of interpersonal influence and conflict. Topics include conflict resolution, persuasion, and compliance-gaining.

340. Leadership and Group Communication

Spring. 3(3-0) R: Open only to juniors or seniors.

Theory and research on dyadic and group relations within organizations. Topics include leadership, motivation, networks, decision making, and organizational taxonomy.

375. Audience Response to Media Entertainment

Spring. 3(3-0) R: Open only to juniors or seniors.

Theory and research on audience responses to media entertainment. Topics include models of audience responses, reactions to violence in media, and children and the media.

391. Topics in Verbal or Intercultural Communication

Fall. 4(4-0) A student may earn a maximum of 8 credits in all enrollments for this course. P: One 200 level course in Communication. R: Open only to juniors or seniors.

Topics in cultural diversity and verbal interaction.

399. Special Topics in Communication

Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to juniors or seniors.

Contemporary issues in communication.

425. Communication in Close Relationships (W)

Fall, Spring. 4(4-0) P: (COM 225 or COM 325) 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: (COM 240 and COM 340) 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.

460. Critical Perspectives in Communication

Spring. 4(4-0) P: One 200 level course in Communication. Completion of Tier I writing requirement. R: Not open to freshmen or sophomores.

Evaluation of efficacy of messages. Interdependence of communication and other societal factors, emphasizing criteria for ethical and social appropriateness.

475. Communication Campaign Design and Analysis (W)

Fall. 4(4-0) P: (COM 275) 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.

494. Practicum in Communication Research and Instruction

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to sophomores or juniors or seniors in the Department of Communication. Approval of department; application required.

Structured participation in departmental research teams and applied practice in the community.

800. Communication Programs and Evaluation

Fall. 3(3-0)

Communication audits, training and development, and focus groups as they apply to the evaluation of communication programs and institutions. Related topics include interviewing, questionnaire design and formative evaluation.

801. Communication Research I

Fall. 4(4-0)

Communication research strategy and methodology. Scientific process. Derivation and test of hypotheses. Methods of research design.

802. Communication Research II

Spring. 4(4-0) P: 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)

Theoretical models of communication with emphasis on the applications of communication theory to various professional communication areas.

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Fall. 3(3-0)

Theoretical models of communication with emphasis on the applications of communication theory to various professional communication areas.

828. Cross-Cultural Communication

Spring. 3(3-0)

Problems in communicating across cultural boundaries. Role of communication in the economic, social, and political development of less developed countries.

855. Codes and Code Systems

Spring. 4(4-0)

Structure and function of verbal and nonverbal communication. Relationship between discourse and context. Generation of meaning through interaction.

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Structure and function of verbal and nonverbal communication. Relationship between discourse and context. Generation of meaning through interaction.

860. Persuasion

Fall. 3(3-0)

Use of messages to gain compliance and effect social change. Persuasion and attitude change from classical theories to contemporary situations.

890. Independent Study

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Approval of department.

Individualized study under faculty direction.

893. Internship

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in Communication.

Supervised experience in an applied-communication setting.

899. Master's Thesis Research

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 14 credits in all enrollments for this course. R: Open only to graduate students in Communication.

901. Communication Research Design I

Fall. 4(4-0) P: One introductory research design or statistics course.

Methods of data collection and analysis. Writing and critiquing research reports.

902. Communication Research Design II

Spring. 4(4-0) P: COM 901. R: Open only to graduate students.

Further study of methods of data collection and analysis. Writing and critiquing research reports.

915. Organizational Communication II

Spring of odd years. 3(3-0) P: (COM 815)

Organizational communication structure and information processing. The organization's embeddedness in a larger social environment.

921. Micro and Macro Media

Fall of odd years. 3(3-0)

Perspectives on media processes pertaining to individuals, groups, and large-scale systems. Topics include cognitive processing of media, public opinion and affective responses to media.

922. Interpersonal Communication
Fall. 3(3-0)

Theory and research in interpersonal communication. Role of communication in processes such as interpersonal influence and relationship development.

990. Independent Study

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in Communication. Approval of department.

Individualized study under faculty direction.

999. Doctoral Dissertation Research

Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Ph.D. students in Communication.

**COMMUNICATION ARTS
AND SCIENCES CAS**

**College of Communication Arts
and Sciences**

192. Environmental Issues Seminar

Fall, Spring. 1(1-0) A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Natural Science; Agriculture and Natural Resources; Engineering; and Social Science. Administered by Natural Science. R: Open only to students in the College of Agriculture and Natural Resources or College of Engineering or College of Natural Science or College of Communication Arts and Sciences or College of Social Science. Approval of college.

Environmental issues and problems explored from a variety of perspectives, including legal, scientific, historical, political, socio-economic, and technical points of view.

492. Special Topics

Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 16 credits in all enrollments for this course. R: Approval of college.

Varied topics pertaining to the study of communication processes.

825. Mass Communication and Public Health

Fall. 3(3-0) RB: Academic or professional background in mass communication and/or health. Health communication campaigns in domestic and international contexts. Focus on principles of effective communication.

826. Health Communication for Diverse Populations

Spring. 3(3-0) RB: Academic or professional background in mass communication and/or health. Theory, research, and practice of communicating with specialized populations in clinical and public health contexts. Emphasis on interpersonal and small-group strategies.

892. Special Topics

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 16 credits in all enrollments for this course. R: Open only to graduate students in the College of Communication Arts and Sciences or approval of college.

Varied topics pertaining to advanced study of communication processes.

992. Doctoral Seminar

Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course. R: Open only to Ph.D. students in Mass Media and Communication or approval of college.

Topics on theoretical and research issues in communication and mass media.

993. Research Internship

Fall, Spring, Summer. 1 credit. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to Ph.D. students in Mass Media.

Participation in faculty research projects.

999. Doctoral Dissertation Research

Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Ph.D. students in Mass Media.

**COMPUTER SCIENCE
AND ENGINEERING CSE**

**Department of Computer Science
and Engineering
College of Engineering**

101. Computing Concepts and Competencies

Fall, Spring, Summer. 3(2-2)

Core concepts in computing including information storage, retrieval, management, and representation. Applications from specific disciplines. Applying core concepts to design and implement solutions to various focal problems, using hardware, multimedia software, communication and networks.

SA: CSE 100, CSE 130

131. Introduction to Technical Computing

Fall, Spring. 3(2-2)

Use of computing systems for technical communications and problem solving in engineering, mathematics, and science. Development and use of mathematical models suitable for computer representation, solution, graphical display, and animation.

SA: CPS 131

231. Introduction to Programming I

Fall, Spring. 4(3-2) P: (LBS 118 or MTH 124 or MTH 132 or MTH 152H) RB: (CSE 131)

Introduction to object-centered programming using C++. Design, implementation and testing of programs to solve problems in engineering, mathematics and science. Programming fundamentals, functions, classes, arrays, and pointers.

SA: CSE 230

232. Introduction to Programming II

Fall, Spring. 4(3-2) P: (CSE 231)

Continuation of object-centered programming using C++; development of classes and reliable software. Data structures and their encapsulation; stacks, queues, lists, trees, and hash tables. Algorithms operating on data structures. Object-oriented design and programming.

SA: CSE 330

260. Discrete Structures in Computer Science

Fall, Spring. 4(4-0) P: (MTH 133 or MTH 126 or MTH 153H or LBS 119)

Propositional and first order logic. Equivalence, inference and method of proof. Mathematical induction, diagonalization principle. Basic counting. Set operations, relations, functions. Grammars and finite state automata. Boolean algebra. Truth tables and minimization of Boolean expressions. Applications to computer science and engineering.

SA: CPS 260

290. Independent Study in Computer Science

Fall, Spring. 1 credit. A student may earn a maximum of 3 credits in all enrollments for this course. R: Approval of department; application required.

Supervised individual study in an area of computer science.

SA: CPS 290

291. Selected Topics in Computer Science

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department.

Topics selected to supplement and enrich existing courses and lead to the development of new courses.

SA: CPS 291

320. Computer Organization and Assembly Language Programming

Fall, Spring. 4(3-2) P: (CSE 232 and CSE 260) R: Not open to students with credit in EE 331.

Machine representation of data and instructions. Machine organization, primary storage, registers, arithmetic logic unit, control unit, operations. Assembly language programming, interface to high level languages. Assemblers and loaders.

SA: CPS 320

331. Algorithms and Data Structures

Fall, Spring. 4(3-2) P: (CSE 232 and CSE 260) R: Open only to students in the Department of Computer Science and Engineering or Computer Engineering majors or the LBS Computer Science coordinate major or the Computer Science disciplinary minor.

Linear data structures, trees, and graphs and algorithms which operate on them. Fundamental algorithms for searching, sorting, string matching, graph problems, and their analysis.

410. Operating Systems

Fall, Spring. 4(3-2) P: (CSE 232 and CSE 260) and (CSE 320 or ECE 331) R: Open only to students in the Department of Computer Science and Engineering or the Computer Engineering major or the LBS Computer Science field of concentration or the LBS Computer Science coordinate major or the Computer Science disciplinary minor.

History and evolution of operating systems. Process and processor management. Primary and auxiliary storage management. Performance evaluation, security, distributed systems. Case studies of modern operating systems.

SA: CPS 410