

Description — Civil and Environmental Engineering

of Courses

941. **Urban Public Transport: Issues and Technology**

Fall of odd-numbered years. 3(3-0)
Approval of department.
Planning and operating urban transportation systems; system technology. Regional and rapid rail systems, light rail, buses, paratransit, transportation system management.

999. **Doctoral Dissertation Research**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

Environmental Engineering ENE

800. **Environmental Engineering Seminar**

(S E 800.) Fall, Winter, Spring. 1(1-0)
May reenroll for a maximum of 3 credits. Graduate major in C E or ENE.
Current research, reports, and literature reviews.

801. **Dynamics of Environmental Systems**

Fall. 4(4-0) CEM 361, C E 481.
Thermodynamics, kinetics, and mass transfer of environmental transformations. Environmental modeling, systems analysis, reactor theory, and process design. Applications to air, water and soil pollution, waste treatment, and hazardous waste management.

802. **Physical Chemical Processes of Environmental Engineering**

(S E 802.) Winter. 5(4-3) C E 483.
Analysis of physical and chemical principles which form the basis of air and water pollution control and solid waste disposal; process dynamics, sedimentation, coagulation, filtration, adsorption, absorption, oxidation.

804. **Biological Processes of Environmental Engineering**

(S E 804.) Winter. 4(4-0) MPH 200, ENE 802.
Aerobic and anaerobic degradation of liquid and solid wastes. Biochemical reactions; activated sludge and trickling filter kinetics; sludge digestion and composting.

805. **Biological Waste Treatment Laboratory**

(S E 805.) Spring. 1(0-3) ENE 804.
Treatability studies to develop parameters for design of biological waste treatment systems; reactor kinetics; oxygen uptake; sludge settling rate; biomass production.

816. **Hazardous and Industrial Waste Management**

(S E 816.) Fall. 3(3-0) Approval of department.
RCRA; waste and process survey, sampling and analysis; treatability studies; process modification; advanced treatment processes; case studies; field trips to industrial sites required.

822. **Air Resource Management**

(S E 822.) Spring of even-numbered years. 4(4-0) ENE 802.

Characteristics of air contaminants and noise; sources and source inventory; microclimatology and pollutant transport; pollutant effects, introduction to sampling and control.

832. **Solid Waste Management**

(S E 832.) Spring of odd-numbered years. 4(4-0) C E 485 or approval of department.

Generation rates; storage; collection; transfer and transport; processing; resource recovery; landfill; siting; design; operation; closure and monitoring; hazardous waste.

880. **Special Problems in Environmental Engineering**

(S E 880.) Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits in C E 880 and ENE 880 combined. Approval of department.

Solution of environmental engineering problems, of limited scope not pertaining to thesis.

899. **Master's Thesis Research**

(S E 899.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

916. **Advanced Environmental Control**

(S E 916.) Spring. 4(1-9) ENE 804.
Design of advanced methods for control of environmental pollutants.

999. **Doctoral Dissertation Research**

(S E 999.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

125. **Interpersonal Communication**

Fall, Winter, Spring, Summer. 3(3-0) COM 100.

Develop students' abilities to become more effective, responsible participants in interpersonal communication relationships, with emphasis on relating communicatively with others.

199. **Methods of Inquiry**

Fall, Winter, Spring, Summer. 3(3-0) COM 125.

Major theoretic orientations toward communication. Primary tools of scholarly inquiry.

205. **Persuasion**

Fall, Winter, Spring, Summer. 4(4-0) COM 100.

Process of influencing human behavior through persuasive communication. Experience in creating persuasive messages and in evaluating the acceptability of persuasive attempts.

210. **Leadership and Group Communication**

Fall, Winter, Spring, Summer. 4(4-0) COM 100.

Principles and practice in the utilization of communication for effective leadership, with special emphasis on group communication.

250. **Argumentation**

Fall, Winter, Spring. 4(4-0) COM 199.

Development and use of arguments; recent perspectives in argumentation; rhetorical and empirical study of argumentative messages.

299. **Individual Projects**

Fall, Winter, Spring, Summer. 1 to 15 credits. May reenroll for a maximum of 15 credits. COM 199, approval of project proposal by department.

Independent research, experience in communication laboratories, or tutorial work in communication skills.

300. **The Effects of Mass Communication**

Fall, Winter, Spring, Summer. 4(4-0) Interdepartmental with and administered by the Department of Telecommunication.

Major social effects of mass media on audience behavior. Political communication. Media effects on children. Message strategies producing attitude change. Interrelationship between mass media and interpersonal communication. Decision making in mass media.

315. **Organizational Communication**

Fall, Winter, Spring. 4(4-0) COM 100.

Principles and practice in the management of communication systems, with emphases on conflict resolution, information exchange, innovativeness, and information management.

326. **Communication in Business**

Fall, Winter, Spring, Summer. 4(4-0) Juniors.

Study and analysis of business and industrial communication problems; extensive instruction and practice in writing.

CLASSICAL STUDIES

See Romance and Classical Languages.

COMMUNICATION COM

College of Communication Arts and Sciences

100. **Human Communication**

Fall, Winter, Spring, Summer. 3(3-0).

Process and functions of communication. Principles underlying communication behavior. Practice in analyzing communication situations and in speaking and writing.

115. **Oral Communication**

Fall, Winter, Spring, Summer. 3(3-0) COM 100 or approval of department.

Principles and practice in adapting to audiences, creating and structuring messages, and developing effective delivery of formal and informal speeches. Critical evaluation of speeches by instructor and peers.

**Communication — Description
of
Courses**

- 350. Signs and Sign-Behavior**
Fall, Winter, Spring, Summer. 4(4-0)
COM 100.
Theories of symbolic behavior. Language structure and communicative functions.
- 352. Nonverbal Communication**
Fall. 4(4-0) COM 100.
Major nonverbal communication codes and functions they perform. Codes: body movement, touch, physical appearance, paralanguage, use of space, time, artifacts. Opportunities to analyze nonverbal communication of self and others.
- 399. Special Topics in Communication**
Fall, Winter, Spring, Summer. 4(4-0)
May reenroll for a maximum of 8 credits. Juniors.
Contemporary issues in communication.
- 405. Quantitative Strategies in Communication Research**
Fall, Spring. 4(4-0) Seniors.
Design and statistical strategies in communication research. Project design and evaluation schema. Basic data handling and presentation.
- 410. Classroom Communication**
Spring. 3(3-0) Majors and minors or approval of department.
Classroom as a communication system with emphasis on operationalizing philosophies of education in the environment, teacher and student roles and styles, affective and cognitive interactions, methods of systematic observation.
- 411. Directing the Debate and Forensic Program**
Fall. 3(3-0) Majors and minors or approval of department.
Principles of and practice in argumentation; methods of coaching debate and individual events and managing tournaments; observation of high school tournaments, practices, and student congress.
- 413. Seminar in Communication Education**
Spring. 4(4-0) T E 322.
Philosophies of curricular and co-curricular programs in communication education. Internship experience in those programs.
- 425. Communication Campaign Analysis**
Fall. 4(4-0) COM 300 or approval of department.
Design of persuasive and information campaigns. Techniques and strategies for analyzing and influencing mass audience. Principles and practice in constructing messages and selecting media. Political and public service campaign focus.
- 430. Information and Technology**
Winter. 4(4-0) COM 315 or approval of department.
Concepts and principles of information and information technology, with emphasis on effects on organizational processes.
- 431. Conflict in Communication**
Winter. 4(4-0) COM 125 or approval of department.
Elaboration of theories in conflict resolution; development of strategies to resolve conflict situations; personal analysis of communication patterns that can affect conflict.
- 450. Fund Raising and Grant Writing**
Fall of even-numbered years. 4(4-0) Juniors.
Fund raising for nonprofit organizations: corporate, individual, and foundation giving. Grant writing.
- 460. Critical Perspectives on Communication**
(360.) Fall, Winter, Spring. 4(4-0) COM 100.
Interdependence of communication and other societal factors, emphasizing criteria for ethical and social appropriateness.
- 475. Relational Communication**
Spring. 4(4-0) COM 125.
Theories and current research on relational communication, including stages of relational communication development; verbal and nonverbal relational messages of intimacy, similarity, arousal, privacy and dominance; role of culture and context.
- 499. Special Projects**
Fall, Winter, Spring, Summer. 1 to 15 credits. May reenroll for a maximum of 15 credits. Approval of project proposal by department.
Independent research, group research, student-directed group projects.
- 805. Communication Research**
Fall. 4(4-0) First year graduate majors.
Communication research strategy and methodology. Scientific process, bases for derivation and verification of hypotheses, and basic methods of designing research in communication.
- 806. Communication Research**
Fall. 4(4-0) COM 805; second year graduate majors.
Continuation of COM 805.
- 815. Organizational Communication**
Winter, Spring. 4(4-0)
Structure and function of communication in organizations, with emphasis on concepts and principles needed for effective management of organizational communication processes.
- 820. Communication Theory and Process**
Fall, Summer. 4(4-0)
Theoretic models of communication, with emphasis on the applications of communication theory to various professional communication areas.
- 822. Interpersonal Communication**
Winter, Summer. 4(4-0)
Current theories and research in interpersonal communication. The role of interpersonal communication in such processes as conflict resolution and information exchange will be considered.
- 828. Cross-Cultural Communication**
Fall, Summer. 4(4-0)
Role of communication in the economic, social and political development of less developed countries. Problems in communicating across cultural boundaries.
- 830. Nonverbal Communication**
Winter. 4(4-0)
A review of theory and empirical research on nonverbal communication. Emphasis on social functions such as impression management, regulation and social influence.
- 860. Persuasive Communication**
Spring. 4(4-0)
Use of communication to gain compliance and effect social change. Study of persuasion and attitude change from classical theories to contemporary situations.
- 870. Communication and Change: The Diffusion of Ideas and Information**
Fall, Winter. 4(4-0)
Research traditions underlying the diffusion of ideas and information, and acceptance of innovation and change. Strategic principles for introduction of change through the use of communication.
- 880. Message Behavior, Signs and Communication**
Spring. 4(4-0)
Language and message behavior. The nature of messages, their structure, and the contexts (e.g. dyads, groups, organizations) that promote certain message behavior.
- 890. Special Problems**
Fall, Winter, Spring, Summer. 1 to 6 credits. Approval of department.
Special problems as arranged with instructor.
- 899. Master's Thesis Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 905. Communication Research Design**
Fall, Winter, Spring. 4(4-0) May reenroll for a maximum of 16 credits.
Methods of data collection and analysis in communication research. Designing exploratory studies of the communication process. Interviewer training and bias. Content analysis of the mass media. Writing and critiquing research reports.
- 940. Seminar in Communication Theory and Research**
Fall, Winter, Spring, Summer. 2 to 8 credits. May reenroll for a maximum of 45 credits. Approval of department.
Theoretic and research issues in communication.
- 990. Special Problems**
Fall, Winter, Spring, Summer. 1 to 6 credits. Approval of department.
- 999. Doctoral Dissertation Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.