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.
Doctoral dissertation research.

COMMUNICATION ARTS AND SCIENCES CAS

College of Communication Arts and Sciences

192 Environmental Issues Seminar
Fall, Spring. 1 credit. A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Natural Science; Agriculture and Natural Resources; Engineering; 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.

299 Media Writing
Fall, Spring, Summer. 3(1-4)
Writing for mass media.

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.
Doctoral dissertation research.

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) SA: CPS 100, CPS 130
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.

131 Introduction to Technical Computing
Fall, Spring. 3(2-2) P:M: (MTH 103 or MTH 110 or MTH 116 or LBS 117 or MTH 124 or concurrently or MTH 132 or concurrently or LBS 118 or concurrently) SA: CPS 131
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.

231 Introduction to Programming I
Fall, Spring. 4(3-2) P:M: (LBS 118 or MTH 124 or MTH 132 or MTH 152H) RB: (CSE 131) SA: CSE 230
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.

232 Introduction to Programming II
Fall, Spring. 4(3-2) P:M: (CSE 231) SA: CSE 330
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.

260 Discrete Structures in Computer Science
Fall, Spring. 4(4-0) P:M: (MTH 133 or MTH 126 or MTH 153H or LBS 119) SA: CPS 260
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.

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. SA: CPS 290
Supervised individual study in an area of computer science.

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. SA: CPS 291
Topics selected to supplement and enrich existing courses and lead to the development of new courses.

320 Computer Organization and Assembly Language Programming
Fall, Spring. 4(3-2) P:M: (CSE 232 and CSE 260) SA: CPS 320 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.

331 Algorithms and Data Structures
Fall, Spring. 4(3-2) P:M: (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.

370 Software Engineering
Fall, Spring. 4(3-2) P:M: (CSE 232 and CSE 260) 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. SA: CPS 470, CSE 470
Software life cycle including specification, design, coding, testing, and verification of a software product. Stepwise refinement and rapid prototyping. Software portability, reusability and maintenance.