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-numbered years. 3(3-0)
P: COM 815; COM 800 or COM 902.
Organizational communication structure and information processing. The organization's embeddedness in a larger social environment.

921. Micro and Macro Media
Fall of odd-numbered years. 3(3-0)
P: COM 800 or COM 902.
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)
P: COM 800 or COM 902.
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.

COLLEGE OF COMMUNICATION ARTS AND SCIENCES CAS

College of Communication Arts and Sciences

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 department.
Varied topics pertaining to the study of communication processes.

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 CPS

Department of Computer Science 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 ha rdware, multimedia software, communication and networks.
SA: CPS 100, CPS 130

131. Introduction to Technical Computing
Fall, Spring. 3(2-2)
P: MTH 103 or MTH 110 or MTH 116; or MTH 120 or MTH 124 or MTH 132 or concurrently.
Computing systems and applications. Design and implementation of programs using FORTRAN. Examples from engineering, mathematics and science.

230. Algorithms and Computing
Fall, Spring. 4(3-2)
P: LBS 118 or MTH 120 or MTH 124 or MTH 132.
Computer systems and problem solving. Software development. Structured design and implementation of algorithms. Procedural and object-oriented programming. Compilation and linking.

260. Discrete Structures in Computer Science
Fall, Spring. 3(3-0)
P: MTH 133.
Propositional and first order logic. Equivalence, inference. Mathematical induction, diagonalization principle. Set operations, relations, functions. Lattices, Boolean algebras. Truth tables and minimization of Boolean expressions. Appl ications to CPS.

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.

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.

320. Computer Organization and Assembly Language Programming
Fall, Spring. 4(3-2)
P: CPS 230, CPS 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 .

330. Data Structures and Programming Concepts
Fall, Spring. 4(3-2)
P: CPS 230, CPS 260.
Data types and structures. Algorithms including searching, sorting and hashing. Program correctness, program analysis. Abstract data types including stacks, queues, and trees. Object-oriented programming, introduction to various program libraries.

360. Automata and Formal Language Theory
Fall, Spring. 3(3-0)
P: CPS 230, CPS 260. R: Open only to Computer Science, Computer Engineering, Computational Mathematics, Electrical Engineering, and LBS Computer Science students.
Regular languages, regular grammars, finite-state automata, transducers and relationships among them. Context-free languages and grammars. Language recognition, parsers. Properties of formal languages. Turing computability and undecidab ility.

410. Operating Systems
Fall, Spring. 4(3-2)
P: CPS 330; CPS 320 or EE 331. R: Open only to Computer Science, Computer Engineering, Electrical Engineering, and LBS Computer Science majors.
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.

420. Computer Architecture
Fall, Spring. 4(3-2)
P: CPS 330; EE 331 or CPS 320, CPS 360. R: Open only to Computer Science, Computer Engineering, Electrical Engineering, and LBS Computer Science majors.
Digital logic and sequential machine design. Computer organization, control unit and arithmetic logic unit implementation. Input-output, memory organization, parallel operations. Digital system simulation.

422. Computer Networks
Fall, Spring. 4(3-2)
P: STT 351; CPS 320 or EE 331; CPS 410 or concurrently. R: Open only to juniors or seniors in the Computer Science or Computer Engineering or Electrical Engineering or LBS Computer Science major.
Computer network architectures and models. Medium access control. Physical, data link, network, transport, and session layers. Local-area and wide-area networks.

440. Artificial Intelligence and Symbolic Programming
Fall. 4(3-2)
P: CPS 330, CPS 360. R: Open only to Computer Science, Computer Engineering, and LBS Computer Science majors.
Machine intelligence. Heuristic programming. Representation and control in LISP and PROLOG. Applications to search, rule-based diagnosis, and parsing.

449. Design of Intelligent Systems (W)
Spring. 4(2-4)
P: CPS 440; CPS 320 or EE 331. R: Open only to seniors or graduate students in a College of Engineering Computer Science major. Completion of Tier I writing requirement. Not open to students with credit in CPS 479 or CPS 478.
Intelligent system applications such as natural language, machine vision, or a diagnostic expert system. Team development, software engineering, project management.