

**Descriptions — Communication
of
Courses**

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.

892. Special Topics
Fall, Winter, Spring, Summer. 1 to 8 credits. May reenroll for a maximum of 24 credits. Approval of department.
Varied topics pertaining to advanced study of communication processes.

990. Research Internship
Fall, Winter, Spring, Summer. 1 credit. May reenroll for a maximum of 6 credits.
Research practice in association with a designated faculty member.

999. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
Dissertation research for the doctoral program in Mass Media.

**COMMUNITY HEALTH
SCIENCE CMS
College of Human Medicine
College of Osteopathic Medicine**

512. Epidemiology and Biostatistics
Fall. 2 to 5 credits. Admission to a college of medicine or approval of department.
Epidemiology and biostatistics in clinical medicine and health care delivery. Evaluation of medical investigations. Applicability to preventive medicine and health maintenance. Field experiences and seminars in community medicine.

513. Medical Jurisprudence
Fall. 2 to 5 credits. Admission to a college of medicine or approval of department.
Basic concepts of the legal process and the health care system. Law suits, malpractice, statutory and case law. Insurance and tax consideration. Continuing field experiences and seminars in community medicine.

514. Topics and Issues in Health Care Delivery
Fall. 2 to 5 credits. Admission to a college of medicine or approval of department.
Medical economics, health care financing and organization, personnel utilization, resource allocation, health services administration, patterns of medical practice, politics of health care. Continuing field experiences and seminars in community medicine.

518. Aging: Clinical and Community Perspectives
Spring. 4(3-3) Medical student or approval of instructor.
Multi-dimensional aspects of aging and their application to long-term, continuing care of the chronically ill older adult.

519. Health Education in Clinical Settings
Spring. 3(2-3) Approval of instructor.
Application of concepts from social and behavioral sciences to clinical health education through laboratory and classroom experiences including development of a model educational plan for a specific health problem.

521. Evaluation of Health Services
Spring. 2 to 4 credits. Approval of instructor. Interdepartmental with the College of Nursing.
Use of experimental and quasi-experimental designs. Cost benefit and efficiency models. Assessment of health services delivery.

522. Principles of Gerontology for Medical Practice
Spring. 3(3-0) Admission to a college of medicine or approval of department.
An introductory course relating the biological, psychological and social implications of aging to health care of elderly.

530. Care of the Elderly
Fall, Spring. 3(2-2) Student in H M, OST or other clinical program or approval of instructor. Interdepartmental with and administered by the Department of Family Practice.
Case studies of the care of the elderly based on the physician patient-interaction with elderly persons and their families. Family systems applications to health care. Associated clinical experience.

543. Health and Adaptation of the Elderly
Fall. 3(3-0) Baccalaureate degree in health science; approval of instructor. Interdepartmental with and administered by the College of Nursing.
Health and adaptation of the aged individual experiencing the normative biophysiologic and psychodevelopmental changes related to the aging process.

590. Special Problems in Community Medicine
Fall, Winter, Spring, Summer. 1 to 8 credits. May reenroll for a maximum of 32 credits. Approval of department.
Each student will work under direction of a faculty member on an experimental, theoretical or applied problem.

600. Preventive Medicine and Public Health Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. Successful completion of first two years of medical school.
Clinical and community experiences in personal and community health services, environmental health, and other health and medical programs which meet health needs of various population groups.

605. Occupational Health Clerkship
Fall, Winter, Spring, Summer. 6 to 12 credits. May reenroll for a maximum of 12 credits. Grade P in all courses offered in terms 1 through 8.
The occupational health program in an industrial setting. Exposure to delivery of medical care to workers, treatment of industrial accident injuries. Review of safety and preventive medicine programs.

610. Geriatric Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. Successful completion of first two years of medical school.
Clinical and community experiences including history taking, patient assessment, development and use of management and care plan and use of community resources for the long term care of the aged.

618. Clinical Tropical Medicine
Fall. 2(2-0) or 4(4-0) May reenroll for a maximum of 4 credits. Admission to a college of medicine, approval of department.
Selected topics such as African AIDS, malaria, onchocerciasis, tuberculosis, schistosomiasis. Pathophysiology, treatments, epidemiology, current research and controversies.

**COMMUNICATION ARTS
AND SCIENCES CAS
(COLLEGE OF)**

492. Special Topics
Fall, Winter, Spring, Summer. 1 to 8 credits. May reenroll for a maximum of 24 credits. Approval of department.
Varied topics pertaining to the study of communication processes.

619. Clinical Health Education Clerkship
Fall, Winter, Spring, Summer. 6 to 12 credits. May reenroll for a maximum of 12 credits. Grade P in all courses offered in terms 1 through 8.
Clinical experiences for developing and applying skills in patient and family health education. Identification of behavioral components of health care. Assessment of educational needs of patient and family.

620. Directed Studies in Community Medicine
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 24 credits. Approval of department.
Individual projects on special problems related to community medicine.

COMPUTER SCIENCE CPS

College of Engineering

100. About Computers
Fall, Winter, Spring, Summer. 4(3-2)
Computer impact on the individual and society. How computers work. Computer applications. Laboratory experience in accessing data bases, use of a spreadsheet and word processing.

112. Computing for Engineers and Scientists I
Fall, Winter, Spring, Summer. 3(2-2) MTH 112 or concurrently. Student may not receive credit in both CPS 112 and CPS 120.
Algorithms; data representation, structures, type; decision structures. Design and implementation of algorithms. Applications from engineering, mathematics, and science. Computer arithmetic; microcomputers, mainframes, editors, files.

113. Computing for Engineers and Scientists II
Winter, Spring. 3(2-2) CPS 112, MTH 112.
Continuation of CPS 112 with emphasis upon more complex problem solving tasks. Development of self-sufficiency. Use of reference manuals and documentation. Networks, operating systems, software systems.

115. Introduction to Computing
Fall, Winter, Spring, Summer. 4(3-4)
Applications of computers in business, education, government and industry. Introduction to computing systems and programming in BASIC.

124. APL-Computer Programming for Scientists
Fall, Winter, Spring. 3(3-0) LBS 112 or concurrently. Interdepartmental with and administered by Lyman Briggs School.
APL programming; interactive programming techniques; arithmetic, logical, and extended APL operators; functions, applications to concurrent topics in mathematics; principles of operation of time-shared computers.

214. Computing for Engineers and Scientists III
Fall, Winter, Spring, Summer. 3(2-2) CPS 113; MTH 113.
Continuation of CPS 113. Data and instruction structures from both the high-level and implementation perspectives. Emphasis upon problem solving tasks requiring complex data and instructional structures.

251. Algorithms and Computing I
Fall, Winter, Spring. 3(2-4) MTH 112.
Algorithms, numeric and character data, data types, variables, expressions, decision structures, arrays, and procedures. Design and implementation of algorithms in PASCAL.

252. Algorithms and Computing II
Winter, Spring, Summer. 3(2-4) CPS 251, MTH 113.
Problem solving methods, numeric computation, string processing, number and character representation, data structures, and programming style. Design and implementation of algorithms in PASCAL.

292. Selected Topics
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits when different topics are taken.
Topics selected will in general supplement and enrich existing courses, and lead to the development of new courses.

295. Independent Study
Fall, Winter, Spring, Summer. 1 credit. May reenroll for a maximum of 4 credits in CPS 295 and CPS 495 combined. Approval of department.
Independent undergraduate research in computer science.

301. FORTRAN Laboratory
Fall, Winter, Spring, Summer. 1(0-3) CPS 252 or concurrently. Students may not receive credit in CPS 301 and in CPS 120.
Programming laboratory using FORTRAN.

304. PASCAL Programming
Fall, Summer. 2(1-3) CPS 113, MTH 113. Students with credit in CPS 251 may not receive credit in CPS 304.
Programming style, problem solving methods, linear data structure, trees. Design and implementation of algorithms in PASCAL.

305. List Processing Languages
Winter. 3(3-0) CPS 113 or CPS 252.
Development and implementation of computer programs in string and list processing languages. Emphasis upon non-numeric applications. Structure of a simple list processing language. Comparison of list processing languages.

306. COBOL Programming
Spring. 3(3-0) CPS 112 or CPS 115 or CPS 251.
The mechanics of COBOL, a business data processing language; presented with illustrative problems.

311. Machine Organization and Assembly Language Programming
Fall, Winter, Spring. 4(3-3) CPS 252, MTH 214. Interdepartmental with Electrical Engineering.
Machine structure, registers and operations. Subprogram linkage. Discrimination of translator, loader and execution tasks. Programming in assembly language.

312. Generative Coding and Information Structures
Winter, Spring. 4(3-2) CPS 311.
Macro facilities, conditional assembly, interaction with monitor, assembly language I/O. Use of buffer, stack, queue, deque, tree and list data structures. Interpreters, recursive routines.
Approved through Fall 1988.

313. Introduction to System Programming
Fall, Spring, Summer. 4(3-2) CPS 312.
Loaders and operating systems. Study of existing batch and time-sharing systems. Design and implementation of part of an operating system. Segments, overlays, multi-processing and multi-programming.
Approved through Fall 1988.

316. Systems Software Development
Fall, Winter, Spring. 4(3-3) CPS 311.
Software engineering concepts. Design and implementation of systems software components. Assembly, macro and loader processing.

321. Introduction to Discrete Structures
Fall, Winter, Spring. 3(3-0) CPS 252, MTH 214.
Set operations, relations, functions and mappings. Boolean algebra, Boolean matrices, truth tables, minimization. Propositional and predicate calculus, well formed formulas, precedence relations, quantifiers. Applications to computer science.

322. Introduction to Theory of Computing
Fall, Winter, Spring. 3(3-0) CPS 321, MTH 215.
Finite state machines; stack automata; turing machines; language classifications, regular languages and grammars; relationship and conversion between finite state automata and grammars; computability; introduction to recursive functions.

330. Digital Logic Fundamentals
Fall, Winter, Spring, Summer. 4(4-0) CPS 252. Interdepartmental with and administered by the Department of Electrical Engineering and Systems Science.
Boolean algebra, combinational logic and minimization, sequential system fundamentals and components; arithmetic operations and devices; memory devices and ensembles; digital integrated circuits; practical engineering design problems.

333. Algorithms and Data Structures
Fall, Winter, Spring. 4(3-3) Not open to students with credit in CPS 471. CPS 311, CPS 321 or MTH 382.
Analysis of algorithms; abstract data types. Lists, trees, graphs, sets. Classical algorithms including sorting and searching.

400. Organization of Programming Languages
Fall, Spring. 4(4-0) CPS 316, CPS 322, CPS 333.
Specification and implementation of programming languages; data types and control structures, memory management, lexical analysis and parsing; case studies of major programming languages.

412. Computer Communications
Fall, Winter, Spring. 3(3-0) CPS 311; STT 351 or STT 441.
Computer networks; analysis by queuing theory; network design algorithms, routing and flow.

413. Operating Systems
Fall, Winter, Spring. 4(3-3) CPS 311.
Major concepts of operating system principles. Resource allocation, memory management, protection, concurrent processes, interprocess communication, scheduling algorithms, file systems; design of multiprogramming and multiprocess systems.