

- CDIS 311 Articulation Disorders (3).** Characteristics, causes and treatment of articulation disorders in children and adults. Prerequisites: CDIS 250, 252, 300. (S)
- CDIS 332 Language Disorders in Children (3).** Types of language disorders in children. Includes evaluative procedures and development of individualized therapy programs for children. Prerequisite: CDIS 250. (S)
- CDIS 342 Basic Audiology (3).** Introduction to pathologies of the auditory and vestibular systems and the basic audiologic evaluation with emphasis upon pure tone and speech audiometry, clinical masking, acoustic immittance and interpretation. Prerequisites: CDIS 143; CDIS 302; junior standing. (S)
- CDIS 400 Speech Science (3).** Advanced science course in normal speech production and perception. Topics include the evolution of speech, research in speech perception, acoustic phonetics, laboratory instrumentation and computer applications. Prerequisites: CDIS 252, 300, 302. (F)
- CDIS 421 Neuroscience of Communication (3).** Normal and pathological neuroanatomy and neurophysiology of speech, language and hearing. Prerequisites: CDIS 300, 302; senior standing. (S)
- CDIS 424 Language Assessment (3).** Administration, scoring and interpretation of standardized tests. Consideration will also be given to the informal assessment of language disorders in children. Prerequisites: CDIS 250, 252, 332. (F)
- CDIS 433 Medical Aspects of CDIS (3).** Selected topics in medicine and health care that are important for the speech-language pathologist and audiologist. Prerequisite: consent of instructor. (S)
- CDIS 434 Aural Rehabilitation (3).** Effects of hearing loss in adults and children. Considerations in the management of the deaf and hard-of-hearing, including electroacoustic amplification and communication therapy. Prerequisites: CDIS 143, 302, 342; senior standing. (F)
- CDIS 443 Clinical Management (3).** Methods and techniques of clinical management, establishment of a basic clinical armamentarium, observation and limited participation in clinical activities. Prerequisites: CDIS 311, 332. (F)
- CDIS 444 Speech-Language Apprenticeship (1).** Preclinical, practical experience designed to acquaint the student with the provision of speech, language and/or hearing services, by assisting a graduate student clinician, speech-language pathologist or audiologist. Prerequisites: CDIS 443; consent of instructor. (F, S)
- CDIS 445 Speech-Language Practicum (1).** Supervised clinical experience including speech-language and hearing intervention, speech-language screenings and hearing screenings. Conferences and record keeping. Attendance at one-hour clinician's meeting each week is required. Prerequisites: CDIS 443; consent of instructor. (May be repeated for a maximum of 2 credits with consent of instructor). (F, S)
- CDIS 446 Audiology Practicum (1).** Supervised clinical experience in hearing screenings, audiologic evaluations and/or aural rehabilitation, with associated report writing. Prerequisites: CDIS 443; consent of instructor. (May be repeated for a maximum of 2 credits with consent of instructor). (F, S)
- CDIS 468 Workshop in Communicative Disorders (1-3).** As announced. (May be repeated for a maximum of 6 hours.)
- CDIS 491 Directed Study (1-3).** Independent study. (May be repeated for a maximum of 4 hours in each area.) Prerequisite: consent of instructor. A. Audiology; B. Speech pathology
- CDIS 493 Topics in Communicative Disorders (1-3).** As announced. (May be repeated for credit.)

Computer Information Systems (CIS)

- CIS 151 Basic Computer Skills (3).** Microcomputer operations; terminology, concepts and applications to include spreadsheets, database and word processing. (F, S)
- CIS 185 Introduction to Computer Information Systems (3).** Survey of information systems, hardware functions, operating systems software, applications software and systems development. Introduction to Web and Object Oriented programming. Coverage of Microcomputers to Mainframes. Prerequisite or concurrent enrollment: CIS 151. (F, S)
- CIS 241 Introduction to Web Development (3).** Basic fundamentals of Internet-related technologies and their impact. Effective design of World Wide Web pages using current WWW publishing languages. Prerequisite: CIS 151. (F, S)
- CIS 268 Workshop in CIS (1-3).** As announced. (May be repeated for a maximum of 3 credits.) Prerequisites: BUS 151; consent of instructor.
- CIS 293 Topics in CIS (1-3).** As announced. (May be repeated for a maximum of 6 hours of credit.) Prerequisites: BUS 151; consent of instructor.
- CIS 300 Object Oriented Programming (3).** Concepts and application of Object Oriented Programming (OOP) using software development facilities of Visual Studio.Net. Prerequisites: BUS 151; CIS 185. (F, S)
- CIS 314 Overview of Operating Systems/Utilities (3).** An overview of computer operating systems from PCs to mainframes. Includes OS theory and structure as well as an introduction to system control parameters, utilities, services and command language. Prerequisites: BUS 151; CIS 185. (F)
- CIS 330 Business Web Site Design (3).** Analysis of page layout, web site design, graphics design and marketing concepts for effective electronic commerce. Prerequisite: BUS 151; CIS 185, 241. (S)
- CIS 331 Data Communications and Networking (3).** Concepts of data communications hardware, software, protocols, architecture, networks and voice communication circuits. Prerequisites: BUS 151; CIS 185. (F, S)
- CIS 343 Database Management Systems (3).** Analysis, design and implementation of database systems. Database application development in stand-alone, multi-user and distributed environments. Fundamentals of ANSI SQL. Prerequisites: BUS 151; CIS 185, 300. (F)
- CIS 351 Microcomputing for Business (3).** Evaluation of and advanced applications of electronic spreadsheets, database management and graphics for the microcomputer. Prerequisites: BUS 151; CIS 151; STAT 213. (F, S, Su)
- CIS 420 Systems Development (3).** Information systems methodologies and enterprise-wide managerial and organizational problems. Project management techniques, security techniques, system testing and implementation. Prerequisites: BUS 151; CIS 185; CIS 300 and/or 343. (S)
- CIS 430 Advanced Web Development (3).** Development, documentation and debugging of World Wide Web scripting language applications. Use of various scripting languages to create server side applications. Prerequisite: BUS 151; CIS 330, 343. (F)
- CIS 435 Network Infrastructure Design (3).** Designing computer networks covering topics such as TCP/IP addressing, routing, DHCP, WINS, and DNS. Prerequisites: BUS 151; CIS 331. (S)
- CIS 440 Network Infrastructure Implementation and Administration (3).** Concepts for implementing and administering corporate network systems spanning multiple geographical regions and using various network operating systems and protocols. Prerequisites: BUS 151; CIS 435 or concurrent enrollment in CIS 435. (S)

- CIS 443 Enterprise Database Programming and Administration (3).** Advanced ANSI SQL programming, multi-user database application development and enterprise database administration. Prerequisites: CIS 300, 343. (S)
- CIS 468 Workshop in CIS (1–3).** As announced. Prerequisites: BUS 151; consent of instructor. (May be repeated for a maximum of 3 credits.)
- CIS 489 Internship (1–3).** Minimum of eight weeks on-the-job experience related to the student's major. Daily journal and a written report relating the work experience to the student's education are required. Grading is satisfactory/unsatisfactory. Prerequisites: BUS 151; major in CIS; 3.00 GPA in CIS and related subjects; consent of instructor.
- CIS 491 Directed Study (1–3).** Independent study under instructor's guidance. Prerequisites: BUS 151; consent of instructor. (TBA)
- CIS 493 Topics in Computer Information Systems (1–3).** As announced. (May be repeated for a maximum of 6 hours with consent of advisor.) Prerequisites: BUS 151. (TBA)

Computer Science (CS)

Note: Some math courses require prerequisites that can be fulfilled with satisfactory ACT/SAT scores. These minimum scores may be satisfied in the following ways:

For courses with MATH 107 as prerequisite, satisfactory scores are defined as:

1. ACT math of 24 or higher **OR**
2. ACT math of 22 or 23 **AND** an algebra/geometry subscore of 9 **OR**
3. SAT math of 530 or higher.

For courses with MATH 119 as a prerequisite, satisfactory scores are defined as:

1. ACT math of 26 or higher
2. SAT math of 600 or higher

- CS 114 Computers and Society (3).** Technical, social and ethical issues in computing. Topics may include e-mail etiquette, World Wide Web search strategies, computer viruses, encryption, copyright, privacy, free speech and the limits of computing. (S)
- CS 123 Programming Fundamentals (3).** Concepts and programming techniques fundamental to the practice and theory of computer science: I/O, operators and expressions, control structures, functions, and arrays. Prerequisite: MATH 107 or satisfactory ACT/SAT score. (F, S)
- CS 134 Intermediate Programming (3).** Object-oriented programming, APIs, recursion, references, searching and sorting. Prerequisites: CS 123; either MATH 119 or satisfactory ACT/SAT score. (F, S)
- CS 220 Mathematical Foundations of Computer Science I (3).** Logic, methods of proof, mathematical induction, elementary set theory, functions and relations. Prerequisites: Either MATH 119 or satisfactory ACT/SAT score. (F)
- CS 257 Data Structures (3).** Specification, implementation and analysis of object-oriented linear and tree structures. Prerequisite: CS 134. (F)
- CS 268 Workshop in Computer Science (1–3).** As announced. (May be repeated for a maximum of 6 hours.)
- CS 288 Cooperative Education (1–3).** Practical experience at a cooperating institution. Prerequisite: consent of instructor.
- CS 293 Topics in Computer Science (1–3).** As announced. (May be repeated for credit.)

- CS 301 Programming Language Concepts (3).** General concepts underlying the design and implementation of programming languages. Introduction to programming paradigms. Prerequisite: CS 134; recommended CS 257. (S)
- CS 320 Mathematical Foundations of Computer Science II (3).** Counting, analysis of algorithms, recurrence relations, graph theory. Prerequisites: CS 123, 220. (S)
- CS/EET 340 Microprocessors and Assembly Programming (3).** Programming and use of microcomputer hardware to perform basic and advanced control functions. Topics include architecture and instruction set of microprocessors, timing diagrams, address decoding schemes and interrupt handling. Prerequisite: EET 241/241L or CS 123. (F)
- CS 342 Computer Architecture (3).** Fundamental concepts in the design of digital computers. I/O, arithmetic-logic unit, control unit and the memory hierarchy. Prerequisite: CS/EET 340. (S)
- CS 360 Object-Oriented Development (3).** Object-oriented design, event-driven programming, computer graphics, GUI design, Java API, human-computer interaction, design patterns, documentation and testing. Prerequisite: CS 134. (F)
- CS 404 Automata, Languages, and Computability (3).** Basic concepts from finite automata, context free languages, Turing machines and computability. Prerequisites: CS 257, 320. (F)
- CS/MATH 409 Numerical Analysis I (3).**
- CS/MATH 410 Numerical Analysis II (3).**
- CS 415 Software Engineering (3).** Software engineering principles including life-cycle models, specification, design and verification. Students will work in teams on a large project. Prerequisites: CS 257, 360.
- CS 451 Design and Analysis of Algorithms (3).** Techniques for analyzing performance of algorithms; principles and concepts of algorithm design. Prerequisites: CS 257, 320. (S)
- CS 457 Database Theory (3).** Theory of databases, including physical organization, conceptual design, relational database theory and SQL. Prerequisites: CS 257, 320. (TBA)
- CS 461 Operating Systems (3).** Theory of operating systems. Topics include processes, file systems, memory management and I/O. Prerequisites: CS 257, 340. (S)
- CS 462 Computer Networks (3).** Structure, implementation, theoretical underpinnings and applications of computer networking. Topics may include network structures and architecture, protocols, error handling, security, routing, compression. Prerequisites: CS 134, 340; MATH 124.
- CS 468 Workshop in Computer Science (1–3).** As announced. (May be repeated for a maximum of 6 hours.)
- CS 470 Compiler Design (3).** Theory and practice of compiler design. Scanning, grammars, parsing, semantics, intermediate representations, code generation. Prerequisites: CS 257, 301, 340.
- CS 488 Cooperative Education (1–3).** Practical experience at a cooperating institution. Prerequisite: consent of instructor.
- CS 491 Directed Study (1–3).** Independent study. (May be repeated for a maximum of 4 hours.) Prerequisite: consent of instructor.
- CS 493 Topics in Computer Science (1–3).** As announced. (May be repeated for credit.)