The CIS Programs

The Computer and Information Science (CIS) curriculum provides students with a firm foundation in both hardware/architecture and software and in their application. Computer and information science includes the following technical areas: operating systems, compilers, computer graphics, computer networks and network administration, information and database systems and database administration, artificial intelligence, robotics, software engineering, theoretical computer science, and programming languages.

Students complete a minimum of 120 credits in one of two options (computer science or information systems) and receive a Bachelor of Science (BS) degree in Computer and Information Science. The program is primarily directed toward day students, with some evening courses offered. The CIS degree prepares graduates for immediate employment in the computer field and for graduate study.

CIS students interested in scientific and engineering applications elect the Computer Science (CS) option. Students in this option study computer architecture, theory, networks, programming, and operating systems. The CS option places greater emphasis on understanding how computer systems work and prepares its graduates for positions in systems programming, scientific programming, networks, web technology, graphics and visualization, and enterprise computing, among others.

CIS students interested in business applications elect the Information Systems (IS) option. Students in this option study computer networks, databases, programming, and accounting. The IS option is oriented toward the design and development of information systems. It includes more applications-related courses than the CS option and prepares graduates for positions in applications programming, databases, systems analysis, information systems design, and information engineering, among others.

The Requirements (CS Option)

Area I: Distribution Requirements .................. 24 Credits

COMP 105  English Composition I ......................... 3
COMP 270  Technical Writing .................................. 3
ECON 201  Macroeconomics .................................. 3
Two courses in the humanities, from specified choices ................. 6
Two courses in the behavioral/social sciences, from the specified choices ........................................ 6
One upper-level (300-400-level) course in the humanities or the behavioral/social sciences, in the same academic discipline as one of the courses taken above ........................................ 3

Area II: Mathematics, Science, Applied Business ...... 31

The Requirements (IS Option)

Area I: Distribution Requirements .................. 21 Credits

COMP 105  English Composition I ......................... 3
COMP 270  Technical Writing .................................. 3
ECON 201  Macroeconomics .................................. 3
Two courses in the humanities, from specified choices ................. 6
Two courses in the behavioral/social sciences, from the specified choices ........................................ 6

Area II: Mathematics, Science, and Cognates ............ 37

Mathematics and Statistics

MATH 115  Calculus I ........................................... 4
MATH 116  Calculus II ........................................... 4
MATH 205 or MATH 215  Calculus III  ......................... 3–4
MATH 227  Linear Algebra or MATH 217 Matrix Algebra .... 3–2
IMSE 317  Probability and Statistics ......................... 3
Science: Two-semester laboratory science sequence .............. 8
Natural Science laboratory course .................................. 4
ACC 298  Accounting I ........................................... 3

Area III: Computer Science and Electives ............ 65

Computer Science Core ....................................... 32
CIS 150  Computer Science I ................................. 4
CIS 200  Computer Science II .................................. 4
CIS 275  Discrete Structures .................................. 4
CIS 310  Computer Organization ................................ 4
CIS 350  Data Structures & Algorithm Analysis .............. 4
CIS 375  Software Engineering .................................. 4
CIS 427  Computer Networks & Distributed Processing ... 4
CIS 450  Operating Systems .................................... 4

Computer Science Courses

CIS 294  Visual Basic or CIS 296 Java .......................... 2
CIS 400  Programming Languages ................................ 4
CIS 4951  Senior Design Seminar I ........................... 2
CIS 4952  Senior Design Seminar II ......................... 2
Fourteen credits of CIS courses from approved list .............. 14
Electives outside CIS, math, science, and engineering .......... 3
General Electives .................................................. 6

NOTE: CIS requirements may change. Students should see an advisor for current requirements.
Area III: Computer Science and Electives .......................... 62

Computer Science Core ................................................. 36
  CIS 150 Computer Science I ........................................... 4
  CIS 200 Computer Science II ......................................... 4
  CIS 275 Discrete Structures .......................................... 4
  CIS 310 Computer Organization & Assembly Language ........ 4
  CIS 350 Data Structures & Algorithm Analysis .................. 4
  CIS 375 Software Engineering ...................................... 4
  CIS 427 Computer Networks & Distributed Processing ........ 4
  CIS 450 Operating Systems ......................................... 4

Information System Courses .......................................... 18
  CIS 294 Visual Basic or CIS 296 Java ............................... 2
  CIS 421 Database Systems ........................................... 4
  CIS 4261 Information Systems Analysis & Design I ............ 4
  CIS 4262 Information Systems Analysis & Design II .......... 4
  CIS 4951 Senior Design Seminar I ................................. 2
  CIS 4952 Senior Design Seminar II ............................... 2

Two information systems electives from approved list ......... 6
General Electives ....................................................... 6

NOTE: Requirements may change. Students should consult an advisor for current requirements.

College and Department

Computer Facilities
www.engineering.umd.edu/labs

College of Engineering and Computer Science students use a wide variety of computing resources: local area networks of Pentium and Unix computers, the large Sun workstation network, and the computer-aided design laboratories. The CIS department laboratories include the hypermedia, networking, and distributed, open systems, and secure systems laboratories, and a Cray T3-E scalable supercomputer. Students have round the clock remote access to selected computer facilities.

Faculty of the Computer and Information Science (CIS) Department
The CIS degree program is taught primarily by Ph.D. faculty dedicated to teaching and research. The research interests of the computer and information science faculty include artificial intelligence, computer-aided instruction, computer graphics, computer game design, computer networks, database query languages, numerical analysis, parallel computing, fractals, software engineering, and theory of computation. Some courses are taught by local industry professionals.

Undergraduate Scholarships
CECS students may apply for annual scholarships, which may range from $1,000 to the full costs of tuition for an academic year.

Cooperative Education

CIS students are eligible to participate in the College of Engineer-

Co-op makes it possible for students to have the experience of working in the CIS field before they graduate. Students who participate in co-op gain valuable professional experience, earn a salary, and establish contacts useful for later employment.

Co-op students in computer and information science have found recent co-op placements in such companies as: Acromag, Arvin-Meritor, Barton-Marlo Company, Blue Cross Blue Shield, Ceridian Corp., Crain Communication, Daimler Chrysler Financial Group, DTE Energy, EDS, Hometown Communications Network, Lockheed Martin, Marathon Ashland Petroleum, Masco Corp., Open Text Corp., Ricardo Inc., Spectrum Engineering, SPX, TRW, Unisys, U. S. Steel, TACOM-Tardec, and Vector Cantech.

Employment Opportunities

Computer and Information Science is one of the most rapidly growing professions worldwide. CIS professionals offer expertise in the effective and efficient use of computers for tackling a broad spectrum of practical challenges.

A wide variety of employment opportunities is available to computer scientists, such as the following, based on titles of CIS alumni: applications programmer, software engineer, computer systems consultant, telecommunications planner, computer applications trainer, database administrator, systems analyst or programmer, systems software developer, computer security administrator, computer graphics specialist, network administrator, systems designer, technical writer, computer and technical support analyst, and president of own company. Computer scientists are also employed in research or consulting in education, industry, government, teaching, and training.

Recent graduates from the University of Michigan-Dearborn with a BS in CIS have found professional employment in such companies as: Accenture, Blue Cross/Blue Shield, DaimlerChrysler, Detroit Edison, EDS, ERIM, Federal Mogul, Ford, General Motors, IBM, Marathon Oil, Peat Marwick, NASA, Oracle, and Unisys.

Admission Requirements

From High School:
3.00 adjusted GPA or higher and ACT of 22 or higher

From Community College:
2.75 adjusted GPA (cumulative, mathematics, and science—all three) in transferable courses

For More Information

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Dearborn, MI 48128-1491

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