

## CIS Computer Information Systems

### **CIS 100 Computer and Digital Literacy (2-2) 3 crs.**

Provides students with an introduction to computers in society and digital literacy. Includes computer hardware and operating systems, word processing, spreadsheets, presentation software, networking, Internet usage, communication and collaboration, computer safety and ethics. This course is not intended for computer information system majors.

### **CIS 101 Introduction to Computer Information Systems (2-2) 3 crs.**

Provides students with an introduction to computer and information systems used in business environments. Includes computer hardware and operating systems, word processing, spreadsheets, presentation software, database management software, networking and Internet, information systems, programming concepts, and computer security and ethics. IAI BUS 902

### **CIS 106 Computer Logic and Programming Technology (2-2) 3 crs.**

Provides students with a comprehensive introduction to computer programming using a currently popular programming language. Includes program logic, program structure, subroutines/functions/methods, variables, conditions, loops, arrays, files/data access, and object-oriented programming. A variety of programs are created throughout the course.

**Prerequisite:** Math placement in MTH 101 or higher.  
[https://www.harpercollege.edu/registration/testing/pdf/Math\\_Placement\\_Grid.pdf](https://www.harpercollege.edu/registration/testing/pdf/Math_Placement_Grid.pdf)

### **CIS 137 Computer Internship I (1-15) 3 crs.**

Provides students with coordinated job experience in an information technology professional position such as computer networking or Web design. This course is repeatable up to a maximum of six credit hours. The one lecture hour per week will involve a seminar regarding technology issues.

**Prerequisite:** Minimum of six credit hours of CIS courses with a GPA of 2.5 or better. Consent of program coordinator and internship instructor.

### **CIS 143 Introduction to Database Systems (2-2) 3 crs.**

Provides students with a comprehensive introduction to database concepts. Primary focus is on the relational model of database management and querying databases using Structured Query Language (SQL). Existing relational databases are examined and manipulated, and new relational databases are created.

**Prerequisite:** CAS 160 or CIS 101 or WEB 110 with a grade of C or better and math placement in MTH 101 or higher.  
[https://www.harpercollege.edu/registration/testing/pdf/Math\\_Placement\\_Grid.pdf](https://www.harpercollege.edu/registration/testing/pdf/Math_Placement_Grid.pdf)

### **CIS 206 Applied Programming (3-2) 4 crs.**

Introduces application development and problem solving using a currently popular programming language. Includes variables, conditions, loops, functions, strings, lists, dictionaries, sets, error handling, classes, file data, Internet data, databases, and code documentation.

**Prerequisite:** CIS 106 and MTH 103 with grades of C or better, or other MTH placement options. [https://www.harpercollege.edu/registration/testing/pdf/Math\\_Placement\\_Grid.pdf](https://www.harpercollege.edu/registration/testing/pdf/Math_Placement_Grid.pdf)

### **CIS 211 IT Project Management (2-2) 3 crs.**

Provides students with a comprehensive introduction to Information Technology project management. Includes project selection, initiation, planning, execution, monitoring and closure. Hands-on activities are performed using a currently popular project management software package.

**Prerequisite:** CAS 105, CAS 115 and CAS 125 with grades of C or better, OR CAS 160 with a grade of C or better; AND math placement in MTH 101 or higher. [https://www.harpercollege.edu/registration/testing/pdf/Math\\_Placement\\_Grid.pdf](https://www.harpercollege.edu/registration/testing/pdf/Math_Placement_Grid.pdf)

### **CIS 216 Applied Object-Oriented Programming (3-2) 4 crs.**

Introduces object-oriented application development and problem solving using a currently popular programming language. Includes objects, classes, exception handling, unit testing, encapsulation, inheritance, polymorphism, data structures, data serialization, GUI applications, and web frameworks.

**Prerequisite:** CIS 106 and MTH 103 with grades of C or better, or other Math placement options. Recommended: CIS 206 and WEB 110, or equivalent experience. [https://www.harpercollege.edu/registration/testing/pdf/Math\\_Placement\\_Grid.pdf](https://www.harpercollege.edu/registration/testing/pdf/Math_Placement_Grid.pdf)

### **CIS 220 Topics in Computer Information Systems (1-0 to 6-0) 1-6 crs.**

Studies selected problems, computer software or computer languages. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information with pre-registration materials will be available each time the course is offered. This course may be repeated up to a maximum of six credit hours.

**Prerequisite:** Consent of instructor.

### **CIS 230 Computer Programmer Internship (1-15) 3 crs.**

Applies computer skills in practical situations and also involves a field project in local computer installation. Open only to computer degree candidates. Fourth semester standing with an overall GPA of 3.0 and 3.5 GPA in computer courses.

**Prerequisite:** Consent of program coordinator.

### **CIS 243 Database Administration (2-2) 3 crs.**

Provides students with hands-on experience installing, configuring, maintaining and supporting a currently popular relational database management system (DBMS). Includes installation, configuration, backup and restore, security, performance monitoring and replication.

**Prerequisite:** CIS 143 with a grade of C or better.

### **CIS 244 Database Design and Implementation (2-2) 3 crs.**

Provides students with hands-on experience designing and implementing databases using a currently popular relational database management system (DBMS). Includes logical design, physical design, database creation, data import/export, views, stored procedures, triggers, transactions, performance and security.

**Prerequisite:** CIS 143 with a grade of C or better.

### **CIS 245 Data Analysis (2-2) 3 crs.**

Introduces data analysis using current statistical computing and graphics software. Includes descriptive statistics, probability, sampling, regression, and hypothesis testing of large data sets used to make data-informed decisions.

**Prerequisite:** MTH 165 or MTH 225 with a grade of C or better.