

# COMPUTER INFORMATION SYSTEM (CIS)

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## CIS 110 Programming Fundamentals 5 Credits

Covers essential programming concepts and skills common to most modern programming languages. Students learn to design, code, test, and debug Python programs, including working with data files.

**Prerequisite:** Prerequisite: C or better in MATH 097 or MATH& 146.

## CIS 160 Desktop Application Development 5 Credits

Introduces programming structures, concepts, techniques and terminology using the Visual Studio development environment and the C# programming language. Familiarity with basic computer operations using Microsoft Windows, file management, the internet, and basic application software is required. CIS 110 recommended.

**Prerequisite:** Prerequisite: C or better in MATH 097 or MATH& 146.

## CIS 166 Programming Business Objects 5 Credits

Introduces concepts and techniques of object-oriented programming, validation and storage of business data sets, and user interfaces.

**Prerequisite:** Prerequisite: CIS 160.

## CIS 169 Requirements Analysis 5 Credits

Introduces planning, analysis, and design of software, with an emphasis on development methodologies, design process, and communication techniques.

**Prerequisite:** Prerequisite: CIS 166.

## CIS 182 SQL Fundamentals 5 Credits

Introduces Structured Query Language (SQL). Emphasizes techniques for writing efficient SQL queries using a common commercial implementation of SQL. CIS 110 recommended.

**Prerequisite:** None.

## CIS 185 HTML, CSS, Javascript 5 Credits

Introduces creating web pages with HTML5 and CSS. Covers JavaScript coding to create, test, debug, and document programs. CIS 166 recommended.

**Prerequisite:** Prerequisite: CIS 160.

## CIS 189 XML/Dom 5 Credits

Introduces Extensible Markup Language (XML), proper structure for XML documents, validation, and data manipulation.

**Prerequisite:** Prerequisite: CIS 185.

## CIS 195 Introduction to Cloud Computing 5 Credits

Introduces basic concepts and operation of cloud environments. Includes virtual machines (VMs), storage, and security.

**Prerequisite:** Prerequisite: Completion of CIS 160 or concurrent enrollment in CIS 160.

## CIS 218 Powershell, Cybersecurity, Ethics 5 Credits

Introduces PowerShell scripting, basic cybersecurity concepts, and ethical issues for software development.

**Prerequisite:** Prerequisite: CIS 166 and C or better in ENGL& 101.

## CIS 235 Rich Internet Applications 5 Credits

Explores development of rich internet applications using standard web technologies and preconfigured server-side resources.

**Prerequisite:** Prerequisite: CIS 182 and CIS 185.

## CIS 245 Business Information Systems 5 Credits

Introduces business information systems. Explores the role of software developers and database managers in developing, refining, and supporting these systems.

**Prerequisite:** Prerequisite: CIS 266.

## CIS 266 Introduction to Business Applications 5 Credits

Explores how to edit, present, and store data using object-oriented programming and relational databases.

**Prerequisite:** Prerequisite: CIS 166 and CIS 182.

## CIS 269 Software Maintenance 5 Credits

Covers responsibilities and techniques of the maintenance programmer. Includes version control software, teamwork, basic project planning, select cybersecurity issues, and software testing.

**Prerequisite:** Prerequisite: CIS 169 and CIS 235.

## CIS 282 SQL Programming 5 Credits

Continues development of relational databases and associated services using Structured Query Language (SQL) in Microsoft SQL Server. Introduces transaction processing, stored procedures, indices, constraints, triggers, and views.

**Prerequisite:** Prerequisite: CIS 182 and CIS 160.

## CIS 284 Web Application Development 5 Credits

Introduces development of interactive web pages using ASP.NET server-side programming. Web programming with SQL databases, addresses security issues, develops web services, and introduces deployment to cloud services.

**Prerequisite:** Prerequisite: CIS 166, CIS 182, and CIS 185.

## CIS 287 Mobile Application Development 5 Credits

Covers mobile app development, packaging, and release for Android and iOS devices.

**Prerequisite:** Prerequisite: CIS 166 and CIS 185.

## CIS 293 Application Development-Special Projects 2-5 Credits

Provides an opportunity for a special project selected jointly by the student and instructor. Written proposal and project timeline must be approved by the instructor prior to registration. Requires a special agreement form. Credits vary based on areas covered and application complexity.

**Prerequisite:** None