Notes:

General Information/Requirements

24 total credit hours -- 12 credits from lower-division courses and 12 credits from upper-division courses listed below:

Lower Division:  CIS 110, CIS 111, CIT 281  OR  CIS 111, CIS 115, CIT 281
Upper Division:  CIT 381, CIT 382, CIT 383

All courses must be taken graded. Lower-division courses must be completed with a grade of B- or better. Upper-division courses must be completed with a grade of C- or better and are offered only one time per year. Before enrolling in CIT 381 (or sooner), you must officially declare the minor with the CIS department.

Lower-Division Courses

- **CIS 110 - Fluency with Information Technology.** Introduction to information technology (IT), the study of computer-based information systems. Basics of the Internet and World Wide Web. Students create websites using XHTML and CSS.
- **CIS 111 - Introduction to Web Programming.** Project-based approach to learning computer programming by building interactive web pages using JavaScript and XHTML. Programming concepts including structured and object-oriented program design. CIS 110 recommended preparation.
- **CIS 115 - Multimedia Web Programming.** Intermediate web programming with an emphasis on HTML5 multimedia: two-dimensional graphics, image processing, animation, video, user interaction, geolocation. Continuing JavaScript, DOM, Ajax, and JSON use, programming fundamentals, and debugging techniques. Prereq: CIS 111.
- **CIT 281 – Web Applications Development I.** Fundamentals of web application development using open-source software tools and technologies (Unix, Git), client-side frameworks, server-side programming (Node.js, PHP), model-view-controller pattern, data storage and APIs, cloud hosting hours. Prereq: CIS 111.

Upper-Division Courses

- **CIT 381 - (Fall) Database Systems.** Introduction to database systems, emphasis on database design and access. Database concepts, data modeling, SQL, connecting database to web. Prereq: CIT 281.