

Program Chair, Chunbo Chu, Ph.D.

Curriculum developed in collaboration with the International Institute for Innovative Instruction and:

Bradley Watson, Ph.D., Lead Faculty

Todd Whittaker, M.S., Lead Faculty

Advisory Board (listed on page 424)

There is a tremendous need for technical experts with the ability to create innovative computer systems. The Computer Science program is offered for individuals who are interested in applying, designing and implementing computer systems. Students are provided with a sound theoretical and practical background coupled with the skills to understand, develop, and use theories. The specific goal of the program is to graduate highly-trained computer professionals who have firm foundations in software systems development and software engineering.

The curriculum for the Computer Science program involves development of significant high-level technical skills, but is not a programming degree. Although it provides students with a solid foundation of programming expertise, the Computer Science curriculum prepares students to assume significant responsibility in an IT organization. Graduates will be knowledgeable in advanced software design, design of multi-tier enterprise applications, and software architecture. The Computer Science program is designed to develop a broad base of skills, from basic software design to extending and maintaining large-scale software systems in a corporate environment using industrial strength tools and practices. Because of their broad exposure to elements of the field of computer science, graduates enjoy flexibility in the types of careers they are prepared to pursue.

Graduates of the Computer Science program will be able to:

1. Develop and implement effective solutions to real world problems
2. Demonstrate the knowledge and skills required to contribute to the development and maintenance of large-scale software applications within an organizational structure
3. Communicate appropriately for technical and expert audiences
4. Apply mathematical models and methods in problem solving

For more information on the Computer Science program, including career opportunities, program assessment and faculty, <http://www.franklin.edu/computer-science-bachelors-degree-program>.

A discussion listserv is available for subscription by Computer Science majors at <http://listserv.franklin.edu>.

TECHNOLOGY REQUIREMENTS:

Students in the Computer and Information Sciences Majors are expected to exceed the University's General Technology Requirements, and may be required to purchase hardware and/or software with capabilities greater than the standard technology requirements. There will be software requirements such as software development environments, operating systems, virtualization environments and tools, website development and business process documentation tools that will be used in various courses. Students should be prepared to invest in this software, and be able to install and uninstall it without assistance. Courses with specific hardware and software requirements are detailed in the course syllabus under the "Required Materials" section.

To maximize the educational experience, Computer and Information Sciences students must have:

- Current model computer (less than 2 years of age)
- DVD optical drive
- 2 GB RAM minimum (4 GB+ recommended)
- Broadband access
- 40 GB or higher of available hard drive space at the beginning of each term

OUTCOME MAP - COMPUTER SCIENCE

A learning outcome map functions as a roadmap to help guide students' progress through their program of study. It shows where each outcome is Introduced (I), Reinforced (R), and Assessed (A) within the program's curriculum.

PROGRAM LEARNING OUTCOMES

	1	2	3	4
COMP 111	I	I		
COMP 121	I, R	R		I
COMP 201	I	I		
COMP 204	I	I		
COMP 294	I, R, A			
ISEC 200	I			
MATH 170	I			I
COMP 311	R, A	R		R, A
COMP 321	I, R	R		
COMP 323	I	I		
COMP 394	R	A		
COMP 495	R	A	A	
COMP 325	I, R			
COMP 461	I, R	I, R		
COMP 486	I, R	I, R		
INFA 300	R			I
ISEC 300	R			
ITEC 475	I	I		
MIS 310	I			
WEBD 325	I	I		

ASSOCIATE OF SCIENCE (A.S.) COMPUTER SCIENCE (64 SEMESTER HOURS)

FUNDAMENTAL GENERAL EDUCATION CORE (24 HOURS)

Minimum of three semester hours of English Composition (if the course does not have a research paper component, WRIT 130 Research Paper, two semester credits, is also required)

Choose WRIT 120 College Writing.

Minimum of three semester hours of Mathematics (at least one mathematics or statistics course beyond the level of intermediate algebra) *Choose MATH 160 College Algebra.

Minimum of six semester hours of Sciences (two science courses, with one having a laboratory component) Choose from the Science discipline.

Minimum of six semester hours of Social and Behavioral Sciences (which must be in at least two different disciplines) Choose from the Anthropology, Economics, Psychology, and Sociology disciplines, or American Government in Action (PUAD 295).

Minimum of six semester hours of Arts and Humanities

Choose HUMN 211 Introduction to Ethical Analysis and Reasoning and also choose one or more from the Humanities discipline.

*Choose MATH 150 Fundamental Algebra as the prerequisite. Can count as a general education or University elective.

ADDITIONAL GENERAL EDUCATION REQUIREMENTS (12 HOURS)

PF 321 - Learning Strategies (2)

SPCH 100 - Speech Communication (4)

OR COMM 150 - Interpersonal Communication (4)

General Education Electives (6)

MAJOR AREA (24 HOURS)

COMP 111 - Introduction to Computer Science & Object-Oriented Programming (4)

COMP 121 - Object-Oriented Data Structures & Algorithms I (4)

COMP 201 - Principles of Computer Organization (2)

COMP 203 - Principles of Operating Systems (2)

COMP 204 - Principles of Computer Networks (2)

COMP 215 - Programming Languages: Principles & Practice (4)

COMP 281 - Database Management Systems (4)

COMP 294 - Computer Science Practicum I (2)

UNIVERSITY ELECTIVES (4 HOURS)

Any undergraduate courses offered by the University except developmental education courses.

BACHELOR OF SCIENCE (B.S.) COMPUTER SCIENCE (124 SEMESTER HOURS)

FUNDAMENTAL GENERAL EDUCATION CORE (24 HOURS)

Minimum of three semester hours of English Composition (if the course does not have a research paper component, WRIT 130 Research Paper, two semester credits, is also required)

Choose WRIT 120 College Writing.

Minimum of three semester hours of Mathematics (at least one mathematics or statistics course beyond the level of intermediate algebra) *Choose MATH 160 College Algebra.

Minimum of six semester hours of Sciences (two science courses, with one having a laboratory component) Choose from the Science discipline.

Minimum of six semester hours of Social and Behavioral Sciences (which must be in at least two different disciplines) Choose from the Anthropology, Economics, Psychology, and Sociology disciplines, or American Government in Action (PUAD 295).

Minimum of six semester hours of Arts and Humanities

Choose HUMN 211 Introduction to Ethical Analysis and Reasoning and also choose one or more from the Humanities discipline.

*Choose MATH 150 Fundamental Algebra as the prerequisite. Can count as a general education or University elective.

ADDITIONAL GENERAL EDUCATION REQUIREMENTS (14 HOURS)

MATH 280 - Introduction to Probability & Statistics (4)

PF 321 - Learning Strategies (2)

SPCH 100 - Speech Communication (4)

OR COMM 150 - Interpersonal Communication (4)

WRIT 220 - Research Writing: Exploring Professional Identities (4)

PROFESSIONAL CORE (24 HOURS)*

COMP 111 - Introduction to Computer Science & Object-Oriented Programming (4)

COMP 121 - Object-Oriented Data Structures & Algorithms I (4)

COMP 201 - Principles of Computer Organization (2)

COMP 204 - Principles of Computer Networks (2)

COMP 215 - Computer Languages: Principles & Practices (4)

COMP 281 - Database Management Systems (4)

COMP 294 - Computer Science Practicum I (2)

ISEC 200 - Cyber Security Fundamentals (2)

UNIVERSITY ELECTIVES (24 HOURS)*

Any course offered by the University except developmental education courses.

*A maximum of 6 credit hours of specific MBA or 8 credit hours of M.S. Computer Science courses can be substituted. Contact your Academic Advisor for information concerning the Joint BS/MBA or BS/MS Programs of Study and graduate admission requirements.

MAJOR AREA (38 HOURS)

Required (22 hours)

COMP 311 - Object-Oriented Data Structures & Algorithms II (4)

COMP 321 - Application Server Programming (4)

COMP 323 - Fundamentals of Operating Systems (4)

COMP 394 - Computer Science Practicum II (2)

COMP 495 - Computer Science Practicum III / Capstone (4)

MATH 170 - Discrete Mathematics (4)

Major Area Electives (16 hours)

Select 16 hours from the following:

COMP 325 - Human Computer Interaction (4)

COMP 461 - Enterprise Software Architecture (4)

COMP 486 - Object-Oriented Analysis & Design (4)

INFA 300 - Introduction to Analytics (4)

ISEC 300 - Information Assurance (4)

MIS 310 - Information Systems Architecture & Technology (4)

WEBD 325 - Mobile Programming (4)

*Other 300 or 400 level course may be selected from Computer Science, Information Security, Information Systems, Information Technology, or Web Development upon approval of the Program Chair.

ACADEMIC MINORS

Degree-seeking students can pursue one of our Academic Minors. See the section titled "Academic Minors."