COMPUTER NETWORKING BACHELOR OF SCIENCE

*** This program is no longer accepting new applicants. It is being replaced by the Bachelor of Science in Information Technology (https://catalog.wit.edu/computing-data-science/computer-science-networking/information-technology-bs/).***

Leading to a Bachelor of Science Degree in Computer Networking

The Bachelor of Science in Computer Networking program is accredited by the Computing Accreditation Commission of ABET (http://www.abet.org).

Students in Computer Networking (BSCN) gain valuable skills in switching and routing, network and computer security, administration, web development, databases, and scripting. Coursework emphasizes practical applications of these skills in designing, configuring, documenting, and maintaining complex systems. Students also apply these skills directly in the work environment through two required co-op work semesters beginning junior year.

Program Educational Objectives

Within three to five years of graduation:

- Graduates are proficient at solving computer networking problems in the workplace.
- Graduates pursue productive careers in computer networking or a related computing field.
- Graduates are engaged in continuing professional development or professional societies in computer networking, or a related computing field.
- Graduates follow standards set forth by professional societies of which they are members.

Student Outcomes

Graduates of the program will have an ability to:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

Total credits for degree: 120

This four year program, starting in the fall semester of the student's first year and planned to end in the summer semester of the student's fourth year. The courses are as follows:

Course	Title	Credits
Freshman Year		
Fall Semester		
COMP1000	COMPUTER SCIENCE I	4
COMP1100	INTRODUCTION TO NETWORKS	4
MATH1500	PRECALCULUS	4
English Sequence*		4
	Credits	**16**
Spring Semester		
COMP1050	COMPUTER SCIENCE II	4
COMP1150	ROUTING AND SWITCHING	4
MATH2300	DISCRETE MATHEMATICS	4
English Sequence*		4
	Credits	**16**
Sophomore Year		
Fall Semester		
COMP1200	COMPUTER ORGANIZATION	4
COMP2500	SECURITY PRINCIPLES	4
MATH1030	STATISTICS & APPLICATIONS	4
HSS Elective [3]		4
	Credits	**16**
Spring Semester		
COMP2150	NETWORK ADMINISTRATION	4
COMP2160	WIRELESS NETWORKS	4
COMP2650	DATABASES	4
SCIENCE Elective [2]		4
	Credits	**16**
Summer Semester		
COOP3000	PRE CO-OP WORK TERM (OPTIONAL)	1
	Credits	**1**
Junior Year		
Fall Semester		
COMP3100	SYSTEM ADMINISTRATION	4
COMP3500	NETWORK SECURITY	4
NET Elective [1]		4
HSS Elective [3]		4
	Credits	**16**
Spring Semester		
COOP3500	COOP EDUCATION 1	
	Credits	**0**
Summer Semester		
COMP3550	COMPUTER SECURITY	4
MATH1900	INTRODUCTION TO OPERATIONS RESEARCH	4
NET Elective [1]		4
NET Elective [1]		4
	Credits	**16**
Senior Year		
Fall Semester		
COOP4500	COOP EDUCATION 2	
	Credits	**0**

Course	Title	Credits
Spring Semester		
COMP4650	WEB DEVELOPMENT	4
COMP4950	PROJECT MANAGEMENT	4
HSS Elective [3]		4
	Credits	**12**
Summer Semester		
COMP5500	SENIOR PROJECT	4
NET Elective [1]		4
Advanced Security Elective [1]		4
	Credits	**12**
	Total Credits	**121**

1

Computer Networking students take a total of five major electives. Four electives must be selected from the Computer Networking Electives and at least one selected from the Advanced Security Elective list below. The Computer Networking Elective courses to be offered in a particular semester will be selected by the School of Computing and Data Science.

2

Computer Networking students are required to take one science elective. The science elective can be a 4-credit course in Biology, Chemistry, or Physics for which the student has the prerequisite courses. BIOl2990, Chem2990, PHYS2990, BIOL3800, CHEM3800 and PHYS3800 require School approval to satisfy the Science Elective requirement.

3

Of the three listed humanities and social science electives BSCN students must include and Ethics course:
PHIL4401 ENGINEERING ETHICS, PHIL4501 ETHICS, PHIL4525 VIRTUAL ETHICS or PHIL4600 DESIGNING THE GOOD LIFE

ENGL/HSS Note

Students are required to complete:

- At least one course in Humanities: CSAS, HSSI, HIST, HUMN, LITR and PHIL
- At least one course in the Social Sciences: CSAS, HSSI, COMM, ECON, ENVM, POLS, PSYC and SOCL
- The remaining course from either the Humanities or Social Sciences category.

Students with a three English course sequence may use the third English course to satisfy a Humanities requirement.

A minimum of 20 credits total, including English, humanities, and social science credit, is required to complete the humanities and social sciences graduation requirement.

The Computer Networking Electives:

Course	Title	Credits
COMP2000	DATA STRUCTURES	4
COMP2350	ALGORITHMS	4
COMP3125	DATA SCIENCE FUNDAMENTALS	4
COMP3200	ASSEMBLY LANGUAGE	4
COMP3350	PROGRAMMING LANGUAGES	4
COMP3400	OPERATING SYSTEMS	4
COMP3450	PARALLEL COMPUTING AND DISTRIBUTED COMPUTING	4
COMP3575	SCRIPTING FOR CYBERSECURITY AND FORENSICS	4
COMP3580	DIGITAL FORENSICS	4
COMP3590	APPLIED CRYPTOGRAPHY	4
COMP3660	MOBILE APP DEVELOPMENT	4
COMP3750	INTRODUCTION TO BIOSTATISTICS	4
COMP3800	SPECIAL TOPICS IN COMPUTER NETWORKING OR COMPUTER SCIENCE (require School approval to satisfy Computer Networking Electives)	4
COMP4050	MACHINE LEARNING	4
COMP4150	ADVANCED SYSTEM ADMINISTRATION	4
COMP4450	SYSTEMS PROGRAMMING	4
COMP4460	COMPILERS	4
COMP4960	SOFTWARE ENGINEERING	4
COMP4500	OFFENSIVE SECURITY	4
COMP4550	INCIDENT RESPONSE & BUSINESS CONTINUITY	4
COMP4580	NETWORK FORENSICS	4
COMP4590	PUBLIC KEY CRYPTOGRAPHY	4
COMP4600	QUANTUM COMPUTING FOR SECURITY	4
COMP4700	ARTIFICIAL INTELLIGENCE	4
COMP4750	EMBEDDED ARTIFICIAL INTELLIGENCE	4
COMP4775	ADVANCED PARALLEL COMPUTING	4
COMP5050	MODERN COMPUTING	4
COMP5750	EMBEDDED ARTIFICIAL INTELLIGENCE	4
COMP5775	ADVANCED PARALLEL COMPUTING	4

The Advanced Security Electives:

Course	Title	Credits
COMP3575	SCRIPTING FOR CYBERSECURITY AND FORENSICS	4
COMP3580	DIGITAL FORENSICS	4
COMP3590	APPLIED CRYPTOGRAPHY	4
COMP4500	OFFENSIVE SECURITY	4
COMP3800	SPECIAL TOPICS IN COMPUTER NETWORKING OR COMPUTER SCIENCE (require School approval to satisfy Advanced Computer Networking Electives)	4
COMP4550	INCIDENT RESPONSE & BUSINESS CONTINUITY	4
COMP4580	NETWORK FORENSICS	4
COMP4590	PUBLIC KEY CRYPTOGRAPHY	4
COMP4600	QUANTUM COMPUTING FOR SECURITY	4