

## CS 5015 : CONCEPTS & ISSUES IN COMPUTING

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<i>Semester Hours:</i>	3.0	<i>Contact Hours:</i> 3
<i>Coordinator:</i>	Robert Green	
<i>Text:</i>	Computing Technology for All	
<i>Author(s):</i>	F. Vahid, S. Lysecky, N. Wheatland, and R. Siu	
<i>Year:</i>	2019	

### SPECIFIC COURSE INFORMATION

#### *Catalog Description:*

This course provides real insights, experiences, and practical skills relating to the world of computing technology, how it was developed, how it is used, and its impacts on everyday life. Topics covered may include the history of computing, hardware, software, programming, internet/web, operating systems, applications, privacy, security, information systems, societal issues, and various other computing concepts that should be understood in the modern era. Prerequisite: Admission to the Computer Science Educator Endorsement. Does not count towards the MS in Computer Science degree. Approved for distance learning.

Course type: **SELECTED ELECTIVE**

### SPECIFIC COURSE GOALS

- I can describe computer networks and the internet
- I can explain basic security and privacy concepts and practices
- I can analyze trade-offs between usability and security
- I can analyze how people influence computing through their behaviors, cultural norms, and social interactions
- I can evaluate how computing impacts society in both positive and negative ways.

### LIST OF TOPICS COVERED

- Computing history
  - Major figures
  - Hardware and programming
- Hardware and software
  - Basic hardware
  - Machine, assembly, and high-level languages
  - Input/output devices
- Internet and world wide web
  - Networks
  - Network addressing

- Web basics & search
  - HTML, CSS, JavaScript
- Operating systems
  - Common operating systems
  - Drivers
- Computer applications
  - Word processing, spreadsheets, and presentation applications
  - Database applications
  - Audio and video applications
  - Compression and graphics
- Web/mobile Applications
  - Video and streaming
  - Social Networking
  - Email
  - Text messaging
- Privacy
  - Anonymity and tracking
  - Data control
- Security
  - Viruses and malware
  - Antivirus/malware
  - Firewalls
  - Account Security
  - Spam
  - Cryptography and Encryption
  - Denial of service attacks
- Information Systems
  - Definition and development
  - Cloud computing
- Societal Issues
  - In-house vs. outsourcing
  - Crowdsourcing
  - E-commerce
  - Dating
  - Health data
  - Intellectual Property
  - Cybercrime and cyberbullying
- Other Concepts
  - Problem solving
  - Collaboration
  - Abstraction
  - Modeling and simulations
  - Large data
  - Data Visualization