Computer Science
Information Technology

Dr. Chuck Lillie
Associate Professor, UNCP
Department of Mathematics and Computer Science
lilliec@uncp.edu
www.uncp.edu/home/lilliec
What is Computer Science and Information Technology?

- The study of computers and the systems built around computers.
- Development of programs to control these systems, and work on applications that use computers.
- Computer applications solve problems across all of society, and computer scientists work with all aspects of these applications.
What will You Learn Studying Computer Science and Information Technology?

• All the basics of computer science
  – Hardware and software components
  – Programming and algorithms
  – Databases, operating systems, and network administration
  – Web site development and maintenance

• Once you understand how computers work and the technology behind them, you will learn:
  – How to apply this knowledge in a business setting
  – How to customize and integrate systems to meet business and individual user needs
  – How to design networking systems
  – How to handle security problems
Typical Jobs Requiring Computer Science and Information Technology Degrees

• Job areas
  – Design and build hardware and software systems
  – Design, build, and maintain web sites
  – Write computer games

• Typical starting salaries
  – $47,000 a year: U.S. Department of Labor estimates

• Types of businesses
  – Federal, state, and local government
  – Practically all industries
  – Educational institutions
  – Medical facilities
Typical Computer Science Career Fields

- Artificial intelligence (making computers look intelligent)
- Computer algebra (using computers for Mathematical problems)
- Computer architecture (Hardware components of a computer)
- Computer graphics (making pictures with computers)
- Computer networks (hooking computers to other computers)
- Computer programming (writing, or making, computer programs)
- Computer security (making computers and their data safe)
- Databases (a way to get and store data)
- Data structure (how to form or group data)
Typical Computer Science Career Fields …

• Distributed computing (using more than one computer at a time)
• Information retrieval (getting data back)
• Operating systems (makes a computer run: Linux, MS Windows, Mac OS)
• Programming languages (languages uses to make computer programs)
• Program specification (what a program is supposed to do)
• Program verification (does a computer program do what it is supposed to do)
• Robots (Using machines controlled by computers)
• Software engineering (making computer programs better)
Degrees Offered at UNCP

• Bachelor of Science in Computer Science
  – Minor in Computer Science
  – 128 majors
  – 9 graduates per semester

• Bachelor of Science in Information Technology
  – Minor in Information Technology
  – Program started in Fall 2008
Computer Science

- Four year degree
- General Education: 45 hours
- Core Computer Science: 44 hours
  - Computer Science: 30 hours
  - Mathematics: 14 hours
- Advanced Computer Science: 12 hours
- General Electives: 19 hours
Core Computer Science
- Java and Object Oriented Programming
- Algorithm Development
- Discrete Structures
- Data Structures
- Digital Logic and Computer Architecture
- Operating Systems and Networking
- Software Engineering
Computer Science…

• Mathematics
  – Calculus I and II
  – Linear Algebra
  – Probability and Statistics
Computer Science…

• Two tracks in advanced courses
  – Computer Systems
    • Network Management
    • Compiler Design
    • Operating Systems
    • Computer Architecture
  – Application Programming
    • Database Management Systems
    • Component Based Computing
    • Programming for the World Wide Web
    • Data Mining
Information Technology

• Four year degree
• General Education: 45 hours
• Core Information Technology: 46 hours
  – Computer Science: 33 hours
  – Information Technology: 6 hours
  – Mathematics: 7 hours
• Advanced Information Technology: 12 hours
• General Electives: 17 hours
Information Technology...

- Core Information Technology
  - Java and Object Oriented Programming
  - C and C++
  - Data Structures
  - Discrete Structures
  - World Wide Web Information
  - Operating Systems and Networking
  - Software Engineering
  - Human Computer Interactions
  - System Administration
Information Technology…

• Mathematics
  – Calculus with Applications
  – Introduction to Statistics
Information Technology…

- Two tracks in advanced courses
  - Information Systems
    - Advanced Computer Systems
    - System Administration
    - Computer Network and Data Communication
  - Application Software Development
    - Web Database Development
    - Windows and Game Programming
    - Website Development and Multimedia
Contact Information

Dr. Chuck Lillie
910-521-6415
lilliec@uncp.edu
www.uncp.edu/home/lilliec