AREAS OF TECHNOLOGY
Computer Science
Focus on Undergraduate Research and Teaching

Started at UNCW: Fall 1998
• Split from Department of Mathematics and Statistics

Faculty:
• 11 tenure track:
  – 5 Full
  – 4 Associate
  – 2 Assistant
• 3 FT Lecturers/4 PT Instructors

Staff
• 1 Administrative Assistant
• 1 Systems Administrator
Computer Science
Focus on Undergraduate Research and Teaching

Undergraduate CS Students

• ~ 250 majors:
  – 107 Systems (1 double major with Studio Arts)
  – 8 Biology
  – 49 Business (1 double major with MIS)
  – 2 Chemistry
  – 67 Digital Arts (3 double majors: 1 FST and 2 ASTU)
  – 5 GIS
  – 1 Neuroscience
  – 9 Statistics
  – 5 3 + 2 Engineering Program

• ~ 136 minors
  – 32 Computer Science
  – 76 Digital Arts
  – 28 Information Technology

Summer Camps (2)

• Robotics

Community Outreach and Teaching

• CAS College Day
• OLLI
Why Choose Computer Science

• Challenging and rewarding subject:
  – Bachelor of Science
  – Minors

• Student Involvement in Research:
  – Human Computer Interface
  – Face Aging
  – Voice Recognition Technology in the Home

• High Employment rate after graduation:
  – > 95% employed after graduation or are in graduate school
  – Median salary for CS graduates in U.S.: $61,287
Careers in Computer Science/IT

- Information Scientist
- Engineering
- Cryptography
- Data Control Administrator
- ISO 2000 Specialist
- Computer Network Architects
- Computer Programs
- Computer Support Specialists
- Computer Systems Analysts
- Database Administrators
- Information Security Analysts
- Network Administrators
- Computer Systems Administrators
- Software Developers
- Web Developers
- Computer Technician
- Computer Artist
- Security Manager
- Data Analyst
- Game Designer
- Digital Designer
- Systems Analyst
- Mobile Applications
- Technology Manager
- Computer Forensics
- Graphic Designer
- Information Assurance
- Educator
- Communications Management
- Multimedia Programmer
CS Major Requirements
First 2 Years

- Introduction to Computer Science  
  - (11 credits)
- Discrete Mathematical Structures  
  - (3 credits)
- Computer Organization  
  - (3 credits)
- Scientific Computing  
  - (3 credits)
- Calculus  
  - (8 credits)
- Statistics  
  - (3 credits)
- Science Sequence Requirement I (4 credits)

CSC Major Requirements: 35 credits (~73 overall)

University Studies: 28 credits
CS Major Requirements
Second 2 Years

Year 3:
Semesters 5 and 6

- Operating Systems.......................... (3)
- Formal Languages and Computability
  ............................................. (3)
- Design and Analysis of Algorithms
  ............................................. (3)
- Professional and Ethical Issues in
  Computer Science........................... (3)
- CSC Elective I................................. (3)
- Science Sequence Requirement II........ (4)
- Science Requirement I....................... (4)
- University Studies........................... (9)

Year 4:
Semesters 7 and 8

- Programming Languages.................... (3)
- Software Engineering....................... (3)
- Database Design and Implementation
  ............................................. (3)
- CSC Elective II............................... (3)
- CSC Elective III.............................. (3)
- University Studies......................... (15)
Minors in Computer Science

3 Options

– Computer Science
  • 20 credit hours
  • 32 students

– Digital Arts
  • 24 credit hours
  • interdisciplinary
  • 76 students

– Information Technology
  • 18 credit hours
  • interdisciplinary
  • 28 students
CS Undergraduate Degrees

CSC Undergraduate Graduates, UNCW

# of graduates

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<tr>
<th>Year</th>
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Bachelor of Science Information Technology

Shared undergraduate major:

Department of Computer Science, College of Arts & Sciences
Information Systems/Operations Management Department, Cameron School of Business
Information Technology
Teaching coupled with Research

Started at UNCW: Fall 2013

- Shared program between the Department of Computer Science and the Information Systems Operations Management Department

Undergraduate Students

~ 106 majors

Original plan at the end of:

- Year 1 was 15 FT students
- Year 4 was 100 FT

Why Choose IT?

IT is the *use* of computers and telecommunications to retrieve, store and transmit information.

Responsibilities of those working in the field include:

- network administration, software development and installation, the planning and management of an organization's technology life cycle

Connection to CFCC’s Business Technologies Department
IT Major Requirements
First 2 Years

- Fluency in Information Technology (3 credits)
- Digital Media (3 credits)
- Platform Technologies (3 credits)
- Network Fundamentals (3 credits)
- Introduction to Computer Science (programming) (4 credits)
- Calculus (3 credits)
- Statistics (3 credits)

- IT Major Requirements. .......................... 24 credits (~64 overall)
- University Studies. .............................. 37 credits
## IT Major Requirements

### Second 2 Years

#### Year 3:

**Semesters 5 and 6**

- Introduction to Databases ............... (3)
- Web Page Development .................. (3)
- Information Security Management ... (3)
- System Administration .................. (3)
- Web Application Development ........ (3)
- Management of Database Systems .. (3)
- Business Application Development .. (3)
- CIT Elective I .............................. (3)
- University Studies ....................... (6)

#### Year 4:

**Semesters 7 and 8**

- Information Systems Analysis .......... (3)
- Human-Computer Interfaces ............ (3)
- IT Resource Planning and Management .................................................. (3)
- Professional and Ethical Issues in Computer Science ......................... (3)
- CIT Elective II and III .................. (6)
- University Studies ....................... (15)
IT Undergraduate Degrees

IT Undergraduate Graduates, UNCW

# of graduates

First Year Degree Offered

13-'14

14-'15
CS Faculty Research

Examples
Research

Clayton Ferner (& others), NSF ($94,000)
Using Patterns to Teach Parallel Computing and
Toward using higher-level abstractions to teach Parallel Computing

Curry Guinn, Honeywell ($110,000)
Mixed Initiative Spoken Dialogue Control Addendum

Karl Ricanek, CIA ($2,200,000)
“Investigating the Periocular-based Face Recognition Across Gender Transformation,” with Gayathri Mahalingam and Midori Albert

Sridhar Narayan and Gene Tagliarini, NSF ($1,180,847)
“The Power of Computational Modeling and Simulation for Learning STEM Content in Middle and High Schools” with Shelby P. Morge and Mahnaz Moallem

HyunBum Kim (“Optimization Algorithms for Transmission range and actor movement in wireless sensor and actor networks,” with Jorge A. Cobb)
Master’s of Science
Computer Science Information Systems

Shared Graduate Degree:

Department of Computer Science, College of Arts & Sciences
Information Systems and Operations Management Department, Cameron School of Business
MS in CSIS
Professional Science Master’s

– Started in Fall 2006

– Total Graduates: 91

– Graduate Students
  • ~23 graduate students
    – 7 graduates in Spring 2015
    – 5 graduates in Fall 2015
MS in CSIS Curriculum

• 30 Hour Program

• One “on-ramp” course in either Business or Computer Science
  – New Business Overview Class (3 credits)
    • Introduction to Accounting, Marketing, Management, Finance
    • For Non-Business-Background Students
  – Introduction to Computer Science (3 credits)
    • Programming Course
    • For Non-Computer Science-background Students
MS in CSIS Curriculum

30 hours:
6 Course Courses (18 hours)
4 Electives (12 hours)

• Computer Science Required Courses
  – Network Programming
  – Software Engineering
  – Design and Analysis of Algorithms I

• Management Information Systems Required Courses
  – Database Management Systems
  – Information Security Management
  – Analysis, Modeling and Design

Select Electives
  Biologically Inspired Computing, Computer Gaming
  Data Mining, e-Business Strategies and Implementation, Systems Simulation
  Bio-Statistical Analysis
  Managerial Economics, Behavioral Management
Starting Salaries
Graduate Students

- Average starting salary 2012: $66,250
- Recent graduates hired by IBM: $110,000
- Average starting salary rose nearly $10,000 each year following recession
Employment

• 54% of graduates work in Wilmington, NC
  – 9% work at a major corporation: PPDI, GE Hitachi, Corning, Lear, IBM

• 43% of graduates hold a “leadership position” based on title or role
  – Director, Manager, Programming Team Leader, Project Manager, Senior Software Architect, Senior Database Administrator, President, etc.
Capstone Projects/Theses

• **Select Capstone Work:**
  – Analysis and Implementation of a Reporting System for Graduate Program Management
  – An Implementation of a Green Storage Area Network.
  – A Multi-University Data Analytics System for Understanding Campus Crime
  – Analysis and Implementation of a Financial Budgeting System
Capstone Projects/Theses

• Select Capstone Work (cont’d):
  – Language Analysis of Speakers with Dementia of the Alzheimer's Type

  – MyDay Medication Reminders

  – A Ticket Management System for the Office of Housing and Residence Life at the University of North Carolina Wilmington

  – iTour: A System for Self-Guided Virtual Tours of UNCW
The Information Systems and Master of Computer Science Information System (MS CSIS) Advisory Board works to improve the quality of our graduates in order that they are sought by employers.

The board currently is comprised of 25 executives of the business community from the Information Technology professional fields.
Advisory Board Goals

• Increase quality of our undergraduate and graduate students

• Increase value of membership for our corporate members

• Ensure faculty obtains practical awareness of technology environments, changes, and growth

• Act as conduit for Wilmington area Information Technology community
Advisory Board Members

- AAI Pharma
- ATMC
- Cape Fear Community College
- Castle Branch
- Credit Suisse
- Cloudwyze
- Corning Inc
- Duke Energy
- EMC
- GE Hitachi Nuclear Energy
- IBM
- New Hanover County
- New Hanover Regional Medical Center
- PPDI Inc
- Sage Island
- Smithfield Premium Genetics
- StepQuest Inc
- Tritech
- UNCW ITSD
- Velocity Solutions
- Vmware
New Programs
Under Development
New Programs Under Development

• Digital Arts Major *(Bachelor of Arts degree)*
  – Collaboration between Computer Science and Art/Art History

• Applied Data Analytics *(Master of Science degrees)*
  – Business Analytics (Cameron School of Management)
  – Data Science (Computer Science with Math and Statistics)
Student Success Stories

Kunta Lowe  
Student, Applicant to  
Clemson University  
BS 2015  
Computer Science

Sabrina Banks  
Web Developer  
Castle Branch  
BS 2015  
Computer Science

Caroline Koska Reda  
Former President and CEO  
GE Hitachi  
BS 1985, summa cum laude  
Computer Science

Kelly Davis  
VP, Integration Solutions  
Castle Branch  
BS 2008  
Computer Science

Uche Iheadindu  
Systems and Data Analyst  
Boeing  
2013 MSCSIS

Sarah Ritter  
Student  
Applying to PhD programs  
2016 MSCSIS

Ashton Friedman  
Student  
UNCW  
2016 BS  
Systems Option