Academic Orientation
Computer Science Majors

Monday, August 22, 2011

Advising Team
Dr. Lillian (Boots) Cassel (MSC 288)
Prof. Cathy Helwig (MSC 165B)
Dr. Don Goelman (MSC 162A)
Jobs of the Advisor

- Consult for:
  - General insights into college life
  - Schedule planning
  - Internship ideas
  - Study abroad
  - Career planning
  - Summer opportunities

Advisor’s Role

- Help plan your courses for the next several semesters
- Help build the schedule for the next semester
- Approve registration for Villanova and for courses taken elsewhere
- Help modify schedules when necessary
- Give you a registration PIN when planning complete
Schedule Information

- Current semester: no advanced placement
  - Algorithms and Data Structures I (Java) [CSC 1051]
  - Calculus I [MAT 1500]
  - Core Humanities Seminar [ACS 1000]
  - Foreign Language
  - Humanities or Social Science [maybe PHI 1000]

More Schedule Information

- Advanced Placement
- Previous college credit
  - Courses at your high school
  - Courses at the nearby college
Important Dates

- Drop/Add deadline: Tuesday, Aug 30
- Labor Day: Monday, Sep 5 – no class
- Student Research Posters: Tuesday, Sep 20
- Fall break: Monday, Oct 10 – Friday, Oct 14
- Midterm grades: Wednesday, Oct 19
- WX deadline: Wednesday, Nov 9
- Thanksgiving break: no classes W-F, Nov 23 – 25
- Reading Day: Tuesday, Dec 13
  - Projects Day: Lunch and Posters
- Final exams: W, Dec 14 – T, Dec 20

UIS

Universal Information Source:
The fantastic, all-powerful, information rich
CS Department web site
csc.villanova.edu
Degree Requirements

- Computer science
  - 13 required courses
  - 3 elective courses
- Mathematics
  - 3 required courses (11 credit hours)
- Science
  - 8 credit hours of science (for science majors)
  - Total of 26 credit hours of math and science
- 12 humanities and social science courses
- 5 free electives

Value Added Courses

- Cognitive science
- Bioinformatics, computational molecular biology
- Summer Business Institute
- Minors such as mathematics, communication, English, business
- Study abroad
- Internship for academic credit
- BS/MS 5-year program
Opportunities

- **ViCS Program**
  - Enrichment Seminar (all are welcome)

- Scholarships
- Contests
- Research

- Paper or poster presentations at technical meetings
- Study abroad with internship: Rome and various Vatican offices
  - Creating virtual tours

Computing Community

- **ACM Student Chapter**
  - Monthly meetings
    - Industry presentations
  - Workshops
  - Social events (lose to faculty in volleyball)
Computing Community

- Competitions
  - MIT Battlecode programming competition
  - International Collegiate Programming Contest
  - Microsoft ImagineThat
  - Google Summer of Code
  - And more as they are announced

Computing Community (2)

- Upsilon Pi Epsilon
  - Computing honor society
  - Former national president is Villanova alumna

- National Center for Women in Information Technology (NCWIT)
  - Pacesetter University
Computing Community (3)

- Villanova Mac Users Group
- Service Projects
  - Computer recycling: TeamChildren
  - Julia de Burgos School
  - Programming workshops for the Girl Scouts
  - Program for Website Creation and Evaluation

Computing Community (4)

- **Spaces**
  - Department library (MSC 159)
  - Halls
  - Software Engineering lab (MSC 158)
  - Intelligent Systems lab (MSC 156)
  - CEET Center (St. Mary’s N110)
  - CS Help Desk (MSC 292)
    - schedule posted at csc.villanova.edu/support/cscHelpDesk
Introductions

- Meet your fellow majors:
  - Form a line ordered by birthday: all those born on the 1\textsuperscript{st}, regardless of month come 1\textsuperscript{st}, then those born on the 2\textsuperscript{nd}, etc.
  
  - Introduce yourself to the two people next to you (one on each side).

Working for the Department

- Work-study and regular
- Application form
- Hiring documents to complete I-9 form
  - Passport
  - Driver’s license AND social security card
Department Jobs

- Research assistance
  - Faculty research grants
- Web site maintenance and development
  - Department Web Team
- Lab support
- Office support: individual faculty members and department office

Research Topics (1)

- Programming languages and systems control for Mindstorm robots. (Dr. Klassner)
Research Topics (2)

- Contexts for optimum web search strategies. *(Dr. Cassel)*

Research Topics (3)

- Algorithm taxonomy: examples from traditional games. *(Dr. Levitin)*
Research Topics (4)
- Web site taxonomy and focused design principles. The User Experience. \textit{(Dr. Beck)}

![U.S. Department of Labor](www.dol.gov)

**Research Topics (5)**
- Packing spheres into an ellipsoid: heuristic search strategies. \textit{(Dr. Beck)}
Research Topics (6)

- Code optimization: 20Kb vs. 20Mb program space. *(Dr. Way)*

Research Topics (7)

- Virtual reality in interdisciplinary projects. *(Dr. Klassner)*
Research Topics (8)

- Web services: development, description, deployment.  
  *(Dr. Way)*

Research Topics (9)

- Constructing and maintaining wireless network topologies.  *(Dr. Damian)*
Research Topics (10)

- Folding and unfolding polyhedra. (*Dr. Damian*)

![Diagram of a cube folding and unfolding.](image1)

Research Topics (10)

- Folding and unfolding polyhedra. (*Dr. Damian*)

![Diagram showing a complex mesh and disjointed shapes.](image2)
Research Topics (11)

- Programming games and applications for the iPad, iPhone, and iPod Touch. *(Dr. Klassner)*

Research Topics (12)

- Digital Libraries and broader web-based information management. *(Dr. Cassel)*
Will Rogers says

“I believe in college since it gets young people out of the house just at the time when they start asking difficult questions.”

Keys to Success

- Talk to your instructors, 1+ times a week
- Talk to your advisors
- Study with your peers
- Become involved in the computing community—ACM student chapter
- Exhibit responsibility
- Manage time wisely: at least 40 hours study time per week
More Keys

- Come to class every time
- Read before class
- Endorse student-centered learning and active class participation
- Start assignments early

Exercises

- By Friday (August 26) visit each member of your advising team
  - Introduce yourself
  - Describe your high school
  - Relate your summer activities
- By next Tuesday (August 28) check that your Wildcard opens MSC 156 and MSC 158
- By next Friday review the slides from today and follow the links
Things to Remember

- The 7 fastest growing occupations are in the field of Computing
- Computer Scientists are needed as leaders in virtually all other fields
- Computer game design is a driving force in the growth of computing

Things to Remember

- Mobile computing encompasses challenges for programming and design
- Knowledge and skills gained by studying Computer Science can lead anywhere