Computing Sciences

FALL 2018
Degree Programs

- Computer Science (B.S., CS)
- Computer Information Systems (B.S., CIS)
- Information Technology (B.S., IT)
- Software Engineering (M.S., SE)
- Combined B.S./M.S. (CS or CIS, SE)
B.S. Computer Science

Established in 1970
- First among Jesuit Institutions in the US
- One of the first in Pennsylvania

ABET Accreditation Status:
- Since 1990
- Third in Pennsylvania
- One of just 17 schools in Pennsylvania

Curriculum: 122-124 Credits
- Major: 38 required, 9 elective
- Cognate: Mathematics (16+) and Natural Science (12+)

Employment
- Software Development
- Wide ranging opportunities
B.S. Computer Information Systems

- **Established in 1987**
  - Application Development Emphasis
  - Proposed to be renamed “Applied Computing” for Fall 2019

- **Accreditation Status:**
  - Will seek ABET Accreditation as “Applied Computing”

- **Curriculum: 124 Credits**
  - Major: 35 required, 9 elective
  - Cognate: Business, Management
  - Proposed “Applied Computing”

- **Employment**
  - Software Development in Application Area (Business, Management)
Established in 2016
- Emphasis on Application of Technology
- Replaced former related program

Accreditation Status:
- Preparing for ABET Accreditation now, since first students have graduated.

Curriculum: 123-125 Credits
- Major: 38 required, 3 elective
- Cognate: Breadth and depth in multiple areas required. Ample electives allow for completion of a minor.

Employment
- Managing computer technology within and for organizations
Declaring/Switching Majors

- CS and CIS are identical in the First Year
  - Require the same Major and Cognate courses

- IT requires most of the same First Year Courses
  - Requires the same Major and Cognate courses as CS and CIS, with one exception
  - Students changing major can complete the Major and Cognate requirements in 3 years

- Programs diverge in Sophomore Year; Cognate Differences
  - CS: Mathematics & Science, CIS: Business & Management, IT: Electives

- Application for Combined BS/MS Program in Junior Year
Established in 1990

- Designed to prepare professional Software Engineers in the Software Lifecycle; requirements, design, implementation, testing, integration, deployment, maintenance
- Based upon guidelines from the Software Engineering Institute

Curriculum: 36 credits

- Ten courses, plus a two-semester, six credit Thesis Project
- Designed to be completed in 2 years (full time), or 3 years (part time)
- Combined B.S./M.S. Program can be completed in 5 years total

Employment – Software Engineering
Combined BS/MS Program

- Both BS and MS can be completed in 5 years total
  - Specific Graduate Courses also fulfill specific Undergraduate Course Requirements
- CS, CIS and CE students may apply in the Fall of Junior Year
  - Minimum GPA of 3.0 and Strong Recommendations Required
- Students may apply for Graduate Assistantships
  - Provides Full/Half Tuition Remission and Stipend
  - 20/10 hour per week commitment
  - Serve as Lab Instructors in the Computing Sciences Department
  - Additional Opportunities in other University Departments and Offices
Undergraduate programs each require a Capstone Project
- Developed during the Senior Year
- Most students work individually, but team projects are also undertaken

Project ideas come from students or faculty members
- Each project has a Computing Sciences faculty advisor

Technical and Communication Abilities Developed
- Substantial writing and multiple oral presentations are required
Honors and Special Programs

- **Faculty/Student Research Program (FSRP)**
  - Students probe a topic in-depth through one-on-one collaboration with a professor

- **Honors Program (Honors Program)**
  - Students from various majors take additional specialized courses, including independent study, allowing them to work one-on-one with professors both in and outside of their major.

- **Magis Honors Program in STEM (Royal Scholars Program)**
  - NSF Grant supports scholarships and extracurricular enrichment activities

- **Special Jesuit Liberal Arts Honors Program (SJLA)**
  - Students develop enhanced writing, oral and critical-thinking skills through specially designed courses in philosophy, theology and literature.
Internships are not required, but are strongly encouraged.

- The department promulgates opportunities.
- Most students do internships before their Senior year.
- Internship can be done for credit or not.
- Internships in computing should always be paid.
- Internships are with local, regional and national companies.
- Students also pursue opportunities of their own.
- Sponsored by National Science Foundation (NSF)
- Research Experience for Undergraduates (REU)
- Intended for rising Juniors and Seniors
- Takes place during summer months, at a host university
- Students work closely with host faculty on research projects
- Typically provides ample stipend covering travel, housing and food
How big is the department?

- Currently there are six full-time faculty members and two full-time staff.
- Currently there are approximately 90 students in the department’s programs.
- In total, there are more than 1,200 alumni from our programs.

Are major courses taught by full-time departmental faculty?

- In CS, all major courses are taught by full-time Computing Sciences faculty.
- In CIS and IT, some courses are taught by Adjunct Professors who possess relevant/specialized expertise from their industry experience.
- Graduate Teaching Assistants serve as Lab Instructors in the first-year labs.
What is the philosophy or approach taken by the department?

- We attribute the success of our programs to an emphasis on core concepts and abilities.
- Our emphasis is on “learning how to learn” and so students and graduates are prepared to adapt and evolve in new situations with diverse and with emerging applications and technologies.

What electives are available?

- Electives and Special Topics courses are offered regularly.
- Game Design: Computer Graphics, Artificial Intelligence can form a background for game development and students have developed game software for their Capstone Projects.
- Data Science Concentration – a collaborative program with faculty from Mathematics has been proposed to be in place for Fall 2019.
Frequently Asked Questions

- Can Computer Science I be skipped?
  - Students with AP scores of 4 or better normally receive credit for CMPS 134.
  - Students without AP credit can be evaluated individually.

- What courses should be taken in High-school as preparation?
  - An introductory computer programming course, if available
  - Most students have Calculus or Pre-Calculus backgrounds, but Discrete Mathematics, although rare, would be most appropriate

- What extracurriculars are available?
  - ACM Student Chapter, Collegiate and HS Programming Contests, Gaming Club, UPE Honor Society
Where do alumni work?

For a variety of well-known and lesser known employers.

The well-known include:

- AT&T, Comcast, DoD, ESPN, Facebook, FBI, IBM, Intel, Johnson & Johnson, Lockheed Martin, Lucent, Merck, MetLife, Microsoft, Northrup Grumman, NSA, Prudential, Siemens, Tumblr, USPS, Verizon, Wells Fargo

The lesser known include:

- Benco Dental, Blue Cross, Cerner Corporation, Deloitte, Geisinger, Guard Insurance, Harper Collins Publishers, TMG Health, Vanguard
Where do graduates continue their studies?

Students have earned PhD’s and Master’s Degrees at numerous institutions including:

- Carnegie Mellon
- Columbia
- Cornell
- Delaware
- Lehigh
- Harvard
- Iowa State
- Pace
- Rensselaer
- Scranton
- South Florida
- Syracuse
- UConn
- UPenn
- Yale
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Additional Questions?