

Career Connections

Information Technology

OBJECTIVES OF THE PROGRAM

The computing field has come of age over the past few decades and has now established itself as an essential component of modern life. A career in computing can be highly rewarding for those individuals who have the right combination of knowledge, skills, and interests to be successful in the field. Demand for computing professionals continues to be high relative to most other career paths, despite some recent trends to the contrary.

This program is intended to assist and encourage those students who are interested in a career in the computing field. This begins with the decision of whether the computing field is right for you (or, whether you are right for the computing field), and then provides opportunities to prepare you for your eventual career choice.

Computing is a broad and ever-expanding field. It is a moving target that requires a commitment to lifelong learning and continuous change. If you welcome this as a challenge, then computing may be the field for you. If, on the other hand you do not like change and do not enjoy learning, then a different career choice may be more appropriate in your case. People who choose computing careers are typically intelligent, inquisitive, and technically inclined. They enjoy tackling new problems and learning about new technologies, and share a common belief that technology, if applied wisely, can improve our lives.

The umbrella of the computing discipline covers many different jobs. A common misconception is that all computer professionals are programmers. This could not be further from the truth. In fact, most people in the computing field do little or no programming in low-level languages like C++. Computer networking and systems administration are two examples of computing jobs that do not typically involve programming. Web application development, while requiring some programming, is typically done in a high-level markup language such as PHP or ASP, which are much simpler to learn and use than low-level languages such as C++. Students who might otherwise be interested in the computing field should not be deterred by such misconceptions.

RECOMMENDATIONS

Exploring Options

During the exploratory stage, it is best to clearly define which area of computing most interests you. In the Career Center, you can find helpful books such as *Careers in Focus: Computers*, which defines twenty different careers in computers and provides valuable information on each of them, and *Careers in High Tech*, which offers current salaries, job-growth stats, and other useful details on computer related careers. You may also consider taking one of the personality inventories the Center offers to further explore your interests.

Another avenue to career exploration would be to talk with or job shadow individuals already working in the field. The Career Center has a listing of Hanover alumni that have offered to mentor current students that are trying to make a decision about a career path.

Another great way to investigate a career in computing is to research online. For first-hand information, you can use the website for these professional organizations to gain insight into the field. Recommended websites include: www.iccp.org (Institute for Certification of Computing Professionals), www.acm.org (Association for Computing Machinery), and www.aitp.org (Association of Information Technology Professionals).

Academics

Many students interested in the computing field will choose to major in Computer Science. However, a surprising number of computing professionals come from other majors. This is in part due to the ubiquity of computers across all professions and throughout our lives. Mathematics and the natural sciences are common majors within the computing field, as are psychology and business majors.

A minor in Computer Science is an alternative for students choosing a different major. The CS minor offers a broad exposure to the discipline without the rigor required by the major. This is an excellent way for students interested in the field to learn while acquiring a solid foundation for a future career path.

Of course, students do not have to major or minor in Computer Science to take a course or two in the subject. The department offers two different entry-level courses: an introductory programming course, CS 121: Programming I, and a less rigorous but broader sampling of the field, CS 110: Fundamental Concepts of Computer Science. The latter course is an excellent way to learn more about the discipline and decide whether it is for you, while satisfying the Formal Reasoning LADR requirement.

Beyond the introductory courses, there is also a broad range of computer science and related courses offered at Hanover that you may choose to sample depending upon your personal interests, including:

CS 122 Software Development	CS 160 Special Topics
CS 223 Data Structures and Algorithm Analysis	CS 260 Special Topics
CS 234 Computer Organization	CS 360 Special Topics
CS 329 Database Systems	Mat 220 Logic, Sets, and Relations
CS 345 Operating Systems	Mat 343 Discrete Mathematics
CS 348 Artificial Intelligence	Eco 113 Micro Economics
CS 349 Computer Graphics	Eco 114 Macro Economics

The special topics courses change periodically, and are directed according to student interest. An example of a special topics course that has been offered at Hanover recently is Webpage Design. You may also benefit from courses in algebra, calculus, probability, accounting, and financial management. If an entrepreneurial field in computing interests you, the Center for Business Preparation may also be a smart option to consider.

Co-Curricular Activities

Co-curricular activities are a key component during your college experience in making informed decisions on the variety of fields in computer science. There are a range of activities, both on-and off-campus that can help you to develop skills and make an informed decision regarding a career in computing. In addition to technical skills, these experiences will help build skills such as time management and team-oriented skills.

On-Campus Activities

Hanover is fortunate to have a local chapter of the Association of Computing Machinery (ACM). Being an ACM officer or member would provide opportunities to learn new skills, such as leading computer camps and clinics, to participating in programs here on campus. Serving as the webmaster/PR chair for any student organization such as Student Senate or the Student Programming Board would strengthen your networking skills. Likewise Recruitment Chairs, Treasurers and Information Managers for any Greek chapter conduct much of their work through computer programs. Another option is serving as the alumni chair for a fraternity or sorority that maintains an alumni database and contact information. Student Life would also be happy to assist in adding a new club to campus life if you have a group of students who are passionate about a certain area of interest.

Off-Campus Activities

Community volunteer work in Hanover, Madison, and other communities in the area can be a worthwhile experience. Some examples could be helping with computer setup or web page development for non-profit organizations in the community like churches or the Salvation Army. This work would allow you to use your skills to help the community and also learn new skills as you extend your experience in new directions. Finally, you shouldn't overlook that on an informal level, performing computer upgrades and repair on friends' computers can help you to develop stronger troubleshooting and basic computer system support skills.

Work Experience

In the competitive and fast moving field of computers, some prior experience and knowledge is essential when applying for jobs, and finding the right job or internship while still in school will improve your chances after graduation. Summer jobs and internships are an excellent opportunity to gain some real-world work experience, and can often result in academic credit. The Career Center is a great resource for researching both summer job and internship opportunities. There are many recent graduates working in the field in the surrounding areas (and most other cities Hanover draws from) that would be excellent contacts to find out about these opportunities. Hospitals, Banks, Universities, and most major corporations hire interns in the IT department every year.

Because advice varies by specific job, it will fall into the following sections:

1. Networking / Security, 2. Web Development, and 3. Systems Administration

(1) Network / Security

On-campus, the IT department can offer students valuable work experience in the networking / security area. Working with the Network Administrator will provide you the opportunity to ask

questions and learn about the Hanover network. Network and Security enhancements are ongoing projects, and getting involved as a student networking assistant can expose you to the many different aspects of the networking field while giving you the hands-on experience that will help you establish your career path.

There are many opportunities for related employment during the summer months. While most advanced networking jobs are long-term, full-time positions, many large businesses, hospitals, and colleges in particular choose the summer months for doing major upgrades that may require additional help during the roll-out phase. These present great opportunities to step in and help. Check with the local school systems and other large businesses in your area, and see if they need any part-time or summer help with large-scale network advancements.

(2) Web Development

Most student organizations either have or would like to have a web site. Web site development for a student organization or an academic department is an excellent way to gain experience in the web field (and a source of income while in school). Get the word out that you are interested in web-design work, and you will find work. Also, you could work with the Hanover College and Intranet Webmasters on the day-to-day tasks that go along with maintaining a large scale website.

Beyond basic web pages, the web can support dynamic content through back-end databases, and modern computer applications often use the web as their primary user interface. Learning to develop such web front-ends is a valuable skill that will greatly increase your demand in the job market.

Website development is an area of work that can be done remotely (99% of the time). There are many jobs in this area that you can find throughout the school year on campus, and work on throughout the summer. Other good areas to consider are local churches/schools that may need websites and small web applications developed.

(3) Systems Administration (Windows and Unix)

The best way to gain work experience in the Systems Administration area on campus is to work for the IT Department. Whether it is working for the HelpDesk or as a Network Lead, you will be involved with the network systems on campus, and if you take the initiative, you will be able to work with the IT staff on upgrading/configuring the current and future systems used on the network. As with every area in IT, systems are always changing and being upgraded, so there are always several projects in the pipeline that you can get involved in to gain valuable experience in Systems Administration.

The Career Center will be your best resource on summer jobs and internships relating to Systems Administration. Any and all organizations that have computer networks will have Systems Administrators, so it is just a matter of finding a situation where you can step in and learn. Check with the Career Center for recent graduates working in the IT field, and contact some alumni to see if they know of any openings in their place of business.

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(Last Revised 06/08)