

The Bucknell Connection

Computer Science Department Newsletter

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A Note From the Editor...

This issue of the Bucknell Connection is to inform you of your computer science elective choices for the Spring 2009 semester.

Please continue to reach out and learn about your future classes, internships, professors, and your opportunities after college. Be sure to get involved with our student group, the Association for Computing Machinery (ACM). For more information talk to your officers or class representative or visit:

<http://www.orgs.bucknell.edu/acm/>

SPRING ELECTIVES

Computer Networks

CSCI 363 MWF 10:00 - 10:52

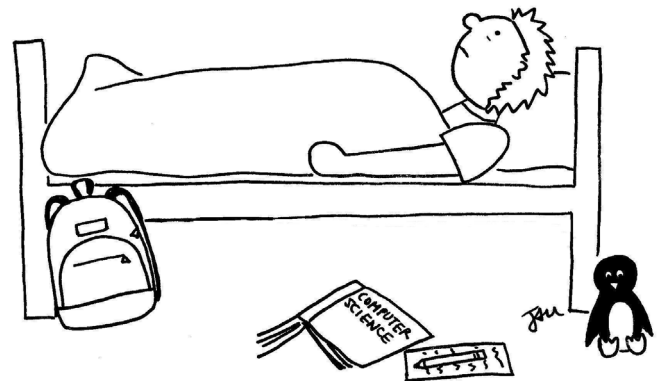
Lab R 1:00 - 2:52

Professor Perone

Prerequisites: CSCI 311

Co-requisites: CSCI 315 or permission from the instructor.

Computer Networks is a fun course that is highly relevant for today's computing professionals. This course studies the software side of networking. The primary emphasis is on protocols for routing and transport, and also networked applications. We cover a number of the traditional protocols such as IP, TCP, UDP, ARP, and ICMP, among others. Most importantly, however, we study the conceptual framework that drives the development of protocols. The course has a weekly lab where the students learn to program in C and have hands-on experiences with networked applications. A pre-lab assignment is used as a foundation for each lab,



Up late worrying about fall electives? Don't worry! The Connection has all the details to help you with your decision!

and problem sets are used to exercise the theoretical aspects of the course. Depending on student interest, there may be a term project.

Introduction to Databases

CSCI 305 MWF 9:00 - 9:52

Professor Guattery

Prerequisites: CSCI 206 and at least junior standing.

Are you interested in database design? Do you want to learn the standard ways of representing database designs? Or maybe you had an internship where you were introduced to the databases, but want to know how they work? Or, have you heard of database query languages such as SQL, and want to know more? Then CSCI 305: Introduction to Databases is for you! The first half of the course covers the basics of designing databases. The second half covers database programming using a query language. A project using Oracle will provide database systems experience.

Intro. to the Analysis of Algorithms

CSCI 350 MWF 1:00 - 1:52

Professor Guattery

Prerequisites: CSCI 311

CSCI 350 builds on the advanced algorithms that were covered in CSCI 311, particularly those that have a real world application. Some of the main topics that will be touched upon in the course include cryptography, authentication, graph-theory, data compression, and NP-completeness. Many of the problems that will be focused on will be intractable problems that are similar to one another. The goal here is to understand the problems so that their solution strategies can be applied to cryptography. Also within cryptography, RSA public key encryption will be studied.

The graph theory that will be presented in class will also be in more detail than what was touched on in CSCI 311, and will include network flow. Data topics will include both lossless and lossy compression while lossless compression will have more focus. Involved in this course will be a substantial project that will involve group work and a presentation.

Computer Graphics

CSCI 367 MWF 11:00 - 11:52

Lab T 3:00 - 4:52

Professor Wenner

Prerequisites: CSCI 204 and at least junior standing.

This course is the study of the computer graphics algorithms that are the foundation for application programs that produce computer-generated media, such as special effects in movies, business presentations, internet content, and many other products. It is the task of these algorithms to calculate the exact value that should be displayed on each of the millions of pixels using complex three-dimensional computer models. Specific algorithms studied will cover scan conversion, visible line determination, 3D viewing projection, and lighting calculations, among others. Hardware characteristics are examined down to the chip level. There is also a retrospective of 50 years of CG graphics. The course includes a weekly lab, which introduces students to 2D and 3D modeling using OpenGL.