Programming Courses for Science Majors

September 2012

CIS 122 (Introduction to Programming and Problem Solving)
A general introduction to algorithms, computational problem solving, and computer programming, including design, coding and testing strategies. As of 2011 the programming projects use Python, a programming language that is gaining in popularity for scientific programming.

No prerequisites, no prior programming experience expected. Typically offered Fall, Winter, and Spring.

CIS 399 (Scientific Programming)
A new course for Winter 2013.

The first part of the course will be a condensed version of CIS 122, covering basic algorithms and programming skills using Python. Additional topics planned for 2013 include scripting (i.e. building analysis pipelines), databases and data management, networking, visualization, and possibly an introduction to Matlab or R.

No prior programming experience is expected. Students will get more out of the course if they are prepared to apply the techniques introduced in class to their own projects.

CIS 210 (Computer Science I)
The first term in a year-long introductory sequence for CIS majors. In addition to programming and problem solving students are introduced to software and hardware organization, analysis of algorithms, data structures, and a variety of other concepts.

No formal prerequisites, but students are advised to have some prior programming experience and a strong math background. Required for a CIS minor. CIS 210 is typically offered Fall and Winter, with 211 and 212 (the next two courses in the sequence) in subsequent quarters.

Other Introductory Courses
Some other CIS courses that might interest science majors:

- CIS 105 (Explorations in Computing): a course in “computational thinking” and an introduction to some of the important concepts in computer science; no programming is involved.

- CIS 111 (Introduction to Web Programming): covers design and implementation of interactive web pages.

- CIS 115 (Multimedia Web Programming): principles and practices of JavaScript programming for HTML5; specific topics include display and manipulation of images and video, procedural graphics using the HTML5 canvas, and use of external libraries such as Google Maps.