* Course Announcement – Fall `12 *
Honors 352

Cyberscience: Computational Science and the Rise of the Fourth Paradigm

In the last half of the 20th century, the role of computation in the sciences grew rapidly, driven by advances in silicon-based processors, fiber-optic networks, a host of numerical algorithms, and sets of standard protocols for processing and exchanging data. Much of this digital technology now permeates everyday life. Building on these and emerging technologies, the 21st century is ushering in a new era of data-intensive scientific research that will dramatically enhance the scope and scale of information capture, curation, and analysis. In this new (4th) paradigm, discoveries will be made by sifting through massive amounts of data collaboratively hosted "in the cloud".

This course will invite students to explore the social and technical development of data-centric computing, from the ENIAC through the top-500 list of supercomputers and on to Amazon's EC2. Through a selection of readings, discussions with invited guests, and first-hand experimentation, students in the course will learn about the technologies that drive modern scientific inquiry and gain an appreciation of the fiscal, political and social challenges posed by new era of Big Data.

This three-credit course may be chosen as an elective for the Informatics concentration and the Science, Technology and Society minor.

Meetings are Tu/Th 10-11:30am. Grading basis: Essays/blog posts - 35%; Quizzes - 20%; Group Project – 30%; Participation – 15%.

For more information, contact Prof. August (Gus) Evrard, evrard@umich.edu.