CS 206P – Scientific Computing

Prof: Wayne Hayes (office: DBH4092), whayes@ uci.edu
Office Hours: To be negotiated, or by appointment (don't be shy)

Topics covered (subject to change with consent of professor + class):
floating point numbers: representation, rounding errors and error
propagation; Taylor series + truncation error; condition numbers; numerical
differentiation; Richardson extrapolation; numerical quadrature +
integration; numerical linear algebra; vectors, matrices, Guassian
elimination, LU + QR factorization, solving linear systems; eigenvalues +
eigenvectors; least squares fitting; nonlinear equations and optimization;
bisection + Newton's method; Gradient descent; polynomial interpolation;
numerical differential equations; chaos; Monte Carlo methods.

Grading Scheme and Due Dates:

6-8 Homework Assignments, due each Monday except the week we have the Midterm.	40% total
Midterm: In class, date TBD	20%
Final Project with write-up Due End of Exam Week	40%

Text:
Principles of Scientific Computing, by David Bindel + Jonathan Goodman.
Available legally for free as a PDF from the class website.

Late Policy for assignments
- assignments are to be submitted electronically AND turned in on paper at
the **START** of class
- Late penalty: increases by 10% each 24h period starting at the due date.

Regrading requests
All requests for regrading must be submitted in writing with an explanation
of why you think you should get more marks. Comparisons with the grades
of other students in the class are allowed but in this case both assignments
must be handed in for regrading. In any case, the entire assignment will be
regraded; thus, you risk losing marks in other places where the grader may
have been generous, even if your case has merit.

Academic dishonesty

Academic dishonesty will not be tolerated in any form. You may discuss ideas with your classmates (and others), but no written notes should be taken away from such discussions. All work you hand in must be your own. This course strictly adheres to all relevant University and ICS policies. It is each student's responsibility to be aware of these policies. To this end, all students are advised to (re)read the UCI Academic Senate Policy on Academic Honesty, noting in particular that any single incident of student academic dishonesty in this course is sufficient to merit a failing grade in the course with a letter of explanation being placed in the student's file. The Academic Honesty Policy for Information & Computer Science also applies to this course and deals explicitly with course work involving computers.

If you are unsure whether certain behavior is acceptable, ask before you engage in it.