

Introduction to Applied Mathematics Research

22M:096:001

3:30-4:20 MWF—room 118 MLH—Fall 2007

COURSE SUPERVISOR: David Stewart

Office: 325B MLH

Office Hours: To Be Determined

Phone / e-mail: 335-3832 / dstewart@math.uiowa.edu

INSTRUCTORS: Ben Galluzzo & Ted Wendt

Offices: 225N MLH (Ben) and 25N MLH (Ted)

Office Hours: Monday & Wednesday 1:15-2:15 (or by appointment)

Phone / e-mail: 335-3767 / bgalluzz@math.uiowa.edu and
335-3719 / twendt@math.uiowa.edu

course website: <http://icon.uiowa.edu> (login with hawk-id and password)

Course Materials: There is no required text for this course. Lecture notes, in-class presentations, and computer programs will be made available to students as needed on the course website (ICON). Class assignments may require student submission of a MATLAB computer program. MATLAB is available for student use in the Math Department's computer lab (room B5 MLH, located in MLH basement) as well as by remote access through a student math department account. A student version of MATLAB (Release 14) for use on a personal computer is available for purchase at the IMU bookstore for \$99 (NOT REQUIRED).

Course Description and Prerequisites: This is an applied mathematics course designed to introduce students to current methods of real world math modeling by focusing on the development, implementation, critique, and analysis of mathematical models in a topic-by-topic setting. Planned topics include modeling collisions, groundwater flow, traffic flow, spread of infectious disease, hub optimization, and (potentially) mathematical finance. Each topic will serve as the focus of a three week module. This course is intended for undergraduate students with a strong background in calculus, specifically those students having earned an A or B in Calculus II.

Course Work and Grading: Within each module there will be two homework assignments and one group mini-project. A final group project will be presented in class at the end of the semester. Semester grades will be based on the following distribution:

Class Participation	30%
Individual Homework	30%
Group Assignments	30%
Final Group Project	10%

- Due to the importance of class participation in determination of a final grade, it is very important that you notify the course teaching staff of any planned absences in advance.
- All programmed homework and group assignments must be submitted electronically to the ICON “Dropbox” by **12:00 noon** on the day it is due.

This course is given by the College of Liberal Arts and Sciences. This means that class policies on matters such as requirements, grading, and sanctions for academic dishonesty are governed by the College of Liberal Arts and Sciences. Students wishing to add or drop this course after the official deadline must receive the approval of the Dean of the College of Liberal Arts and Sciences. Details of the University policy of cross enrollments may be found at: <http://www.uiowa.edu/~provost/deos/crossenroll.doc>

Important Notice: Information concerning Student Rights and Responsibilities (including Student Complaints about Faculty Actions and Academic Misconduct) can be found in the CLAS Student Handbook (<http://isis.uiowa.edu>). If a situation arises where you and your instructor disagree on some matter and cannot resolve the issue, you should see the Course Supervisor. However any problems concerning the course should be discussed **FIRST** with your instructor.

Disabilities: Please see a member of the course teaching staff either after class or during office hours if you have a disability which may require some modification of seating, testing or other class requirements so that appropriate arrangements may be made.

Sexual Harassment: Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit <http://www.sexualharassment.uiowa.edu/> for definitions, assistance, and the full University policy.

Tentative Course Schedule

Date	Module
Weeks 1-3	Collision Modeling
Weeks 4-6	Traffic Flow
Weeks 7-9	Subsurface Fluid Flow
Weeks 10-12	Hub Optimization
Weeks 13-15	Epidemiology
Week 16	Present Final Projects

NOTE: This schedule is only tentative. Changes to the syllabus, if necessary, will be announced in class and posted online.

Listed Final Exam Time: 9:45 Wednesday, December 19, 2007