Modeling, Fall 2009
Syllabus

INSTRUCTOR: Dr. Hundley
OFFICE: Olin 234
OFFICE HOURS: 11AM on T, R, F.

The rule of thumb for office hours: If my door is open (and no one else is in my office), then feel free to drop by with questions. If my door is closed, that means that I'm working on something with a deadline- Please interrupt me then only if it is something important. Feel free to drop me an email anytime- I will probably respond to that faster than a voice message.

OFFICE PHONE: 527-5151
EMAIL: hundledr@whitman.edu
Class Webpage: `http://www.whitman.edu/~hundledr/courses/M350.html`

1. **Text:** "Introduction to Empirical Modeling", in progress. The course notes will be distributed as we go, and are available on our class website (as they are distributed).

2. **Technology:** We'll be using Matlab extensively. We'll have some sporadic "Lab Days" where we'll meet in the computer lab to talk about Matlab specifics.

3. **Grading Criteria.**

   (a) QUIZZES: Quizzes will take 25% of the overall grade. There will be a quiz each week (except during exam weeks). The quizzes will be directly from the homework (and may involve turning in your homework solutions). You may drop your two lowest quiz scores. There will be no make up quizzes for absences that are not college authorized (that's where the dropped scores come in).

   (b) EXAMS: We will have two midterms, one at the end of week 5 (Thursday, Oct 1), one at week 10 (Thursday, Nov 5) and a final exam. They will all be weighted equally, and will take 75% of the overall grade. Some of these may have a take home (Matlab) component.

   GRADING: Grading is done on a standard scale:

   90-100%=A, 80-89%=B, 70-79%=C, 60-69%=D, 59 and below=F

   I will use the plus/minus grading only sparingly in those borderline cases.

4. Help! I encourage you to come see me. If you can't make it during office hours, either email me if you have short questions, or make an appointment.

5. Academic Honesty. Academic standards will be *strictly* adhered to as outlined in the College's policies. This means that cheating will not be tolerated. Looking at another student's exam or quiz (whether or not you mean to copy answers) while taking it will be considered cheating. *Please don't test this policy!* Students caught cheating for the first time will fail the exam or quiz during which the cheating took place, and the Dean of Students will be notified. Continuation of this behavior will lead to an automatic failing grade for the course, and may include other administrative action.

6. If you have a learning disability, please let me know as soon as possible so that we can make alternative assessment methods. Please do not wait until the day of the exam!

7. Mathematical modeling is the process by which we translate some physical process into mathematical statements. There are several ways of doing this- Some modeling classes are mostly statistics, some are mostly differential equations (or partial differential equations), and still others are physics-based. We will consider some of these methods, but we will stick mainly with **empirical** modeling- That is, constructing models from data. We will spend some time reviewing linear algebra, statistics and some differential equations, then we will be applying these techniques and analyzing our results.

   The first portion of the course will mostly be review and background material. We will begin to learn `Matlab`, which is software available on the computers in the Mathematics lab, we will review and extend ideas from linear algebra, discuss some topics from statistics (it is not necessary to have had stats before), and finish with some topics from an area known as *reinforcement learning*.