BIOL 325/325L/504: INTRODUCTION TO QUANTITATIVE BIOLOGY

**Instructor**: M. Drew LaMar

**Semester**: Fall 2016

**Lecture**: MWF 1-1:50 pm (Integrated Science Center 1280)

**Lab**: R 3:30-5:25 pm (Integrated Science Center 1280)

**Office hours**: TBA (Integrated Science Center 3252)

**Overview:** This course will be an overview of the mathematical tools used in quantitative analysis and modeling of biological systems. The goal is to develop quantitative reasoning skills through the use of mathematical modeling, data analysis, and computer simulation. This is a unique course in the biology curriculum by covering both organismal and cellular biology through the use of mathematical, statistical and computational approaches, and by focusing on the development of skills in model development, validation and refinement.

**Expectations**: You will attend 3 lectures and 1 lab each week. Homework and labs will be given throughout and due each week. There will be 3 midterms worth 10% each. Participation via blog posts and reading quizzes will be part of your grade as well. You will start a project about mid-semester, which is explained in more detail below.

**Grading:**

* Midterms: 30%
* Homework: 30%
* Labs: 15%
* Project: 15%
* Participation: 10%

**Midterms**: There will be three take-home midterms worth 10% each scheduled for the following dates (all Fridays; subject to change): *September 23*, *October 21*, and *November 18*. **No make-ups will be given.** To account for legitimate exam absences, your lowest midterm grade will be replaced by the average of your two highest midterm grades.

**Homework**: Homework will be due each week on Sunday at 11:59 pm on Blackboard. For each assignment, 60% of your grade will be on completion, with the other 40% based on correctness. Two of your lowest homework grades will be dropped.

**Labs**: In addition to homework, you will be assigned labs worth 15% of your grade. Labs will be due each week the following Thursday before lab (3:30 pm), unless stated otherwise. For each lab, as in the homework, 60% of your grade will be on completion, with the other 40% based on correctness. Two of your lowest lab grades will be dropped.

**Final**: Tuesday, December 6, 2 – 5 pm. There will be no official final exam for this course. In its place, you will give a brief presentation on your projects.

**Participation**: Participation breakdown is as follows: 5% for weekly blog posts and 1 review/comment to another student’s post (10 total blog/comment combos for the semester); 5% for short online Blackboard reading quizzes (due Monday, Wednesday or Friday at noon; your lowest quiz grade will be dropped).

**Project:** Project details and rubrics will come later in the course. Projects will be due at the beginning of your final exam on Tuesday, December 6, at 2 pm.

**Required texts:** Onlinecourse packet

**Software:** R, Netlogo, Python, among others

**Prerequisite:** BIOL 220, BIOL 225 and MATH 111/131

**ADA Accommodations**: William & Mary accommodates students with disabilities in accordance with federal laws and university policy. Any student who feels s/he may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services staff at 757-221-2509 or at [sas@wm.edu](mailto:sas@wm.edu?subject=ADA%20Accommodations) to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please see [www.wm.edu/sas](http://www.wm.edu/sas).

**Honor Code**:

*The Pledge*: “As a member of the William and Mary community, I pledge on my honor not to lie, cheat, or steal, either in my academic or personal life. I understand that such acts violate the Honor Code and undermine the community of trust, of which we are all stewards.”

You are encouraged to work on your homework with fellow colleagues in this course, but your write-ups should be your own. All in-class exams will be solely your work and will be subject to the honor code.