

# Biological Research Techniques – Computer Modeling (Biol 220) Fall 2011

- Contact Info: Dr. Gregg Hartvigsen, ISC 360, hartvig@geneseo.edu, 245.5448  
Office Hrs: Tues. 10:30 – 12:30, W 4:30 – 5:30 and by appointment.  
Course Resources:
- myCourses for this class
  - R, ver. 2.13 or later. Install this free, statistical program (<http://cran.case.edu/>)
  - An Introduction to R (free: pdf with R installation)
  - Zuur, Alain F. A beginner's guide to R [free: Milne electronic pdf book].
  - Email messages sent by me to your Geneseo email account.
  - Hartvigsen's Intro to R (electronic)
  - Hartvigsen's Intro to Programming with R

This is an introductory class on computer modeling of biological systems. I assume you have no computer programming experience. After successfully completing this class you should be well equipped to ask and answer questions that involve computer modeling of biological systems. You also will be prepared to take Modeling Biological Systems (BIOL/MATH 340). You are **not** competing with each other and will **not** be graded against each other. Everyone will be graded based on personalized metrics of progress, effort, and contributions that help your peers.

## Expected Learning Outcomes

After successfully completing this class you should be able to

- write a program using R and/or C which simulates a biological system and generates a result,
- understand, interpret, and present the results from a primary literature paper in the field of modeling biological systems using only a chalkboard or whiteboard,
- orally present the results from a deep exploration of an independent research project involving computer modeling of a biological system of your choice.

## Grading

<u>Item</u>	<u>Points for each</u>	<u>Total pts</u>
Presentation of project plan	10	10
Presentation of primary literature paper	10	10
Mid-term programming quiz	10	10
Weekly project update presentations	5	40
Final presentation of results	30	30

## Schedule

Day	Lab
8/29/2011	Assessment and go over "Introduction to Programming"
9/5/2011	
9/12/2011	Presentation of Project/Research Plan
9/19/2011	Progress Report
9/26/2011	Primary Literature Paper Presentation
10/3/2011	Progress Report
10/10/2011	
10/17/2011	Progress Report
10/24/2011	Progress Report
10/31/2011	Mid-Term R Challenge + Progress Reports
11/7/2011	Progress Report
11/14/2011	Progress Report
11/21/2011	Progress Report
11/28/2011	Practice Presentation
12/5/2011	Questions/Answers/Presentation Discussions
12/12/2011	Final Presentation