Professor: Dr. Richard Bertram
Office Hours: M,W,F 10:00–11:00, or by appointment
E-mail: bertram@math.fsu.edu
Phone: 644-7195

Prerequisite: MAP5165 (Methods in Applied Math 1) or permission of instructor.

Some good books for this topic are:

- An Introduction to Systems Biology, by Uri Alon, Chapman & Hall, 2007
- Computational Cell Biology, by Christopher Fall, Eric Marland, John Wagner, and John Tyson (eds.), Springer-Verlag, 2002

Course Topics: Topics include models and dynamics of gene transcription networks, protein-protein interactions, cellular activity, the structure of biological networks, and stochastic processes.

Course Objective: To convey how modeling and computer simulations can provide useful information about the functions of biological systems, and to provide students with hands-on experience for simulating cellular interactions.

Computer Platform: Each math student should have an account on the computers in the mathematics graduate computer lab. If you don’t have an account please contact Mickey Boyd as soon as possible if you’d like one. The XPPAUT software that is useful for most of what we will be doing can be downloaded as freeware from Bard Ermentrout’s web page.

Expectations: You are expected to attend class, complete assignments and present a project.
Assignments: Periodic homework assignments will be made which must be turned in on time to avoid a 20% grade reduction for late work (late assignments accepted, with penalty, within 2 days of the due date). These count a large fraction of the final grade, so you should work the problems carefully and turn in the best work possible.

Projects: You will need to complete a project that should include computer simulations. This will be presented in class.

Final Exam: There will be a 2-hour final exam that will be comprehensive. It will be given on Thursday, May 4, from 12:30 PM until 2:30.

Grading: The assignments count 50% of the final grade. The project counts 20%. The final exam grade counts 30%. The final letter grade is determined according to the following scale:

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\begin{align*}
90.1-100\% &= A, \\
88-90\% &= A^- \\
84.1-87.9\% &= B^+, \\
80.1-84\% &= B, \\
78-80\% &= B^- \\
74.1-77.9\% &= C^+, \\
68.1-74\% &= C, \\
66.1-68\% &= C^- \\
58-66\% &= D, \\
0-57.9\% &= F
\end{align*}
\]

Honor Code: A copy of the University Academic Honor Code can be found in the current Student Handbook. You are bound by this in all of your academic work. It is based on the premise that each student has the responsibility 1) to uphold the highest standards of academic integrity in the student’s own work, 2) to refuse to tolerate violations of academic integrity in the University community, and 3) to foster a high sense of integrity and social responsibility on the part of the University community. You may discuss homework assignments with other students in the class, but the work you turn in must be your own. Plagiarizing the work of others is academically dishonest and will result in a grade of 0.

American Disabilities Act: Students with disabilities needing academic accommodations should: 1) register with and provide documentation to the Student Disability Resource Center (SDRC); 2) bring a letter to the instructor from SDRC indicating you need academic accommodations. This should be done within the first week of class.