

**BME 536 - Modeling and Synthesis of Biological Mechanisms  
Fall 2013**

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Lecture: MW: 3:00 – 4:15 pm Engineering, A Wing 0122  
Lab: N/A  
Office Hours: MWF: 10:00 – 11:00 or by appointment

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**Prerequisite:** PHSL 410, or CHEM 444, or consent of instructor

**Objectives:**

1. To familiarize the students with the basic knowledge of modeling biological mechanisms.
2. To familiarize the students with the state-of-art computer aided design tools for simulation and synthesis.

**Text:**

1. Class notes
2. HDL Programming Fundamentals by N. Botros, 2005 (recommended but not required)
3. Medical Physiology by Boron and Boulpaep, 2005 (.recommended but not required).

**References:**

1. Molecular Cell Biology by Lodish, et al., 5th Edition, 2003
2. Advanced Organic Chemistry by Jerry March, 2004..

**Topics:**

Introduction	2 lectures* (6.7%)
VHDL and Verilog	6 lectures (20.0%)
Cardiovascular and Hormone systems	5 lectures (16.7%)
Mathematical model and Simulation	6 lectures (20.0%)
Respiratory system	3 lectures (10.0%)
Renal and skeletal-muscle	4 lectures (13.3%)
Mathematical Model and Simulation	2 lectures (6.7%)

\* Each lecture is 75 minutes

**Grading/Evaluation:** Grades will be computed from the following:

Homework and assignment	12%
Test 1 by the end of September (1 lecture 3.35%)	25%
Test 2 by the end of October (1 lecture 3.35%)	25%
Test 3 Final: See University final exam schedule	25%
Project (Modeling and realization of a comprehensive biological mechanism)	10%
Attendance	3%

Grades:	A: [90 - 100]
	B: [80 - 89]
	C: [70 - 79]
	D: [60 - 69]
	F: [ < 60 ]

### Classroom Policies

- A. **Attendance Policy:** Attendance will be taken at random throughout the semester, and it will be counted toward the final grade. Students are responsible for all announcements made in class and/or posted to D2L.
- B. **Late Homework/Missed Exams:** Late homework/reports are not accepted. If an exam is missed for a legitimate reason, a makeup exam will be given.
- C. **Mobile Technology Policy:** N/A

### University Policies

- A. **Incomplete Grades:** An *INC* is assigned when, for reasons beyond their control, students *engaged in passing work* are unable to complete all class assignments. An *INC* must be changed to a completed grade within a time period designated by the instructor but not to exceed one year from the close of the term in which the course was taken, *or graduation*, whichever occurs first. Should the student fail to complete the course within the time period designated, not to exceed one year, or graduation, whichever comes first, the incomplete will be converted to a grade of *F* and the grade will be computed in the student's grade point average. Students should not reregister for courses in which an *INC* has been assigned with the intent of changing the *INC* grade. Re-registration will not prevent the *INC* from being changed to an *F*.
- B. **Academic Integrity:** You are expected to submit your original work and adhere to the academic policies as stated in the SIU Student Conduct Code: <http://srr.siu.edu> (listed under Additional Links). Any act of academic dishonesty, cheating, or plagiarism in any form, including anonymous internet sources used in student papers, will be reported. These acts are taken seriously and the consequences may range from failing an assignment to expulsion from the university.
- C. **SIU Email:** Your SIU email account is an official form of University communication. Your instructor will use SIU email as a primary means of electronic communication with students. Please make sure that you maintain a valid password and acquire the habit of regularly checking your SIU email account for important instructor and University announcements. You may view the official

SIU Student Email Policy at: <http://policies.siu.edu/policies/email.html>.

- D. **Emergency Procedures:** SIU is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with SIU Emergency response Plan and building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at <http://www.bert.siu.edu/>, the SIU Department of Public Safety's website [www.dps.siu.edu](http://www.dps.siu.edu) (disaster dropdown and video, "Shots Fired"), and in the Emergency Response Guideline pamphlet. Know how to respond to each type of emergency. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.
- E. **Supplementary Assistance:** SIU is committed to assisting students with disabilities. With the cooperation of SIU's Disability Support Services (DSS), each student who qualifies for reasonable supplementary assistance has the right to receive it. Students requesting supplementary assistance must first register with DSS in Woody Hall, B-150, 618-453-5738 or 618-453-2293 (TTY), by email [DSS@siu.edu](mailto:DSS@siu.edu), or <http://disabilityservices.siu.edu/>. Notice: If you have any type of special need(s) or disability for which you require accommodations to promote your learning in class, please contact me as soon as possible. The Office of Disability Support Services (DSS) offers various support services and can help you with special accommodations. You may wish to contact DSS to verify your eligibility and options for accommodations related to your special need(s) or disability.

### Student Services

- A. **Writing Center:** The Writing Center offers free tutoring services and assistance with improving writing skills to all SIU undergraduate students and faculty. For center locations and hours, to schedule an appointment online, and to view information regarding the Online Writing Lab (OWL) contact the Writing Center at 618-453-1231 (Morris Library location); 618-453-2927 (Trueblood location), or [www.write.siu.edu](http://www.write.siu.edu).
- B. **Saluki Cares:** The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress-physical, emotional, financial or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. To make a referral to Saluki Cares click, call or send: <http://salukicare.siu.edu/index.html>; 618-453-5714, or [siucares@siu.edu](mailto:siucares@siu.edu).
- C. **Career Services:** The services offered include: on-campus recruiting, job postings, workshops, events and career fairs, one-on-one counseling, major and career exploration, internships, and job searches.

**Please note:** Syllabus is subject to change. Students are responsible for announcements made in class or announcements posted on D2L.