MATH 1050-09/10 - Precalculus for Life Sciences
MWF 1:53-3:50 PM, SH C234A

Instructor: Dr. Silvia Heubach (Dr. H)

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Office hours: Monday 12 – 12:30 and 4 – 4:30; Wednesday 10:30 – 10:50; Friday 12 – 12:40
& by appointment outside these hours
Tutorial center hours: Wednesday 12:40 – 1:40  (in SH C357)
Tutorial center phone: 323-343-5374

Important dates:  September 5: Labor Day (campus closed)
                   September 6: No Record drop deadline; Add deadline
                   November 11: Veteran’s Day (campus closed)
                   November 16: W period ends
                   November 23: Study Day (no classes)
                   November 25: Thanksgiving Holiday (campus closed)

Final Exam: Wednesday, December 7, 1:30 – 3:30 pm

Text:  Calculus for the Life Sciences 2nd ed. by Greenwell, Ritchey, Lial, e-book custom edition (ISBN 9781323492109). This text will also be used for Math 2040 and Math 2050. You can purchase the MyMathLab access code (which includes the e-text) at the bookstore, the BookMart, or at www.mymathlab.com. A flyer on how to enroll is posted on Moodle and has been sent to you via email.

Math 1050 Prerequisites: Score of 50 or more on ELM or MATH 0930 with a minimum C grade. Rudimentary knowledge of Microsoft Excel. Intended for Life Science majors.

Math 1050 Catalog course description: Linear, polynomial, rational, exponential, logarithmic and sinusoidal functions and their properties in a biological context. Analysis of basic discrete dynamical models. Basic probability. Matrix operations, including eigenvalues and eigenvectors. Lecture 5 hours, Activity 2 hours. Graded ABC/NC.

Exit exams: If you feel that you should be in a higher-level math class, you can take the Math 1081 and 1085 exit exams in the University Testing Center (Library South, second floor) any time before the Add deadline. If you pass both the Math 1081 and 1085 exit exams, then you will be permitted to enroll in Math 2040; if you pass only the Math 1081 exit exam, then you will be permitted to enroll in Math 1085, provided that you enroll in either Math 1085 or Math 2040 within one year. After the Add deadline, you will not be able to take the exit exams again for this course unless it has been over one year since you have last taken Math 1050 or the exit exam(s). Contact the Testing Center (x3-3160) for more information.

Topical outline:
Overview of the modeling process, properties of functions, definition of a function, linear functions, polynomials and rational functions, exponential and logarithmic functions, trigonometric functions,
geometric and arithmetic sequences, discrete dynamical systems (DDS), analysis of discrete dynamical systems, basic probability theory, conditional probability and independence, systems of equations in 3 or more variables, eigenvalues and eigenvectors of matrices.

**Student Learning Outcomes:** In this course students will learn how to develop mathematical models in the context of life sciences applications, and gain an understanding of the importance of such models in answering questions that arise in the life sciences.

At the end of this course, students will be able to:
1. explain the mathematical modeling process and the role data plays in the process
2. state basic properties of functions, identify and apply basic function operations, and use transformations of functions to graph more complex functions
3. define and recognize basic function types and apply them to solve problems in the life sciences.
4. use linear regression and parameter estimation to fit basic types of functions to data to find a mathematical model of a biological process
5. state and interpret the basic Malthusian and logistic growth models and their variations
6. formulate a simple discrete-time model in one variable and determine the stability of its equilibrium values and its long-term behavior
7. use matrices to set up a linear model in several variables and use matrix operations to determine its long-term behavior
8. define basic terminology and explain important concepts of probability theory, and apply them in life sciences applications

**Grading system:**
Your grade will be composed of graded online homework assignments, graded group assignments, the midterms, and the final. Regular attendance and class participation are expected and will be taken into account in cases when a student is between grades.

- **Online homework** is to be done in MyMathLab. It will be listed as assignment to work on, with due dates. There is a study plan that is not graded, which is based on the homework problems, and can be used to practice. You have three attempts on most problems. These homework assignments are to be done individually. Homework that is late will hinder your progress in the class. I will deduct 25% on any online homework that is late.

- **Other assignments** consist of both group assignments (2-3 students) and individual assignments, either as homework or in-class activities. I will clearly indicate whether an assignment is to be done individually or can be done as a group, and how many students can be in the group. Occasional web/Moodle assignments will also fall into this category. For some topics, I will give you a specific pre-class assignment, and there may be a short mini group quiz at the beginning of class to check whether you have mastered the learning objectives of the pre-assignment. I will **NOT** accept late homework in this category.

- **Midterms** will be given on Wednesdays, **September 21, October 19,** and **November 16** and will cover the topics listed in the Moodle calendar. There will be NO make-up exams; I will drop the lowest exam. If you miss an exam for a medical reason, please provide documentation.
The final is on Wednesday, December 7, 1:30 – 3:30 pm; it is cumulative. Please make sure that this time does not conflict with any of your other finals (it should not, but this is the first time in semesters and there might be unconventional patterns). If there is a conflict, talk to me right away!

Your grade will be computed as follows (for both lecture and lab portion of the course)

- 15% Online homework
- 25% Other assignments (computer and in-class assignments)
- 30% Midterms (lowest will be dropped)
- 30% Final

Letter grades will be assigned as follows, with +/- as appropriate:

- 90 - 100% A
- 80 – 89 % B
- 70 – 79 % C
- below 60 % NC

My role in this course is that of a coach. I cannot inject knowledge into your brain – learning needs active participation. Studies have shown that TOT (Time on Task) is the best predictor for class grades. My goal is to introduce you to the mathematics used in biology, make the mathematics meaningful and to assist you in learning it. If you get lost or start having difficulties with the material, please come see me right away! Mathematical concept build upon each other, so one has to make sure that the foundation is solid. Do not hesitate to ask questions in class or during my office hours. If your questions in class are specific to you (for example you have some missing background) I may ask you to see me in my office hours where I can take more time and can also give you specific advise on how to fill those gaps. I also recommend you read ahead in the text, and that keep a notebook on formulas and definitions, with associated examples and exercises. I have posted a tentative lecture schedule so you can see which sections I plan to cover.

We will use MyMathLab (www.mymathlab.com) as the course management system where you can see your grades, do your homework and download lecture materials and assignments. Please follow the instructions from the handout I emailed to you to enroll in the course. The course ID is heubach32319 and the course name is Fall 2016 Math 1050-09/10. If you have any problems enrolling in the course, please talk to me or see Susan Nassy, the publisher’s representative on August 24 and 25 (Wed and Thu) from 12 – 1:30 in Simpson Tower 213.

Cell phone policy:
When you come to class, please either put your phone on silent or switch it off. NO TEXTING during class time – if you violate these rules, I may ask you to relinquish the phone until the end of class. Cell phones cannot be used as calculators on exams. If you do not already own a scientific calculator, now is the time to get one.
**Classroom environment:**
Be respectful of your classmates and me, come to class on time and do not start to pack up before I am done with class. You may use computers to take notes, but you should not use class time to read your email, check out face book, etc. Being active and alert in class is one step in doing well. In addition, your surfing is distracting to other students. Should you view inappropriate webpages on your computer, you will lose the privilege of using your computer during lecture days. **No leaving the classroom during quizzes or exams** unless you have handed in your quiz/exam.

**Emergency preparedness:**
The meeting point for Salazar Hall is in the parking lot at the bottom of the ramp from Simpson Tower to the main walkway. In an emergency, leave the building using staircases (and in an earthquake, wait to do so until the shaking has stopped). Move quickly to the meeting point and follow the instruction of the building coordinators. **Make sure to check in with me so I know that you are accounted for.** If one of your classmates needs help in evacuating, please assist. If you know that you will need assistance in an emergency and it is not obvious that this is the case, please see me so I can be aware of your need for assistance. If there is an active shooter situation on campus, please follow the instructions in the run, hide, fight (www.youtube.com/watch?v=5VcSwejU2D0) video. Also make sure to sign up for Eagle Alert with a current mobile number or an email account that shows up on your phone.

**ADA statement:**
Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation. If this is you, please see me as soon as possible. Note that requests for proctored exams can now be scheduled online, and that it is YOUR responsibility to do so in a timely manner.

**Academic honesty statement:**
Students are expected to do their own work and to abide by the University Policy on academic honesty, which is stated in the Schedule of Classes. Copying the work of others, cheating on exams, and similar violations will be reported to the University Discipline Officer, who has the authority to take disciplinary actions against students who violate the standards of academic honesty. **I will clearly indicate which assignments can be done in groups and which are individual assignments.** For group assignments it is my expectation that **all group members have contributed**, and all have understood the material. If this is not the case, I may adjust the group grade for individual students. If your group gets stuck, you should ask me first before asking other students. Each group should do their own write-up. If different groups have the same write-up, then **ALL those groups will receive zero points** on the respective problem, irrespective of who copied from whom.

**Student responsibilities:**
Students are responsible for being aware of all announcements that are made in class or on Moodle, such as changes in exam dates, due dates of homework and papers, and cancellation of class due to instructor's absence, even if a student is absent from class. Students must check their CSULA email account regularly for information from the instructor and the Department. Failure to do so may result in missed deadlines or other consequences that might adversely affect students. Note that you can specify a different email in GET.