MATH 1050-05 PreCalculus for Life Sciences

Fall 2016  MWF 10:00 am – 11:23 am (SH C-338)

Instructor: Sheng (Sharon) Hung

Tutorial Center Hours (SH C-357)
   Thursday 9:20 am – 11: 50 am
   Tutorial center phone: 323-343-5374

Office Hours: (BIOS 166)
   Tuesday 9:20 am – 10:30 am
   Wednesday 12:05 pm – 12: 45 pm
   Friday 12:05 pm – 12:45 pm

Email: shung5@calstatela.edu

Final Exam: Friday, December 9, from 9:10 am to 11:10 am

Prerequisite: Score of 50 or more on ELM or MATH 0930 (Math 91) with a minimum C grade within past year. Rudimentary knowledge of Microsoft Excel.

Textbook: Custom edition of Calculus for the Life Sciences by Greenwall, Ritchey, and Lial. Electronic version. ISBN 13: 978-0-321-96403-8 Students can purchase an online e-text at MyMathLab.com or a Barnes and Noble, CSULA Special custom Mymathlab access code card from the Bookmart or the Campus Bookstore. The course ID is hung44683.

Topical Outline: 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.

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:

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

Online Homework/Online Tests (10%): Register for the course with MyMathLab using course ID hung44683 by the end of week 2. Homework assignments and pre-tests are posted the course page. Feel free to use the online resources when you do online homework. You are expected to complete each online homework assignment/pre-test before it is due.

Computer/Group Activities (10%): You will have group computer activities to practice using Excel to plot graphs and write group reports regarding the activities. Each report needs to be typed and turned in to be graded with a cover-page that shows the full names of all group members. The computer assignments will be posted on MyMathLab.

Participation/In-class Activities (15%): (1) You are expected to come to class on time. Do not disrupt the class by coming late or leaving earlier. While most of the topics will be covered through my lecture, you will have “flipped classroom” on some topics. This means you will be learning those topics at home by watching videos and doing some interactive activities before you come to class. You will then use in-class time to solve problems in groups. (2) A few quizzes (15-20 min) will be given in class. These quizzes will be completed individually at the beginning of the class and no make-up will be given. I will drop the lowest quiz when I calculate the quiz average. (3) You will also be given some worksheets to be completed in small groups in class and present/share your answers with the class.

Midterms (30%): Three midterms will be scheduled for this semester. The midterms are tentatively scheduled for Wednesday of week 5, week 9, and week 13.

Final Exam (35%): Friday, December 9, from 9:10 am to 11:10 am

This course is graded A, B, C, NC

90% or above A 80% - 89% B 65% - 79% C  below 65% NC

ADA statement: Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation.

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.

Student responsibilities: Students are responsible for being aware of all announcements that are made in class or on MyMathLab, such as changes in exam dates, due dates of homework and papers, and cancellation of class due to instructor’s absence. Students are responsible for announcements made on days that they are absent.

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 forward this email account to any other account of your choosing.

**Knowledge Survey**

You will complete a pre-knowledge survey and a post-knowledge survey for this course. The purposes of this survey are to (1) tell you a bit about what you will learn in this course and, (2) the levels of thinking expected in this course.


**Important Dates and Holidays**

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<th>Event</th>
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<tr>
<td>No Record Drop Deadline</td>
<td>September 6, Tuesday</td>
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<tr>
<td>Add Deadline</td>
<td>September 6, Tuesday</td>
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<tr>
<td>“W” Withdraw Deadline</td>
<td>November 16, Wednesday</td>
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<td>Emergency Withdraw Deadline</td>
<td>December 6, Tuesday</td>
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<td>Campus Close</td>
<td>September 5, Monday--Labor Day</td>
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<td>November 11, Friday--Veteran’s Day</td>
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<td>November 23, Wed—Study Day</td>
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<td>November 24 &amp; 25—Thanksgiving</td>
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