Math 147 - Summer 2013
Texas A&M University

Instructor (June 3 - July 10): Heather Ramsey

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and by appointment

Instructor (July 11 - Aug. 13): Dr. Yvette Hester

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Class Times and Locations: This course meets every weekday according to the schedule below from June 3, 2013, to August 12, 2013, with two exceptions: Classes will not meet on Thursday, July 4, 2013, or on Monday, July 8, 2013. Also, students are required to take the comprehensive final exam for this course on Tuesday, August 13, 2013, from 10:30am to 12:30pm.

Section	Days	Time	Location
301 Lecture	MWF	10am-11:25am	BLOC 160
301 Recitation	TR	10am-10:50am	BLOC 160

Required Text: *Calculus for Biology and Medicine*, Third Edition, by Claudia Neuhauser, Pearson (2010). ISBN: 9780321644688

Catalog Title and Description: (CREDIT 4.0) *Calculus I for Biological Sciences* - Introduction to differential calculus in a context that emphasizes applications in the biological sciences. Prerequisite: MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam. **Credit will not be given for more than one of MATH 131, MATH 142, MATH 147, MATH 151 and MATH 171.**

Course Goal: The goal of this course is to introduce students to differential and integral calculus in a context that emphasizes applications in the biological sciences. First semester topics will include limits, continuity, differentiation, differentiation techniques and applications, integration, integration techniques and applications. Note: A tentative schedule for this course, including the topics to be taught, can be found on my web page. A brief summary of the lecture schedule is given at the end of this syllabus.

Learning Outcomes: During the course of MATH 147, students will gain the following specific knowledge and skills and be able to

- graph linear, trigonometric, exponential, and logarithmic functions.

- read semilog and double-log plots and derive functional relationships associated with such plots.

- compute basic limits of functions.

- understand the concept of continuity and be able to determine whether or not a given function is continuous.

- compute limits of functions using the Sandwich (Squeeze) Theorem.

- understand the Intermediate Value Theorem and be able to apply it in locating roots of algebraic equations.

- compute derivatives using the limit definition of the derivative.

- compute the equation of a line tangent to a curve at a given point.

- compute derivatives of polynomials, rational functions, trigonometric functions, exponential functions, inverse functions, and logarithmic functions.

- compute derivatives with the product rule, the quotient rule, and the chain rule.

- solve problems of related rates.

- compute the linear approximation of a function and use it in applications of approximation and error estimation.

- locate critical values of a function and categorize them as minima, maxima, or inflection points.

- compute intervals of monotonicity and intervals of concavity.

- graph complicated functions using information obtained by differentiation.

- analyze optimization problems.

- compute limits using L'Hospital's Rule.

- compute limits of sequences and recursions.

- model single-species populations and analyze single-species population models.

- compute integrals using Riemann sums.

- compute integrals using the Fundamental Theorem of Calculus.

- compute integrals using the method of substitution.

- use integration to compute areas, volumes, average values and arclengths.

Email Policy: Check your **TAMU** email account EVERY day. You are responsible for any information I send via email. If you send an email to me, be sure to include your full name and section number in the message. NOTE: Because of privacy rights, I cannot discuss grades via email or over the phone.

Cell Phone/Laptop Computer Policy: As a courtesy to me and your classmates, all cell phones and laptop computers (and other electronic devices) must be OFF and put away during lecture. If you disrupt class or distract your neighbor with your cell phone or other electronic device, you will be asked to leave class.

Grading Policy: Grades will be calculated according to the following percentages:

Three Exams	18% each	A = 90-100%
Quizzes	15%	B = 80-89%
Recitation Assignments	8%	C = 70-79%
Comprehensive Final Exam	23%	D = 60-69%
		F = below 60%

Note: Any questions regarding grading/scoring must be made **within one week** of the return of the exam or quiz or no change in the grade will be made.

Make-up Policy: No make-ups will be given without written evidence of an official University excused absence. (See *University Student Rules*.) According to Section 7.3 of the *University Student Rules*, for an absence to be considered excused,

the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class.

If no such notice is given, the rights to a make-up are forfeited. In addition (and also in accordance with *University Student Rules*), a **written** excuse must be presented upon return to class. Specifically, in the case of illness or injury, students are required to obtain a confirmation note from a health care professional affirming date and time of a medical office visit regarding the illness or injury. I will NOT accept the Explanatory Statement for Absence from Class form as sufficient written documentation of an excused absence.

Exams: There will be three exams on the dates listed below and a comprehensive final, scheduled as shown below. Exam grades will <u>NOT</u> be curved.

Tentative Exam Schedule	Final Exam
Exam 1 : Friday, June 21	
Exam 2 : Wednesday, July 10	Tuesday, Aug. 13, 10:30am-12:30pm
Exam 3 : Monday, Aug. 5	

Quizzes: Announced and unannounced quizzes and will be given throughout the semester during recitations and occasionally during lecture. Each quiz will be graded on a 10-point scale, and **no make-up quizzes will be given without written verification of a University excused absence.** One quiz grade will be dropped.

Recitation Assignments: A set of problems will be assigned during recitation each Tuesday and will be due during that class period. Students may work on these problems in groups of up to three. These assignments will be graded on a 10-point scale, and no make ups will be allowed for missed recitation assignments. One recitation assignment grade will be dropped.

Homework Assignments: Homework assignments will be posted on the course website. These assignments will not be collected for a grade, but completing them is essential to doing well in the course.

Attendance: I STRONGLY suggest that you make every attempt to not miss a single day of lecture or recitation. Falling behind in this course can be very detrimental to your grade.

Calculator Policy: Students will be allowed to use a scientific calculator on most quizzes and exams, with potentially a few exceptions. No graphing calculators, cell phone calculators, or any other electronic device will be allowed.

Scholastic Dishonesty: You are encouraged to work together on the homework assignments, but do not copy another student's work. Copying work done by others, either in class or out of class, is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by University policy. Using an unauthorized calculator during an exam or quiz will result in a zero on the assignment. Also, cell phone use during an exam, quiz, or recitation assignment will result in a zero on the assignment. Always abide by the Aggie Code of Honor: *An Aggie does not lie, cheat, or steal or tolerate those who do.* Please refer to Honor Council Rules and Procedures at http://www.tamu.edu/aggiehonor for more information on academic integrity and scholastic dishonesty.

Extra Help and Preparing for Exams:

- **Your Instructor:** We want each and every one of our students to be successful in this class. Please feel free to ask questions in class. If you need more help, drop in during office hours or make an

appointment to see the instructor. Remember, we am here to help, but we cannot do that if we don't know that there is a problem.

- **Recitation and TA:** You will attend recitation with a teaching assistant twice per week. During these class periods, you will be able to ask the TA to explain homework problems and review any topics from lecture, so be sure to take advantage of this class time.

- **Your Classmates:** Get to know your classmates. Form study groups and work on suggested problems outside of class.

- **Practice:** Working ALL of the suggested homework problems from your textbook is essential to doing well in this course. If you struggle with these problems the first time you work them, be sure to work them again AND work other problems from the textbook that are similar. We strongly recommend that you practice problems **DAILY**.

- **Free Tutoring!!! (a.k.a. Help Sessions):** Help sessions are an opportunity for you to ask questions and get help with your homework. The schedule for summer help sessions can be found on my webpage. These sessions are come-and-go, i.e., you can come at any point during the help session and leave whenever you want.

ADA Policy Statement: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room B118 of the Cain Hall or call 845-1637.

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Weekly Lecture Schedule: Roughly speaking, we should cover the following material from the textbook by Neuhauser on the following schedule:

Week of Monday	Sections Covered	Week of Monday	Sections Covered
June 3	1.1 - 1.3, 3.1	July 15	5.2 - 5.5
June 10	3.1 - 3.5	July 22	5.5, 2.1-2.3, 5.6
June 17	3.5, 4.1, Exam 1	July 29	5.6, 6.1, Review
June 24	4.2 - 4.5	Aug. 5	Exam 3, 6.2, 7.1, 6.3
July 1	4.6 - 4.8	Aug. 12	6.3, Review
July 8	Exam 2, 5.1		