

Instructor: Kathryn Bollinger

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(Please include your full name and section color in any email you send to me.)

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(Check regularly for announcements and important information, as well as for notes, a daily schedule and other helpful links.)

Office Hours: Tuesdays 2:00 – 4:00 PM

Wednesdays 3:00 – 5:00 PM

Thursdays 2:00 – 4:00 PM

OR by appointment

Class Times & Locations: MATH 131-503 (Green)MWF 9:10-10:00HELD 107

MATH 131-504 (Yellow).....MWF 10:20-11:10.....HELD 107

Catalog Description: (Credit 3) Limits and continuity; rates of change, slope; differentiation: the derivative, maxima and minima; integration: the definite and indefinite integral techniques; curve fitting. *Prerequisites:* High school algebra I and II and geometry. Credit will not be given for more than one of MATH 131, 142, 147, 151 and 171.

Learning Objectives:

- Identify basic functions and use them to model real-life situations.
- Compute limits numerically, graphically, and algebraically, and apply them to the concept of continuity.
- Understand the limit definition of the derivative and calculate derivatives of various functions using the limit definition and differentiation formulas.
- Compare the graph of a function with the graphs of the function's first and second derivatives.
- Find the local and absolute extrema of functions, including optimization applications.
- Compute antiderivatives and understand the concept of integration as it relates to area.
- Use the Fundamental Theorem of Calculus to evaluate integrals, including the method of substitution.
- Apply integration as it relates to area between curves, the average value of a function, and further applications to biology.

Required Materials:

- *Textbook: Single Variable Calculus: Concepts & Contexts*, 4th Ed. by Stewart (ISBN: 0-495-55972-5)
 - You paid for an electronic book version of the text when you paid your tuition/fees for this course. Information on how to access your ebook can be found at <http://www.math.tamu.edu/courses/eHomework/>.
 - If you would like a hardcopy of the textbook, you may buy one, but it is not required.
- *Calculator:* A TI-83, TI-84 (Regular, Plus or Silver edition) or the TI-Nspire (non-CAS version) calculator is **REQUIRED** and you must bring your calculator to each class. If you want to use a calculator other than those listed, it may NOT perform symbolic mathematics and you must have my permission to do so. Calculators are allowed on exams but you must clear and reset the memory before each exam. You may not share calculators during exams or quizzes. I will consider any illegal use of calculators on exams or quizzes as academic dishonesty and report it to the Aggie Honor Council. (Refer to the Academic Integrity Statement on p. 4)
- *Texas A&M Student ID:* You must bring your student ID to all exams.

Grading:*Grade Weights**Required Averages*

In-Class Daily Assignment Average (details on p. 2)	5%
Homework Problem Set Average (details on p. 2)	10%
Quiz Average (details on p. 2)	15%
Three In-Class Exams (details on p. 2 & 3)	15% each
Cumulative Final Exam (details on p. 2 & 3)	25%

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Tentative Exam Schedule:

Exam I	Sections 1.1-1.3, 1.5, 1.6, 2.1-2.6	Friday, September 24 th
Exam II	Sections 2.6-2.8, 3.1-3.4, 3.7-3.9	Friday, October 22 nd
Exam III	Sections 4.2, 4.3, 4.6, 4.8, 5.1-5.5	Wednesday, November 24 th

FINAL EXAM Schedule:

- Section 503 is on Monday, December 13th, 8:00 – 10:00 AM in HELD 107
- Section 504 is on Tuesday, December 14th, 8:00 – 10:00 AM in HELD 107

In-Class Daily Assignments (ICAs):

At various times throughout the semester, you will be given assignments (that are not homework problems or quizzes) which must be completed before leaving class. None of the grades on these assignments may be dropped unless you are missing a grade due to a verified University excused absence.

Homework Problem Sets:

Graded

Graded homework sets will be primarily on-line, but may include an occasional written assignment.

On-line Homework Problem Sets

- All on-line homework problem sets will be based in the on-line system WebAssign. Everything you will need to know about logging in is available at <http://www.math.tamu.edu/courses/eHomework/>. Please visit this site for help, announcements, and more information. I suggest you bookmark this page and visit it before you login to WebAssign each time.
- Be sure to start well in advance of the due date.
- I will not give extensions or grade adjustments due to technical difficulties at the last minute.

Written Homework

Each collected written homework assignment must contain your NAME, SECTION # (color), and SEAT # in the top right hand corner of the front page and all subsequent pages must be STAPLED to the first page. Your work must be neat and legible and all answers must be clearly marked. Failure to follow these instructions may result in a grade of zero.

Late Work

Written assignments are due at the beginning of the class period. No late written assignments will be accepted and no extensions on on-line homework problem sets will be granted without a verified University excused absence.

Non-Graded

Math cannot be learned by watching someone else do math; it requires working lots of practice problems. In addition to graded homework, I STRONGLY recommend that you keep a spiral notebook in which you work the problems from the suggested homework list found on our course webpage after a topic is covered in class, **before** trying the graded homework. *It is imperative that you work many problems in order to help you be fully prepared for quizzes and exams.*

Quizzes:

You can expect to be given a mixture of in-class, take-home, announced and unannounced quizzes throughout the semester. Quizzes may be given at any time during class, so make sure you arrive on time to each class.

Exams:

There will be three in-class exams. You will be expected to show all of your work, including calculator methods, on all problems for full credit, unless it is stated otherwise.

Final Exam:

The final exam is **COMPREHENSIVE**. The presence of material on the final is roughly proportionate to the amount of time we spend on that material during the semester.

A tentative day-by-day semester schedule can be found on the course web page with an abbreviated version below.

Tentative Schedule: All changes will be announced in class.			
Week 1	Aug. 30 - Sept. 3	Introduction, Sections 1.1, 1.2	Function Representation Mathematical Models (<i>Polynomial, Power, Rational, Trigonometric, Exponential, Logarithmic</i>)
Week 2	Sept. 6-10	Sections 1.3, 1.5, 1.6	Transformations Exponential Functions Inverse and Logarithmic Functions
Week 3	Sept. 13-17	Sections 2.1, 2.2, 2.3, 2.4	Approximating Slopes of Tangent Lines Numerical and Graphical Limits Algebraic Limits Continuity
Week 4	Sept. 20-24	Section 2.5, Review, Exam 1 (1.1-1.3, 1.5, 1.6, 2.1-2.5)	Limits Involving Infinity
Week 5	Sept. 27 – Oct. 1	Sections 2.6, 2.7, 2.8	Derivatives and Rates of Change The Derivative as a Function Comparisons Between a Function and its Derivatives
Week 6	Oct. 4-8	Sections 3.1, 3.2, 3.3	Derivatives of Polynomials & Exponentials The Product and Quotient Rules Derivatives of Trigonometric Functions
Week 7	Oct. 11-15	Sections 3.4, 3.7, 3.8	The Chain Rule Derivatives of Logarithmic Functions Rates of Change in the Natural and Social Sciences
Week 8	Oct. 18-22	Section 3.9, Review Exam 2 (2.6-2.8, 3.1-3.4, 3.7-3.9)	Linear Approximations & Differentials
Week 9	Oct. 25-29	Sections 4.2, 4.3, 4.6	Local and Absolute Extrema Derivatives and Shapes of Curves Curve Sketching Optimization Problems
Week 10	Nov. 1-5	Sections 4.6, 4.8, 5.1	Optimization Problems Antiderivatives Areas and Distances
Week 11	Nov. 8-12	Sections 5.2, 5.3	Riemann Sums Definite Integrals Evaluating Definite Integrals
Week 12	Nov. 15-19	Sections 5.4, 5.5	The Fundamental Theorem of Calculus Integration using Substitution
Week 13	Nov. 22-26	Review Exam 3 (4.2, 4.3, 4.6, 4.8, 5.1-5.5)	THANKSGIVING HOLIDAY
Week 14	Nov. 29 – Dec. 3	Sections 6.1, 6.5, 6.7	Area Between Curves Average Value of Functions Applications of Integration in Biology
Week 15	Dec. 6-7	Review	
Finals		Final Exam (Cumulative)	

Extra Help & Preparing for Exams:

- *Me*: I am here to help you but I can't help if I don't know there is a problem. I encourage each of you to talk to me, ask questions both in and out of class, come to office hours, send emails, etc. Your best bet for success is active participation!
- *Your Classmates*: Get to know your classmates. Form study groups and work on suggested problems outside of class.
- *Week-in-Review (WIR)*: The Week-in-Review is a review session conducted by me for all Math 131 students once per week to review the topics of the previous week and to provide additional examples. These reviews will start the second week of classes. These will be held on Mondays from 7:15-9:15 PM in BLOC 166, and the problems I will be working are located at <http://www.math.tamu.edu/~bollingr/131WIRpage.html>.
Another set of old Week-in-Review questions with solutions are linked from our course webpage, as well.
- *Practice*: In addition to attending the current WIR sessions, I strongly recommend that you practice extra problems on your own. See the suggested homework list for the textbook, algebra resources, and additional problem sets, all linked from our course webpage.
- *Help Sessions*: Help sessions are an opportunity for you to ask questions and get help with your homework. Students who have previously taken Math 131 (or its equivalent) lead the help sessions. These don't usually start until the second week of school. As soon as it is available, the schedule will be posted on our course web page and additionally at <http://www.math.tamu.edu/courses/helpsessions.html>.
- *Calculator Help*: Step-by-step written keystroke directions are available for all the calculator functions in the course on our course webpage.