

SYLLABUS FOR MATH 125 – CALCULUS I

Spring 2017

Lectures

Joseph Brennan
Lecture: Wescoe 3140
Office: Snow 631
brennanj@ku.edu
MWF 12:00 – 12:50pm
<http://www.math.ku.edu/~j548b125/>

Jeremy Martin
Lecture: Wescoe 3139
Office: Snow 618
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MWF 1:00 – 1:50pm
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Laboratory Sections

66354	Prashanth Sridhar prashanth@ku.edu	TR 8:30 – 9:20am Snow 301 http://www.math.ku.edu/~p646s694/
63963	Nishant Agrawal nishantagrawal@ku.edu	WF 9:00 – 9:50am Snow 454 http://people.ku.edu/~n131a554/
63961	Amelia Allen a449a386@ku.edu	WF 10:00 – 10:50am Snow 454 http://www.math.ku.edu/~a449a386/
63964	Debaditya Raychaudhury debaditya@ku.edu	TR 11:00 – 11:50am Strong 337 http://people.ku.edu/~d571r382/
63965	Raul Bolanos r581b481@ku.edu	TR 12:00 – 12:50am Snow 152 http://www.math.ku.edu/~r581b481/
63966	Kevin Marshall kmarsh729@ku.edu	TR 1:00 – 1:50pm Strong 337 http://people.ku.edu/~k088m880/
63959	Lucian Grand lgrand@ku.edu	TR 2:00 – 2:50pm Snow 454 http://people.ku.edu/~l821g995/
66357	Abba Ramadan aramadan@ku.edu	TR 2:00 – 2:50pm Snow 156
66358	Junxi Zhang j000z700@ku.edu	MW 3:00 – 3:50pm Snow 454 http://www.math.ku.edu/~j000z700/

Enhanced Section

63956	Ken Duna kduna@ku.edu	MWF 11:00 – 11:50am Strong 356 TR 11:00 – 12:15pm http://www.math.ku.edu/~c185d473/
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Required Items

Textbook: Calculus Early Transcendentals, 3E, by Rogawski & Adams
Access Code for WebAssign (typically obtained with the text)
iClicker Classroom Response System

Lectures are scheduled three (3) times per week MWF and are led by either Dr. Martin or Dr. Brennan. Laboratory sections are scheduled two (2) times per week MW, TR, or WF and are led by graduate teaching assistants.

This syllabus contains all of the basic information about the course you will need to know. Further details are given on Blackboard, and can be found by clicking on the links in the left navigation. For example, clicking on "Course Schedule" accesses the Weekly Schedule and clicking on "Week 1" accesses all information important to the first week of class.

Prerequisite MATH 103 or MATH 104, with a grade of C- or higher; or 3 years of college preparatory mathematics including trigonometry, with a score of 28 or higher on the ACT Mathematics exam.

Objectives and Course Contents

The course covers differential calculus and the basics of integral calculus, covering most of Chapters 2-5 of the text. The precise sections to be covered are listed in the schedule given on Blackboard. The objective of the course is to acquire mastery of the material covered in the course in the following senses:

1. Mathematical understanding, as demonstrated by the ability to solve appropriate mathematical problems.
2. Practical understanding, as demonstrated by the ability to solve appropriate word problems in the sciences, in engineering and in the social sciences.

Grading System

The exact cut-off for each letter grade will not be determined until the end of the semester. The following represent the initial cut-offs for each letter grade.

A	B	C	D
>89.5%	>79.5%	>69.5%	>59.5%

Note that there are no plus/minus grades in the calculus sequence. Following the second midterm exam and the final exam, the course grade cut-offs **may** be curved downward; once lowered, the letter grade cut-offs will **not** increase.

The following is a breakdown for Math 125 showing the components of the course and how much each component is worth.

Written Homework	5%
WebAssign Homework	5%
iClicker Lecture Participation	3%
WebAssign Warm-Ups	2%
Laboratory Section Grade	5%
Gateway Exam	10%
Midterm Exam I	20%
Midterm Exam II	20%
Final Exam	30%

Exams

MATH 125 will have three types of exam:

1. The Gateway Exam: Information regarding the Gateway can be found at

<https://www.math.ku.edu/academics/gateways/>

Students can earn a score of 0, 10, or 100 on the Gateway. The Gateway has an online component and an in-lab component. Students passing the online exam, but not the in-lab exam, earn 10. Students can **only** take the in-lab exam after passing the online exam. Students earn 100 by passing the in-lab exam. Information about the gateway exams, including deadlines and locations, can be found at the page labeled "Read this first!"

A Paper Gateway Exam will be administered in laboratory sections during the 2nd meeting of week 7. Students who correctly answer 8, 9, or 10 of the 10 questions earn 10% of their final grade and do **not** need to take the Online or In-Lab Gateway Exams.

Deadlines:	Online Gateway Exam	Wednesday 3/1 at 11:59pm
	In-Lab Gateway Exam	Friday 3/10 at 5:00pm

2. Midterm Exams: Paper exams that are hand graded by MATH 125 instructors and GTAs.

Midterm Exam 1	T 2/28	5:50 – 7:50pm	Chapter 2 and 3.1-3.5, 3.7, 3.8
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Midterm Exam 2	T 4/11	5:50 – 7:50pm	Chapter 3 and 4.1-4.7
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Final Exam: Cumulative - administered Tuesday, May 9, 4:30-7:00pm.

Calculators and Midterm/Final Exams: Only basic or scientific calculators will be permitted while taking exams. Calculators must **not** be able to perform calculus calculations (limits, derivatives, integrals, series) and must have **no** graphing capabilities.

WebAssign

WebAssign is an online homework system that will be used for class warm-ups and online homework. The version of the textbook available through the University Bookstore (in both hard copy and e-book formats) comes equipped with a WebAssign Key. It is important that you buy the version of the textbook with a WebAssign Key; otherwise your WebAssign score will be null.

It is recommended that students intending to continue to Calculus 2 purchase a WebAssign Key valid for the life of the textbook. Besides being required for warm-ups and homework, WebAssign includes additional guidance through study guides, video tutorials, and step-by-step tutorials for many problems.

LearningCurve Assignments: Accessible through Blackboard through the LaunchPad Content menu are LearningCurve assignments. These assignments are adaptive, multiple choice questions focused on concepts, not calculations. These assignments are available as **extra** credit towards the WebAssign Homework grade.

Lecture Participation

The lectures held in Wescoe will be using the iClicker system for nearly every meeting beginning the second week of the semester. Students earn 1 point per lecture for responding to at least one question and earn 0.5 point per correct answer. Lecture Participation will be graded on a 65 point scale; students who earn above 65 points keep the overage as bonus credit towards lecture participation.

There will be **no** make-ups for lecture participation, the only way to accrue points is to attend lecture with a functioning iClicker; be sure to keep a spare set of batteries in your backpack!

Laboratory Sections

Laboratory sections meet twice per week with a graduate teaching assistant. In laboratory, students will review the most recent material, work through problems that supplement lecture material, and have an opportunity to ask questions and receive feedback in a small classroom environment. 5% of the final grade is earned through laboratory sections; the quiz average is 4 of the 5 while laboratory attendance and participation make up 1 of the 5.

Written homework will be collected and quizzes will be administered in laboratory sections. All graded material will be returned during laboratory sections; for all grade disputes, initially contact your GTA before contacting your lecturer.

Make-ups

Make-ups will **not** be available for the Gateway Exam. **DO NOT WAIT UNTIL THE DEADLINE (3/1 and 3/10) TO TAKE THE GATEWAY EXAM.** The average student does not pass until the third attempt and some students need many more attempts.

WebAssign Homework can be completed after the deadline for 50% credit by requesting an extension through WebAssign. An extension will automatically be granted up to the 14th day AFTER the assignment deadline passes.

Exams and Laboratory Sections: Students with a conflict with another course or verifiable excuse (temporary orders necessitating the absence of those in the US Armed Forces, sanctioned university activities, or a medical crisis of themselves, a relative, or friend) may be excused from being present. It is the responsibility of the student to initiate discussion with their instructor or graduate teaching assistant prior to the absence examination/test if possible. Students can formally request their exam to be rescheduled due to a conflict by completing an Exam Conflict form which will be forwarded two weeks before the exam is scheduled.

Religious Holidays: Any student in this course who plans to observe a religious holiday which conflicts in any way with the course schedule or requirements should contact your instructor before the end of the second week of classes to discuss alternative accommodations.

Math Help

Every instructor and graduate teaching assistant is available for help outside the classroom, see individual webpages to find times and locations. The Mathematics Help Room can be found in 439 Anschutz Library and is staffed by helpful and competent mathematics graduate teaching assistants. Before searching for a private tutor, be sure to visit either your instructor or the Mathematics Help Room as they are free for KU students.

Group Work and Tutors: Students may discuss homework problem in groups, but each student is responsible for doing their own work and for turning in individual solutions. When a student works with a tutor, it is the responsibility of both the student and the tutor to ensure that it is the student who works to arrive at the solution of the problems. Tutors should not do student homework or provide solutions for assignments. No late homework assignment will be accepted. Members of the class are encouraged to study together, but **EACH** must write out their own solutions to the assigned problems. Copying of another person's homework is not allowed. **HOMEWORK IS A MAJOR PART OF THE LEARNING PROCESS IN MATHEMATICS**, and it is essential that students work their own problems, and do the homework on a regular basis.

Keys to Success in MATH 125

- Come to lecture and your laboratory section prepared to learn and engage with the material!
- After each class, review the material and do the assigned and suggested homework on WebAssign and in the textbook.
- Prepare for the next class meeting:
 - Visit Blackboard to check the schedule and announcements.
 - Read the upcoming section in the textbook and take notes on the online video.
 - Do warm-up exercises on WebAssign.
- Find help! Take advantage of both your lecturer and your laboratory leader's office hours. Visit the Calculus Help Room in Anschutz 439! The help room schedule can be found in the course Blackboard.
- Study! Gather a group of friends and regularly work and study together.
- You will need a good background in algebra and trigonometry, Chapter 1 and Appendices A, B, and C serves an excellent reference for reviewing prerequisite material and a list of problems.

Withdrawal Dates

2/6	Tuesday	Last day to drop and not have it appear on your transcript.
4/17	Wednesday	Last day to drop and your transcript will show a "W."

By the end of MATH 125, students should have begun to build fundamental knowledge and skills so they can apply calculus to future STEM academic training and professional practice. Fundamental calculus knowledge and skills will be learned and evaluated based on specific objectives related to:

Limits

- Have an intuitive understanding of the definition of a limit.
- Evaluate limits (two-sided, left, and right) of a piecewise defined function given algebraically or graphically.
- Calculate infinite limits and detect vertical asymptotes.

- Detect when a function is continuous and identify the type of discontinuity.
- Apply the Intermediate Value Theorem to mathematically prove two functions intersect on a set interval.

Derivatives

- Apply limits to calculate slopes of tangent lines or instantaneous velocity.
- Given a function, sketch the graph of its derivative and calculate the formula for the derivative.
- Compare the different differentiation formulas and recognize when to use each.
- Understand the connection between implicit differentiation and the chain rule.
- Find the slopes of implicitly defined functions.
- Apply implicit differentiation and the chain rule to solve many types of related rates problems.
- Apply l'Hopital's Rule to calculate limits of various indeterminate forms.
- Calculate the derivative of any elementary function.
- Recognize when to apply logarithmic differentiation.
- Utilize the tangent line or differentials to estimate how a function is changing around a specific point.
- Use the Closed Interval Method to identify absolute maxima and minima of a function.
- State the Mean Value Theorem and intervals for which a function satisfies it.
- Identify local extrema using either the First or Second Derivative Tests.
- Summarize all of your current algebra and calculus knowledge to sketch an accurate graph of a function.
- Apply your maxima/minima knowledge to solve optimization problems.
- Recognize how and why Newton's Method finds intersections between functions.

Integrals

- Compute general antiderivatives for select elementary functions.
- Solve initial value problems for particular antiderivative functions.
- Use antiderivatives to calculate velocity or position from acceleration.
- Estimate the area under a curve using rectangles with heights given by left, right, or midpoints.
- Identify how the definite integral relates with area under the curve.
- Relate slopes and areas through the Fundamental Theorem of Calculus.
- Develop a substitution rule to find antiderivatives of more complicated functions.

Policy on Students with Special Needs

The KU Office of Student Access Services - AAAC coordinates accommodations and services for all eligible students with disabilities. If you have a disability and wish to request accommodations and have not contacted the AAAC should do so as soon as possible. Their office is located in 22 Strong Hall; their phone number is 785-864-4064 (V/TTY). Information about their services can be found at <http://access.ku.edu/>. Please also contact your instructor and graduate teaching assistant privately in regard to your needs in this course.

Policy on Academic Misconduct

You are required to abide by all KU policies on academic integrity. Cheating, plagiarism or other

academic misconduct will result in a failing grade on the assignment in question, notification of the student's dean, and usually further disciplinary sanctions, possibly including a failing grade in the course.

You are encouraged to collaborate with other students on the homework assignments. However, each student must write up his or her own solutions and acknowledge all collaborators. Copying someone else's homework, or allowing someone else to copy yours, is considered to be a form of cheating. For more information, see KU's official policies on academic misconduct at <http://policy.ku.edu/governance/USRR#art2sect6>.

General Comments

Regular class attendance is important for success in this course. Even if you've taken a previous Calculus course, this course is likely to be taught from a more sophisticated perspective, and if you think this class will be review, you are probably mistaken.

You should expect to spend at least two hours studying outside of class for every hour spent in class. In contrast to most high school math classes, if you don't understand the material being covered, you should **NOT** assume that your instructor will repeat material until you understand or master it. Ideally, you should ask questions at the time in class. Of course, you'll also probably need to spend time thinking things through on your own, but if you've tried that and are still confused, make use of the Calculus Help Room and instructor office hours. **Don't wait!** The material in this course is cumulative, so anything you don't understand now is likely to keep giving you trouble as the semester goes on.

Intellectual Property

- Course materials prepared by the instructor, together with the content of all lectures and review sessions presented by the instructor are the property of the instructor.
- Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited.
- Permission to make such recordings may be granted by the instructor on a case-by-case basis, on the condition that the individual making the recording uses these recordings only as a study aid.
- Unless explicit permission is obtained from the instructor, recordings of lectures and review sessions and course content may not be modified and must not be transferred or transmitted to any other person, whether or not that individual is enrolled in the course.