

Syllabus for Math 2413, Honors Calculus I

Class information

Section: 001
Time: 10:30–11:45 AM, Monday, Wednesday, Friday
Location: Ratliff Building South 2019

Instructor information

Name: Joseph Vandehey
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E-mail: jvandehey@uttyler.edu (**NOT** jvandehey@patriots.uttyler.edu)
Book: *Essential Calculus: Early Transcendentals* Second Edition
by James Stewart
Office Hours: 1:00–4:00 PM Thursday or by appointment

We will use Canvas in this course. Homework assignments, grades, study guides, and even this syllabus will all be posted to Canvas.

1. COURSE CONTENT

A study of functions, limits, continuity, differentiation of algebraic and trigonometric functions, applications of the derivative, definite and indefinite integrals with applications. We will focus on chapters 1–5 of your textbook, although some topics, such as hyperbolic functions, may be dropped for time.

2. EXPECTATIONS AT THE START OF CLASS

You are expected to be proficient in algebra and trigonometry and to be able to apply algebraic and trigonometric manipulations without being directly prompted. We will discuss more precisely what you are expected to know on the first day of class. See Diagnostic tests A, B, and D in your textbook.

3. GRADING

Class item	Percent of total grade
Homework	5%
Quizzes	15%
Midterms	45%
Final	25%
Project	10%

On quizzes and tests, the final answer is often worth far less than any other part of the problem. I care about good mathematical process over anything else. Always, always show your work. Because showing your work is important, I will mark down for extremely messy work or for bad notation.

As I recognize that life is sometimes hectic, the lowest homework grade and lowest quiz grade will be dropped. Exam scores will not be dropped or replaced.

At the end of the semester, your final letter grade will be determined *roughly* as follows:

90% or higher	A
Between 80% and 90%	B
Between 70% and 80%	C
Between 60% and 70%	D
60% or lower	F

Any deviations from the above rubric will only be to your benefit.

4. HOMEWORK

There will be a homework assignment due every Friday (and generally assigned a week prior). I will collect your homework at the start of class, grade it based solely on effort, and return it to you at the end of class. You are not required to have completed every problem. Homework questions will mostly come from odd numbered problems and the answers will be available to you at the back of your textbook. As such, in order to receive full credit, you must show your work. Sometimes additional questions outside the textbook will be given. To incentivize good homework practices, I will often borrow homework problems for quizzes and tests.

In the case of a pre-arranged excused absence (e.g., for a sporting event), I would still like you to turn in homework. For all other excused absences (e.g., a sudden illness), you do not need to turn in homework, and the score will be dropped.

The most recent material covered in a given homework will be the material covered on the Monday of the week the homework is due.

5. QUIZZES

Quizzes will be given every Friday at the end of class, unless there is an exam that week. They will generally last for twenty minutes. There will not be any make-up quizzes. If you have an excused absence, then the score will simply be dropped: it will have no impact on your grade.

The most recent material covered in a given quiz will be the material covered on the Monday of the week of the quiz. The first quiz will be given August 27th and will cover material from the syllabus and review topics.

6. MIDTERMS

There will be three midterms during this semester.

Exam 1	Friday September 17, Week 4
Exam 2	Friday October 15, Week 8
Exam 3	Friday November 12, Week 12

Midterms will be held in class and last the full class period. If you are late to class, you will not be granted additional time to complete your midterm. Midterms are *not* cumulative and will only cover material discussed in class since the previous midterm. The cut-off date for new material for a given midterm will generally be the Friday the week before of the midterm: material from the week of the midterm will *not* appear on the exam.

7. EXTRA CREDIT OPPORTUNITY

If you score less than 90% on a quiz or exam, you will have an opportunity to recoup one point on the grade, up to a maximum of 90%. (As quizzes are worth 10 points, one point corresponds to 10% of your quiz grade.) To earn your extra credit point, you must visit an on-campus tutor in the week after the quiz or exam has been returned to you.

More details on how to obtain the bonus point will be provided later.

8. FINAL

As our class uses a non-standard class time, we do not yet know when we will be taking the final. However, you will be informed as soon as possible as to exactly when and where the final will take place.

The final will consist of two parts. The first part will be essentially a fourth midterm over the material you have not yet been tested on. The second part will be a review of the material learned throughout the semester. The two parts will be of similar length and point total.

9. PROJECT

Throughout this course, you will be asked to work on a project that connects calculus to your field of study. This will be interpreted very broadly, and if need be, you can choose to work with mathematics more generally rather than just calculus. The primary criteria for the project will be two-fold. First, your project topic should be specific. It should not be as broad as “Differential equations are very useful in engineering.” Second, your project should be detailed. You should have at least two significant external resources and should go into greater detail than the Wikipedia page on your topic (if such a page exists).

You may choose to present your project either as a paper (roughly 5-6 pages, 12 pt font, double-spaced) or as a presentation (15 minutes long). While you are required to cite your sources, I will not require your citations to be in any particular format (such as APA, MLA, etc.). Written projects will be graded partially on grammar, punctuation, etc, and presentations will be graded partially on delivery.

To keep you on track towards completion of the project, there will be a few smaller assignments due throughout the course of the semester. By **WEEK 5**, you should have conducted an interview with a professor or professional in your field to get an idea of an appropriate topic. At the end of week 5, you will be asked to turn in a short executive summary of what you discussed and what topic you have chosen. By **WEEK 10**, you will need to have found some external resources and give a short executive summary of what your plan is for the final project.

10. ADDITIONAL COMMENTS

- (1) Exceptions to the above rules will be made in the case of extreme circumstances.
- (2) There is no special attendance policy for this course.
- (3) Please note that September 3rd is the census date for this course, which is the deadline for all registration and schedule changes.
- (4) Cheating on quizzes or exams is strictly prohibited and carries severe consequences, up to and including expulsion from the university. You are, however, actively encouraged to work together on homework assignments, provided you write up your own solutions and hand them in independently.
- (5) Calculators, phones, tablets, laptops, or any other computing or communication devices are not permitted on quizzes or tests. Use of them will be considered cheating.
- (6) If you believe I have graded a quiz or exam in error, come see me at the end of the class in which I handed it back. Leaving class with the quiz or exam means you accept the grade you have been given.
- (7) I frown upon the use of erasers on quizzes and tests. They make me sad. If you think your work is wrong, cross it out. Do not erase! I cannot give partial credit for work that has been erased and I can no longer read.
- (8) Important campus-wide policies that you should be aware of can be found at the following link: <https://www.uttyler.edu/academicaffairs/files/syllabuspolicy.pdf>

UT Tyler Resources for Students.

- The Mathematics Learning Center, RBN 4021. This is an open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu
- UT Tyler Counseling Center (903.566.7254)

This syllabus is a general guideline for the course. Deviations may be necessary as the semester progresses.

11. MOCK SCHEDULE

Week	Day	Sections	Topics
1	Aug 23		Syllabus, Intro to calculus
	Aug 25	1.1–1.2	Functions and their representations; a catalog of essential functions
	Aug 27	1.3	Limit of a function
2	Aug 30	1.4	Calculating limits
	Sept 1	1.5	Continuity
	Sept 3	1.6	Limits involving infinity
3	Sept 6		NO CLASS
	Sept 8	1.6	Limits involving infinity (cont)
	Sept 10	2.1	Derivatives and rates of change
4	Sept 13	2.2	Derivative as a function
	Sept 15	2.3	Basic differentiation formulas
	Sept 17		Exam 1
5	Sept 20	2.4	Product and quotient rules
	Sept 22	2.5	Chain rule
	Sept 24	2.5	Chain rule (cont)
6	Sept 27	2.6	Implicit differentiation
	Sept 29	2.7	Related rates
	Oct 1	2.7	Related rates (cont)
7	Oct 4	2.8	Linear approximation and differentials
	Oct 6	3.1	Exponential functions
	Oct 8	3.2	Inverse functions and logarithms
8	Oct 11	3.3	Derivatives of logarithmic and exponential functions
	Oct 13	3.4	Exponential growth and decay
	Oct 15		Exam 2
9	Oct 18	3.7	Indeterminate forms and l'Hospital's rule
	Oct 20	3.7	Indeterminate forms and l'Hospital's rule (cont)
	Oct 22	4.1	Maximum and minimum values
10	Oct 25	4.2	The mean value theorem
	Oct 27	4.2	The mean value theorem (cont)
	Oct 29	4.3	Derivatives and the shapes of graphs
11	Nov 1	4.4	Curve sketching
	Nov 3	4.5	Optimization
	Nov 5	4.5	Optimization (cont)
12	Nov 8	4.6	Newton's method
	Nov 10	4.7	Antiderivatives
	Nov 12		Exam 3
13	Nov 15	5.1	Areas and distances
	Nov 17	5.2	The definite integral
	Nov 19	5.3	Evaluating definite integrals
14	Nov 29	5.4	The fundamental theorem of calculus
	Dec 1	5.5	Substitution
	Dec 3	5.5	Substitution (cont)