

MATH 1131, Fall 2014

Sections W31 and W32

Instructor: Stephen Flood

Office: Waterbury Building, Room 312

Email: stephen.flood@uconn.edu

Textbook: Single Variable Calculus: Early Transcendentals 7e, by Stewart.

Important note! *You must have a valid license for WebAssign.*

This should come bundled for free from textbooks purchased from the UConn bookstore. Books sold somewhere else might NOT contain this license, which costs \$80+ if purchased separately.

Important Websites

1. **My Website:** General information about this section, including my office hours, and some study aids will be posted at <http://www.mathlogic.org/stephenflood/math1131f14>
2. **WebAssign:** Online homework and grades will be posted on WebAssign. To access WebAssign, you must first log into HuskyCT at <https://learn.uconn.edu/> and go to this class's HuskyCT page. On the left side of that page, click on the link "WebAssign Homework" (below the course name).
3. **Email:** It is important to regularly check your UConn email at <http://gmail.uconn.edu>

Grades

Your grade will be earned out of 500 points as follows. There is no extra credit.

Exam I	100 points (20%)
Exam II	100 points (20%)
Homework	75 points (15%)
Quizzes	75 points (15%)
Final Exam	150 points (30%)
Total	500 points (100%)

Exams, worksheets and quizzes will be graded for correctness, completeness, and clarity. The more clear your explanation and organization, the more points you will earn! This also means that points may be deducted for confusing organization and poor handwriting, as well as for incomplete or incorrect work.

Learning Methods

Calculus is about a mixture of *concepts* and *computations*. Some problems on the homework simply practice ideas covered in class. Other problems will combine the "computations" and "concepts" in *a variety of new ways*. From time to time **you will** become stumped by a problem. In this case, **you should** come to my office hours, drop by my office, or email me to ask for a hint or explanation.

Between the 5 tries you are given on the online homework, and the opportunity to ask me questions, **everyone should be able to earn a 100% on their homework average.**

The *average* student should expect to spend between 1 and 2 hours on *each homework assignment*, and at least 1 hour studying outside of class for each hour inside class. See, for example, any website about studying in college. If you are weak in mathematics, you will require more time, but please talk to me and I can help you work more efficiently. You can also find useful advice online:

- Time Management Hints: http://tlc.uoregon.edu/learningservices/studyskills/time_management.html
- Math Study Skills: <http://mathcs.slu.edu/undergrad-math/success-in-mathematics>

Exams

There will be two in-class exams and one final exam. The final exam will be cumulative: anything we've studied is fair game. The in-class exams generally cover the material since the last exam. No calculators will be permitted on any exam.

No makeup exams are scheduled. If you miss an exam for a valid reason (documented illness, documented family emergency, etc.), your exam grade will be determined by averaging the other exams.

Tentative dates are given in the Approximate Calendar of Study, below. *Please contact me before the exam* if you will need to miss it. It is much harder to document "valid reasons" after you have missed the exam.

Quizzes

There will be occasional quizzes and/or graded worksheets. These may be in-class or take-home assignments. The only difference is that you are allowed to work together and use calculators on a graded worksheet, but you cannot work with another person or calculator on a quiz. These will be short assignments, and their main purpose is to give you a chance to use, practice, and explore the concepts and tools that we are learning.

The Quiz grade will be the average of the assignment scores. In class quizzes and graded worksheets will be announced in advance. You cannot make them up, but the lowest 2 scores will be dropped.

Homework

The best way to learn calculus is to get a lot of practice solving problems correctly and to learn to explain your solutions clearly to another person. Simply doing the graded quizzes and worksheets will *not* give you enough practice to learn the material. To help you learn, you will have two types of assigned homework: online homework and recommended homework.

Online Homework

Online Homework will be assigned from every class. This homework will be due 2-3 days after the class where we cover the relevant topic. You will (generally) have 5 chances to correctly enter the answer to each homework problem into the system.¹ In addition to submitting your answers online, I also *strongly recommend* that you hand-write full solutions to each online problem, and that you keep these as study aids.

Practice Problems

In addition to the graded homework, you also have recommended homework: read the book and do as many practice problems as you can. You can find a list of recommended practice problems on the course page. *If you have the "Hybrid Edition" textbook, you will need to log into the online textbook (through WebAssign) to find the end of chapter problems.*

¹To see the exact number of chances you have to answer a specific problem, click the "plus" sign next to the problem number.

You should do many practice problems before the quiz or exam, which is often within about a week of the material being covered. Don't think of this as "optional practice." Think about it as "homework with a flexible due date." This sounds like a lot of work but remember: college is a full time job. An *average* student should expect to spend 2-3 hours outside of class for every hour inside class.

Group Work and Study Aids

While group work can be helpful, I strongly encourage you to *work on problems yourself first*, before discussing them with your peers. Probably the best way to check that you understand a problem is to ask this question: "Can I reproduce the solution and explain it to a classmate a whole 10 minutes after I finished the problem?" Try this with the people you are studying with, and have them check your reasoning.

You have many excellent resources available to aid you as you work. For example, you can ask me any questions you have during office hours! You also have access to free tutoring through the Math Resource Center, which is located in Room 227G of the Library. This resource center is open from Monday to Thursday, for several hours each day. You can learn more about the center, including their exact hours, online at http://www.waterbury.uconn.edu/student_resources/math_resources.html

But please remember: you will benefit the most if you *make a serious effort to solve the problems on your own* before you obtain other assistance.

Calculator policy

The goal of this course is to help you develop your analytical, visual, and problem solving skills. Because of this, **no calculators** are allowed on the exams or quizzes. On the other hand, a graphing calculator is a very useful **learning** tool, and you should have access to some sort of graphing calculator.

Using a graphing calculator:

Remember that our goal is for *you* to be able to make the graph. These 3 steps should help:

1. Read the problem carefully, and be sure you understand it.
2. Use your knowledge of calculus and pre-calculus to sketch the graph using pen and paper.
3. Make a graph using the calculator. Ask yourself "how does the graph compare to my sketch?"
If they are different, try to understand why!

You should also use your graphing calculator to help you **understand** functions. E.g. once you have graphed $f(x) = x^2 + 3x + 1$, you should try changing the numbers. Ask yourself "how does this change the graph?"

Obtaining a graphing calculator:

A dedicated graphing calculator is convenient and easy to use, but it does cost money. If you are trying to save money, there are many free tools available. Using a computer, you can find a free graphing calculator online at <http://fooplot.com/>. Using an android phone, you can use an app such as "Algeo Calculator". On an iOS device, you might try the app "Free Graphing Calculator".

But always **remember**: you will need to be able to solve most problems *without* a calculator.

Approximate Calendar of Study

This schedule is a preliminary outline, and you should expect it to change from time to time. For example, it is likely that the days marked “review” will include some amount of new material.

Note: If you have the hybrid textbook, you must use the eBook to find the end of section problems.

Lesson	Date	Section	Topic	Remarks
1.	8/25	1.1-3	Functions, Composition, and the Rule of 4	Read “To the Student”, & Appendices A&D Appendices B&C and “Principles of Problem Solving”
2		1.5-6	Exponentials, Inverses, & Logarithms	
3		3.8	Exponential Growth and Decay	
2.	9/01		Labor Day – No classes	
4		2.1-2	Tangents, Continuity, and Graphical Limits	<i>Key concept</i>
5		2.2	Rates of Change and Numerical Limits	<i>Key concept</i>
3.	9/08	2.3	Algebraic Rules for Limits	Last day to add/drop ²
7		2.6	Limits at infinity and “eventual behavior”	
8		2.4	A <i>Very Careful</i> Definition of Limit	
4.	9/15	2.7	Instantaneous Rates of Change	<i>Key concept</i>
10		2.8	The Derivative Function	
11		3.1	Derivatives of basic functions	
5.	9/22	TBA	Modeling and Basic Max/Min	Subject to Change For fun: pg 371 #30
13		3.2	The product and quotient rules	
14		3.3	Derivatives of trig functions	
6.	9/29	3.4	Chain Rule 1	Useful trick: pg 208 #92
16			Review for Exam I	
17			Exam I	
7.	10/06	3.4,7	Chain Rule 2	
19		3.5	Implicit differentiation	
20		3.6	Derivatives of logarithms	

²without additional signatures.

Lesson	Date	Section	Topic	Remarks	
8.	21	10/13	3.9	Related Rates 1	<i>Tricky problems</i>
	22		3.9	Related Rates 2	
	23		3.8, 4.4	Interest Rates & L'Hospital's Rule 1	
9.	24	10/20	4.4	L'Hospital's Rule 2	<i>Tricky problems</i>
	25		TBA	Linear Approximations	<i>Key concept.</i>
	26		4.1-3	Local max/min and Graph shape	
10.	27	10/27	4.1-3	Absolute max/min and Graph shape	Last day to late-drop
	28		4.7	Optimization and Modeling 1	<i>Tricky problems</i>
	29		4.7, 4.9	Optimizing 2 & Antiderivatives 1	
11.	30	11/03	4.9	Antiderivatives 2	
	31			Review for Exam II	
	32			Exam II	
12.	33	11/10	5.1	Approximating areas under curves	
	34		5.2	Approximating net area	
	35		5.2	Definite Integrals	
13.	36	11/17	5.3	The most important theorem in calculus	<i>Key concept</i>
	37		5.4	Using the fundamental theorem	
	38		5.5	The substitution rule	
14.		11/24		Thanksgiving recess – No classes	
				Thanksgiving recess – No classes	
				Thanksgiving recess – No classes	
15.	39	12/01		Review Part I: Foundations of Calculus	
	40			Review Part II: Using Rates of Change	
	41			Review Part III: Computing Net Area	
16.		varies		Final Exam	Scheduled by University