Math 1131Q – Calculus I

Course Description

This course is an introduction to differential and integral calculus, which is the mathematical language used in any science concerned with dynamically changing quantities. The main topics are limits, derivatives, integrals, the Fundamental Theorem of Calculus, and various applications of these ideas.

Textbook Information

The textbook for the course is *Calculus: Early Transcendentals* by James Stewart (8th Edition), which is bundled with a WebAssign code for online homework. You have the choice of buying one of two versions of the text, depending on how much calculus you plan to take in the future:

- **If you do NOT plan to take Math 2110** (multivariable calculus), then you should purchase *Single-Variable Calculus: Early Transcendentals* by Stewart (8th Edition).
- **If you plan to take Math 1131, 1132, *and* 2110** (multivariable calculus) then you should purchase *Calculus: Early Transcendentals* by Stewart (8th Edition).

IMPORTANT!
There are three ways to purchase the text and the WebAssign access code:

- Get the text and WebAssign access code bundled together from the publisher's special website for either the single variable version (1131/1132) or the full version (1131/1132/2110).
- Get the text and WebAssign access code bundled together at the UConn Bookstore.
- Get the text separately from anywhere, and buy the WebAssign access code when you access your homework through HuskyCT.

We do not recommend using the third option above, because it is more expensive to buy the access code and the textbook separately. Purchasing the text and WebAssign access code together lets you use that access code for the life of the edition of the textbook.

Calculator Policy

Models TI-82, 83, 84, 84 plus, 85 or 86 are recommended, and are allowed on exams and quizzes. Calculators that can perform symbolic computations, such as models TI-89 and above (including TI-Nspire), are **NOT** permitted on exams or quizzes.

WebAssign

Online Homework: There is an online homework assignment for each section we cover. To access these assignments, go to the Husky CT site for your **discussion section** (section number ends in D), then click on the WebAssign Homework link. You will get five attempts for each question that is not multiple choice and fewer than five attempts for each multiple choice question; the exact number of attempts will depend on the number of choices. After each attempt, you will be told whether your answer is correct or not. If you are not able to get the correct answer after your first two attempts, please talk to someone about it – this could be your professor, your TA, a fellow classmate, a tutor, or someone at the Q-Center (an excellent and free campus resource).

Useful tips on using WebAssign can be found here.pdf

Online Quizzes: There will be an online quiz on most sections we cover. Each quiz will be a timed assignment in WebAssign that draws questions from the corresponding homework assignment – make sure you are comfortable with all the homework exercises for a particular section before attempting the quiz! You will get three attempts for each question that is not multiple choice and at most three attempts for each multiple choice question; the exact number of attempts will depend on the number of choices.

Discussion and Worksheets

Discussion provides an opportunity to ask questions about content from lectures and WebAssign, and explore examples that provide different perspectives and more depth. There will be a worksheet corresponding to each section that you will normally begin working on in discussion, then finish and turn in at the beginning of the next discussion. These worksheets are designed to reinforce and strengthen your knowledge and understanding, and provide practice with writing coherent, well-reasoned answers to questions (very important for exams!).
The majority of the grade for these worksheets will be based on completion of the exercises, and a couple exercises on each worksheet will be graded in detail for correctness.

i>clicker Registration

Clickers will be used in lectures. You must register your i>Clicker by visiting the i>Clicker Registration link in the HuskyCT site for your **lecture section** (either Section 100 or 120 or 140 or 160).

Grading

Homework (online)	WebAssign	10%
Quizzes (online)	WebAssign	5%
Worksheets (written)	Discussion	10%
Clicker responses	Lecture	5%
Exam 1: 2nd Discussion Meeting, Week 4	Discussion	15%
Exam 2: 2nd Discussion Meeting, Week 8	Discussion	15%
Exam 3: 2nd Discussion Meeting, Week 12	Discussion	15%
Final Exam:	Common (2 hours)	25%

Things that will help you succeed in this course

1. Attend lecture and discussion class.
2. Read relevant explanations and examples in the textbook.
3. Watch videos (mathresources.uconn.edu/math1131). Each video last 8-15 minutes and covers some of the difficult and/or critical concepts.
4. Do online homeworks and quizzes.
5. Revisit Concept Questions (mathresources.uconn.edu/math1131).
6. Review using Flash Cards (mathresources.uconn.edu/math1131).

Tentative Outline for Math 1131 – Fall 2016

Week	Date	Section	Topic	Worksheets
1	8/29		Administrative Information	
		2.1	The Tangent and Velocity Problems	2.1 Worksheet.pdf
		2.2	The Limit of a Function	2.2 Worksheet.pdf
		2.3	Calculating Limits Using the Limit Laws	2.3 Worksheet.pdf

Week	Date	Section	Topic	Worksheets
2	9/5		Labor Day	
		2.4	The Precise Definition of a Limit	2.4 Worksheet.pdf
		2.5	Continuity	2.5 Worksheet.pdf
		2.6	Limits at Infinity; Horizontal Asymptotes	2.6 Worksheet.pdf
3	9/12	2.7	Derivatives and Rates of Change	2.7 Worksheet.pdf
		2.8	The Derivative as a Function	2.8 Worksheet.pdf
		3.1	Derivatives of Polynomials and Exponential Functions	3.1 Worksheet.pdf
4	9/19	3.2	The Product and Quotient Rules	3.2 Worksheet.pdf
			Midterm 1 Practice Exam (Actual Exam in Discussion)	
5	9/26	3.3	Derivatives of Trigonometric Functions	3.3 Worksheet.pdf
		3.4	The Chain Rule	3.4 Worksheet.pdf
		3.5	Implicit Differentiation	3.5 Worksheet.pdf
6	10/3	3.6	Derivatives of Logarithmic Functions	3.6 Worksheet.pdf
		3.8	Exponential Growth and Decay	3.8 Worksheet.pdf
7	10/10	3.9	Related Rates	3.9 Worksheet.pdf
		3.10	Linear Approximations and Differentials	3.10 Worksheet.pdf
		4.8	Newton's Method	4.8 Worksheet .pdf

Week	Date	Section	Topic	Worksheets
8	10/17	4.1	Maximum and Minimum Values	4.1 Worksheet .pdf
			Midterm 2 Practice Exam (Actual Exam in Discussion)	
9	10/24	4.2	Mean Value Theorem	4.2 Worksheet .pdf
		4.3	How Derivatives Affect the Shape of a Graph	4.3 Worksheet .pdf
		4.4	Indeterminate Forms and l'Hospital's Rule	4.4 Worksheet .pdf
10	10/31	4.7	Optimization Problems	4.7 Worksheet.pdf
		4.9	Antiderivatives	4.9 Worksheet.pdf
11	11/7	5.1	Areas and Distances	
		5.2	The Definite Integral	5.1/5.2 Worksheet.pdf
		5.3	The Fundamental Theorem of Calculus	5.3 Worksheet.pdf
12	11/14	5.4	Indefinite Integrals and the Net Change Theorem	5.4 Worksheet.pdf
			Midterm 3 Practice Exam (Actual Exam in Discussion)	
13	11/21	No class	Thanksgiving Break	
14	11/30	5.5	The Substitution Rule	5.5 Worksheet.pdf
		6.1	Areas Between Curves	6.1 Worksheet.pdf
15	12/7	6.2	Volumes	6.2 Worksheet.pdf
			Review	

Week	Date	Section	Topic	Worksheets
16	12/14		**Finals Week**	

Math 1131 Learning Activities

Section	Topic	Learning Activities
2.1	The Tangent and Velocity Problems	Video, Worksheet.pdf
2.2	The Limit of a Function	Video, Worksheet.pdf
2.3	Calculating Limits Using the Limit Laws	Video, Worksheet.pdf
	Labor Day	
2.4	The Precise Definition of a Limit	Video, Worksheet.pdf
2.5	Continuity	Video, Worksheet.pdf
2.6	Limits at Infinity; Horizontal Asymptotes	Video, Worksheet.pdf
2.7	Derivatives and Rates of Change	Video, Worksheet.pdf
2.8	The Derivative as a Function	Video, Worksheet.pdf
	Midterm 1 (Sections 2.1 to 2.8)	Practice Exam and Solutions
3.1	Derivatives of Polynomials and Exponential Functions	Worksheet.pdf
3.2	The Product and Quotient Rules	Video, Worksheet.pdf
3.3	Derivatives of Trigonometric Functions	Video, Worksheet.pdf
3.4	The Chain Rule	Video, Worksheet.pdf
3.5	Implicit Differentiation	Video, Worksheet.pdf
3.6	Derivatives of Logarithmic Functions	Worksheet.pdf

Section	Topic	Learning Activities
3.8	Exponential Growth and Decay	Worksheet.pdf
3.9	Related Rates	Worksheet.pdf
3.10	Linear Approximations and Differentials	Worksheet.pdf
	Midterm 2	Practice Exam and Solutions
4.8	Newton's Method	Worksheet.pdf
4.1	Maximum and Minimum Values	Video, Worksheet.pdf
4.2	Mean Value Theorem	Video, Worksheet.pdf
4.3	How Derivatives Affect the Shape of a Graph	Video A, Video B, Worksheet.pdf
4.4	Indeterminate Forms and l'Hospital's Rule	Video, Worksheet.pdf
4.7	Optimization Problems	Video, Worksheet.pdf
4.9	Antiderivatives	Worksheet.pdf
5.1	Areas and Distances	Video (Worksheet combined with 5.2)
5.2	The Definite Integral	Video, Worksheet.pdf
5.3	The Fundamental Theorem of Calculus	Video, Worksheet.pdf
	Midterm 3	Practice Exam and Solutions
5.4	Indefinite Integrals and the Net Change Theorem	Worksheet.pdf
5.5	The Substitution Rule	Video, Worksheet.pdf
6.1	Areas Between Curves	Video, Worksheet.pdf

Section	Topic	Learning Activities
6.2	Volumes	Video A, Video B, Worksheet.pdf
	Finals Week	Practice Exam and Solutions

Our Final Exam is on Wednesday December 14th at 1pm. Check StudentAdmin/PeopleSoft for information on rooms.

Practice Final Exam.pdf (solutions.pdf)

Exam 3 is in discussion on Wednesday November 16th OR Wednesday November 17th. The exam covers Sections 4.1-4.4, 4.7-4.9, and 5.1-5.3.

Group Review Exercises.pdf

Practice Exam 3.pdf (solutions.pdf)

(Typo in Practice Exam 3, Question 3, correct at 2:07pm, Monday, November 14th)

Exam 2 is in discussion on Wednesday October 19th OR Thursday October 20th. The exam covers Chapter 3 (Sections 3.1 through 3.6, and 3.8 through 3.10)

Group Review Exercises.pdf

Practice Exam 2.pdf (solutions.pdf)

Exam 1 is in discussion on Wednesday September 21st OR Thursday September 22nd. The exam covers all of Chapter 2 (Sections 2.1 through 2.8).

Practice Exam 1.pdf (solutions.pdf)

There will be **three midterm exams** that will take place during your second discussion meeting during Weeks 4, 8, and 12 (see the course outline).

Our **final exam** will take place at a time and location to be announced by the Registrar's Office.