Math 1131Q – Calculus I

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 it covers are limits, derivatives, integrals, the Fundamental Theorem of Calculus, and some basic applications of these ideas.

Prerequisites: Passing score on the Calculus Readiness Test.

Text:

The textbook for the course is *Calculus Early Transcendentals, Single Variable* by James Stewart (8th Edition), which is bundled with a *WebAssign* code for doing online homework.

BUYING THE BOOK AND WEBASSIGN ACCESS CODE: you can buy the bundled version of Calculus Early Transcendentals, Single Variable by James Stewart (8th Edition) either at the UConn Coop or online directly from the publisher. Both the text and the Webassign code are **required** for this course. The unbundled version of the book (that is, the book without a WebAssign access code) can be obtained in many places, but the cost of buying the unbundled text and the WebAssign code separately may be significantly **greater**. How can you decide which version of the text to buy?

- If you plan to take Math 1131 or Math 1131 and 1132 only, then you should purchase the single-variable version of the textbook.
- If you plan to take Math 1131, 1132 *and* 2110, then you should purchase the heavier book Calculus Early Transcendentals by Stewart (8th Edition) that has chapters on multivariable calculus in the table of contents.

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 single variable (1131/1132) or multivariable (1131/1132/2110).
- Get the text and WebAssign access code bundled together at the UConn Co-op.
- 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 text book separately than bundled together. The option to buy the text and WebAssign access code bundled together lets you use that access code for the life of the edition of the textbook.

Graphing calculators: TI 82, 83, 84, 84 plus, 85 or 86 are recommended. Models TI-89 and above (including TI-Nspire) are not permitted on the exams or quizzes.

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i>clicker Registration:

Clickers will be used in the lectures. You must register your i>clicker by visiting the link through the lecture section of your instructor in HuskyCT.

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.

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 13	Discussion	15%
Final Exam:	Common (2 hours)	25%

How to study for this course

1. Attend lecture and discussion class.
2. Read the 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 – Spring 2017

Week	Date	Section	Topic	Worksheets
1	1/16		MLK day	
			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
2	1/23			
		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	1/30	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	2/6	3.2	The Product and Quotient Rules	3.2 Worksheet.pdf
			Midterm 1 1131PracticeExam1.pdf(Actual Exam in Discussion)	Solutions Exam1.pdf

Week	Date	Section	Topic	Worksheets
5	2/13	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	2/20	3.6	Derivatives of Logarithmic Functions	3.6 Worksheet.pdf
		3.8	Exponential Growth and Decay	3.8 Worksheet.pdf
7	2/27	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
8	3/6	4.1	Maximum and Minimum Values	4.1 Worksheet .pdf
			Midterm 2 Practice Exam (Actual Exam in Discussion)	
9	3/13		Spring Break	
10	3/20	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
11	3/27	4.7	Optimization Problems	4.7 Worksheet.pdf
		4.9	Antiderivatives	4.9 Worksheet.pdf
12	4/3	5.1	Areas and Distances	
		5.2	The Definite Integral	5.1/5.2 Worksheet.pdf

Week	Date	Section	Topic	Worksheets
		5.3	The Fundamental Theorem of Calculus	5.3 Worksheet.pdf
13	4/10	5.4	Indefinite Integrals and the Net Change Theorem	5.4 Worksheet.pdf
			Midterm 3 Practice Exam (Actual Exam in Discussion)	
14	4/17	5.5	The Substitution Rule	5.5 Worksheet.pdf
		6.1	Areas Between Curves	6.1 Worksheet.pdf
15	4/24	6.2	Volumes	6.2 Worksheet.pdf
			Review	
16	5/1		**Finals Week**	

Learning activities Math 1131 Spring 2017

Note: You can ignore the section numbers in the videos as they were created for a previous version of the text – the topics are still consistent. You can find more electronic resources such as flashcards and clicker questions under the Online Resources tab.

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

Section	Topic	Learning Activities
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	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
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

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

Each of the midterm exams will be held in the **discussion sections** during the semester.

Midterm 1

For Marianne Cavanaugh sections the exam will be on Wednesday 8th February 2017

For Amit Savkar sections the exam will be on Thursday 9th February 2017

Midterm 2

For Marianne Cavanaugh sections the exam will be on Wednesday 8th March 2017

For Amit Savkar sections the exam will be on Thursday 9th March 2017

Midterm 3

For Marianne Cavanaugh sections the exam will be on Wednesday 12th April 2017

For Amit Savkar sections the exam will be on Thursday 13th April 2017