M408C SPRING 2019
DIFFERENTIAL & INTEGRAL CALCULUS

PROF INFO
PROFESSOR: Kathy Davis  PHONE: 471-0128
OFFICE HOURS: MW 12:50-1:30; Extra appointments MWF mornings
OFFICE: RLM 9.138
EMAIL: davis@math.utexas.edu
WEB SITE: http://www.ma.utexas.edu/users/davis/408C

GRADING
Homework 0%  Not collected, not graded
Exams 50% Two (in-TA session). See p2 for dates.
Quizzes 25% In TA Session. Alternate weeks; one dropped.
Final 25% Not cumulative; p2 for date.
Cheat Sheets Exams & Final only. One 8.5 by 11 sheet; anything you want on it.
Make-Ups You can take one late quiz (not exam) if you tell us in advance (even same day).

GRADES
89.6-100 A
88.6-89.5 A-
79.6-88.5 B
78.6-79.5 B-
69.6-78.5 C
68.6-69.5 C-
59.6-68.5 D
Below F

FINAL EXEMPTION
All 100's; can drop one quiz but must be 90 or above.

CANVAS
Grades are posted on Canvas after each exam.

TEXT
Stewart, Calculus, Early Transcendentals, Eighth Edition, used only for extra homework. You can buy an online book. See the links on my site and in Canvas.

TOPICS
Chapters 2-6, roughly. Detailed syllabus:
http://www.ma.utexas.edu/academics/courses/syllabi/M408C.php

PREQUIS
Appropriate score on placement exams.

GOALS
Goals: This course emphasizes computational ability and geometric understanding in calculus. It isn't a theorem/proof class, but it is the advanced class and it does move fast. Class notes are v.important.

SSD
The University of Texas provides appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-6441 TTY. If you plan on using accommodations, you need to notify me EARLY in the semester, and reserve a room EARLY, or you'll lose your chance.
EXAM DATES
E1 Tuesday Feb 26
E2 Thurs April 11
FINAL EXAM DATE
Sat May 18, 2pm-3pm

OTHER IMPORTANT DATES
Wed Jan 23  Classes Start
March 18-23  Spring Break
May 10  Last Class

TA INFO
All your exam and quizzes are in your TA session. If you switch times, *I won't grade your exams.* Talk to us if you must switch, even for just one day.

TA:  Phone:
Email:

TA SESSION MEETS HERE:
52935 TTh 11am  BUR 224
52940 TTh 2pm  CPE 2.206

CALC Lab
We have CalcLab instead of TA office hours. To find hours and rooms, go to the CalcLab website: https://www.ma.utexas.edu/academics/undergraduate/calculus-lab/

GETTING A REGRADE
You can ask for a regrade to correct things that you feel we missed, or graded unfairly. *We will never lower your grade.*

THE RULES: IGNORE THE RULES, I WON'T REGRADE YOUR STUFF
0) To get a regrade, you must take the exam/quiz in ink.
1) You can't get a regrade if you don't pick up your stuff
2) Compare your work with the online solutions.
3) Mark what you want me to look at, and give the exam/quiz to me in class. NOT MY OFFICE
4) Ask for the regrade within three MWF days after we give it back in TA session.
5) I'll bring the regraded paper to class with me, usually the next class day.

Ichiban Very Important Rule: Don't throw stuff away. I give second regrades before the final.
**Computing your grade**

before final: $\alpha = \frac{.25 \times (\text{Quiz Average}) + .5 \times (\text{Exam Average})}{.75}$

after final: $\beta = .75 \times \alpha + .25 \times \text{Final}$

Your average determines your grade: no special deals, no retakes, no curves. UT considers these posted rules are legally binding.

I do extra regrades before the final, so you HAVE TO PICK UP your exams/quizzes in the TA session and KEEP THEM.

**Study advice**

If you’ve had calculus before:

a) Watch out for what’s different. I do LOTS different.

b) Watch out for your algebra; it’s easy to lose points.

c) You need to show work. Anyone can get answers from Google; I want to see what you learned.

Here’s a general plan for studying:

a) Start with working problems. If you get stuck, check your notes to see whether I did a similar problem. If not, discuss it with your study pals. You can also take a picture of your work and email me. Before 8pm.

b) If something seems wrong on the 14U problems, email me. Don’t waste hours of your own time.

c) Go to TA session to work the practice problems on the hw.

Where to find study material:

a) The problems in Stewart are too simple, so we have extra practice. For studying, you can start with Stewart but that isn't enough and your exam problems will be harder.

b) Every week I post 14U problems with solutions. Because the course moves so quickly, you need to do these problems every night, after the lecture, or at the very least, every weekend. Solutions are posted, too!

c) The homework has problems to practice you for the quizzes and exams. They don't have solutions; these are meant to be done in your TA session.

d) Finally, go through your notes to see if there's anything you've missed.

This is not a course in which you drill dozens of problems and then get you problems just like the drill. You need to do more than problems: you need to think about the kinds of problems you've seen and you need to organize that in your mind. The YAPS are designed to help.
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Section</th>
<th>Date</th>
<th>Day</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/23/19</td>
<td>W</td>
<td>Section 2.2</td>
<td>3/25/19</td>
<td>M</td>
<td>Section 3.10</td>
</tr>
<tr>
<td>1/24/19</td>
<td>Th</td>
<td></td>
<td>3/26/19</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>1/25/19</td>
<td>F</td>
<td>Section 2.2</td>
<td>3/27/19</td>
<td>W</td>
<td>Section 4.1</td>
</tr>
<tr>
<td>1/28/19</td>
<td>M</td>
<td>Section 2.3</td>
<td>3/28/19</td>
<td>Th</td>
<td></td>
</tr>
<tr>
<td>1/29/19</td>
<td>T</td>
<td></td>
<td>3/29/19</td>
<td>F</td>
<td>Sections 4.1, 4.3</td>
</tr>
<tr>
<td>1/30/19</td>
<td>W</td>
<td>Section 2.3</td>
<td>4/1/19</td>
<td>M</td>
<td>Section 4.4</td>
</tr>
<tr>
<td>1/31/19</td>
<td>Th</td>
<td></td>
<td>4/2/19</td>
<td>T</td>
<td>Quiz 4</td>
</tr>
<tr>
<td>2/1/19</td>
<td>F</td>
<td>Section 2.6</td>
<td>4/3/19</td>
<td>W</td>
<td>Section 4.4</td>
</tr>
<tr>
<td>2/4/19</td>
<td>M</td>
<td>Section 2.5</td>
<td>4/4/19</td>
<td>Th</td>
<td></td>
</tr>
<tr>
<td>2/5/19</td>
<td>T</td>
<td>Quiz 1</td>
<td>4/5/19</td>
<td>F</td>
<td>Section 4.7</td>
</tr>
<tr>
<td>2/6/19</td>
<td>W</td>
<td>Section 2.5</td>
<td>4/8/19</td>
<td>M</td>
<td>Section 4.7</td>
</tr>
<tr>
<td>2/7/19</td>
<td>Th</td>
<td></td>
<td>4/9/19</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>2/8/19</td>
<td>F</td>
<td>Section 3.1</td>
<td>4/10/19</td>
<td>W</td>
<td>Section 5.1, 5.2</td>
</tr>
<tr>
<td>2/11/19</td>
<td>M</td>
<td>Section 3.2</td>
<td>4/11/19</td>
<td>Th</td>
<td>Exam 2</td>
</tr>
<tr>
<td>2/12/19</td>
<td>T</td>
<td></td>
<td>4/12/19</td>
<td>F</td>
<td>Section 5.1, 5.2</td>
</tr>
<tr>
<td>2/13/19</td>
<td>W</td>
<td>Section 3.2</td>
<td>4/15/19</td>
<td>M</td>
<td>Section 5.3</td>
</tr>
<tr>
<td>2/14/19</td>
<td>Th</td>
<td></td>
<td>4/16/19</td>
<td>T</td>
<td>Quiz 5</td>
</tr>
<tr>
<td>2/15/19</td>
<td>F</td>
<td>Section 3.3</td>
<td>4/17/19</td>
<td>W</td>
<td>Section 5.3</td>
</tr>
<tr>
<td>2/18/19</td>
<td>M</td>
<td>Section 3.3</td>
<td>4/18/19</td>
<td>Th</td>
<td></td>
</tr>
<tr>
<td>2/19/19</td>
<td>T</td>
<td>Quiz 2</td>
<td>4/19/19</td>
<td>F</td>
<td>Section 5.4</td>
</tr>
<tr>
<td>2/20/19</td>
<td>W</td>
<td>Section 3.4</td>
<td>4/22/19</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>2/21/19</td>
<td>Th</td>
<td></td>
<td>4/23/19</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>2/22/19</td>
<td>F</td>
<td>Section 3.4</td>
<td>4/24/19</td>
<td>W</td>
<td>Section 5.5</td>
</tr>
<tr>
<td>2/25/19</td>
<td>M</td>
<td>Section 3.5</td>
<td>4/25/19</td>
<td>Th</td>
<td>Quiz 4</td>
</tr>
<tr>
<td>2/26/19</td>
<td>T</td>
<td>Exam 1</td>
<td>4/26/19</td>
<td>F</td>
<td>Section 5.5</td>
</tr>
<tr>
<td>2/27/19</td>
<td>W</td>
<td>Section 3.6</td>
<td>4/29/19</td>
<td>M</td>
<td>Section 6.1</td>
</tr>
<tr>
<td>2/28/19</td>
<td>Th</td>
<td></td>
<td>4/30/19</td>
<td>T</td>
<td>Quiz 6</td>
</tr>
<tr>
<td>3/1/19</td>
<td>F</td>
<td>Section 3.6</td>
<td>5/1/19</td>
<td>W</td>
<td>Section 6.2</td>
</tr>
<tr>
<td>3/4/19</td>
<td>M</td>
<td>Section 3.6</td>
<td>5/2/19</td>
<td>Th</td>
<td></td>
</tr>
<tr>
<td>3/5/19</td>
<td>T</td>
<td></td>
<td>5/3/19</td>
<td>F</td>
<td>Section 6.2</td>
</tr>
<tr>
<td>3/6/19</td>
<td>W</td>
<td>Section 3.8</td>
<td>5/6/19</td>
<td>M</td>
<td>Section 8.1</td>
</tr>
<tr>
<td>3/7/19</td>
<td>Th</td>
<td></td>
<td>5/7/19</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>3/8/19</td>
<td>F</td>
<td>Section 3.8</td>
<td>5/8/19</td>
<td>W</td>
<td>Section 8.1</td>
</tr>
<tr>
<td>3/11/19</td>
<td>M</td>
<td>Section 3.7</td>
<td>5/9/19</td>
<td>Th</td>
<td></td>
</tr>
<tr>
<td>3/12/19</td>
<td>T</td>
<td>Quiz 3</td>
<td>5/10/19</td>
<td>F</td>
<td>Last Class</td>
</tr>
<tr>
<td>3/13/19</td>
<td>W</td>
<td>Section 3.9</td>
<td>5/13/19</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>3/14/19</td>
<td>Th</td>
<td></td>
<td>5/14/19</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>3/15/19</td>
<td>F</td>
<td>Section 3.9</td>
<td>5/15/19</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>3/18/19</td>
<td>M</td>
<td>Spring Break</td>
<td>5/16/19</td>
<td>Th</td>
<td></td>
</tr>
<tr>
<td>3/19/19</td>
<td>T</td>
<td>Spring Break</td>
<td>5/17/19</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>3/20/19</td>
<td>W</td>
<td>Spring Break</td>
<td>5/18/19</td>
<td>S</td>
<td>Final Exam</td>
</tr>
<tr>
<td>3/21/19</td>
<td>Th</td>
<td>Spring Break</td>
<td>5/20/19</td>
<td>M</td>
<td>Grades Posted</td>
</tr>
<tr>
<td>3/22/19</td>
<td>F</td>
<td>Spring Break</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2 Limits and Derivatives (Six Days)
   • 2.1 The Tangent and Velocity Problems
   • 2.2 The Limit of a Function
   • 2.3 Calculating Limits Using the Limit Laws
   • 2.4 The Precise Definition of a Limit
   • 2.5 Continuity
   • 2.6 Limits at Infinity; Horizontal Asymptotes
   • 2.7 Derivatives and Rates of Change
   • 2.8 The Derivative of a Function

3 Differentiation Rules (Eleven Days)
   • 3.1 Derivatives of Polynomials and Exponential Functions
   • 3.2 The Product and Quotient Rules
   • 3.3 Derivatives of Trigonometric Functions
   • 3.4 The Chain Rule
   • 3.5 Implicit Differentiation
   • 3.6 Derivatives of Logarithmic Functions
   • 3.7 Rates of Change in the Natural and Social Sciences (optional)
   • 3.8 Exponential Growth and Decay
   • 3.9 Related Rates
   • 3.10 Linear Approximations and Differentials
   • 3.11 Hyperbolic Functions (very quickly)

4 Applications of Differentiation (Eight Days)
   • 4.1 Maximum and Minimum Values
   • 4.2 The Mean Value Theorem
   • 4.3 How Derivatives Affect the Shape of a Graph
   • 4.4 Indeterminate Forms and L'Hospital's Rule
   • 4.5 Summary of Curve Sketching
   • 4.7 Optimization Problems
   • 4.9 Antiderivatives

5 Integrals (Five Days)
   • 5.1 Areas and Distances
   • 5.2 The Definite Integral
   • 5.3 The Fundamental Theorem of Calculus
   • 5.4 Indefinite Integrals and the Net Change Theorem
   • 5.5 The Substitution Rule

6 Applications of Integration (Four Days)
   • 6.1 Areas between Curves
   • 6.2 Volume
   • 6.3 Volumes by Cylindrical shells (optional)
   • 6.4 Work (optional)
   • 6.5 Average value of function (optional)