MATH 1220-004 Spring 2015
Calculus II (4 credits)
MTWF 12:55–13:45 PM in AEB 350

Instructor: Jason Underdown
Office: JWB 121 (my cubical is on the right hand side, second row)
Cell Phone: (801) 560–3901 (text messages are fine, please tell me your name)
Email: jasonu@math.utah.edu
Web Site: www.math.utah.edu/~jasonu/1220/
Office Hour: T: 2:00 - 2:50 pm (JWB 121 on exam weeks)
W: 2:00 - 2:50 (LCB 215)
H: 12:55 - 2:50 (AEB 310)

Textbook: The latest edition of the textbook is the ninth edition, since homework will be assigned from the textbook you must have the ninth edition.

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>ISBN-10</th>
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<tbody>
<tr>
<td>Calculus with Differential Equations</td>
<td>Varberg, Purcell and Rigdon</td>
<td>0–13–230633–6</td>
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<tr>
<td>Student Solutions Manual for Calculus</td>
<td>Rigdon</td>
<td>0–13–146966–5</td>
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</tbody>
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Prerequisite: “C” or better in (MATH 1210 OR MATH 1250 OR MATH 1270 OR MATH 1311 OR MATH 1310) OR AP Calculus AB score of at least 4 OR AP Calculus BC score of at least 3

Course Description: Geometric applications of the integral, logarithmic and exponential functions, techniques of integration, conic sections, improper integrals, numerical approximation techniques, infinite series and power series expansions, differential equations

Expected Learning Outcomes: Upon successful completion of this course, a student should be able to:

- Compute derivatives and integrals for exponential, logarithmic, hyperbolic functions, and inverse trigonometric functions.
- Integrate integrable functions using integration by parts, u-substitution, trigonometric substitutions, rationalizing substitutions, partial fraction decomposition, and trigonometric identities. This includes knowing which techniques to apply to a given integral.
- Use L’Hopital’s Rule to calculate indeterminate-type limits and also know what limits are the non-indeterminate forms and how to compute those limits.
- Compute improper integrals.
- Understand the difference between an infinite sequence and infinite series and determine if a sequence converges or diverges.
• Determine whether or not an infinite series of numbers converges or diverges using a variety of tests.

• Understand what it means for a Power Series to converge or diverge and be able to find the Taylor Series for a given function.

• Differentiate and integrate functions in polar coordinates.

Midterm Exams: There will be three in class, exams evenly spaced throughout the semester. I will drop the lowest of your three exam scores. I do not offer make–up exams except when required to do so by university policy, for example, athletes participating in sanctioned events. Exam dates are listed in the course schedule. Exams are closed book and closed notes. You may use a scientific calculator, but no other calculators will be allowed.

Final Exam: The final exam is comprehensive. You will be allowed to bring one, double-sided page (8.5” × 11”) of notes and a scientific calculator.

Studying for Exams: What is the best way to study for an exam? More generally, what is the best way to learn math?

“I hear and I forget. I see and I remember. I do and I understand.” —Confucius

In the context of mathematics, doing means writing. It doesn’t matter if you use a whiteboard, chalkboard or paper, but unless you are actively thinking through a problem and creating a written chain of logical implications you are not doing math. For example, note taking involves writing chains of implications, but because it is often very passive you retain very little of it. Watching someone else solve a problem is not doing math. It is often a necessary starting point, but you won’t gain understanding from it. The way to study for an exam is to write out solutions to problems. If you study in a group, make sure you take turns at the board.

And for goodness sake, don’t take shortcuts! A shortcut is any calculation you do in your head not from memory. Facts from the times table which you have memorized are not shortcuts, but solving \( x^2 - 5x + 4 = 0 \), in your head would be taking a shortcut. Writing out even fairly simple calculations allows you to check your work as you go and thus minimize errors. If you can check the correctness of a computation, then you should. For example, it is often easy to check integration via differentiation. During lectures, I will often skip these checks for the sake of time, but don’t take this as license to avoid checking your work! Of course, when taking an exam, you should postpone most checks until you have finished.

Homework: Doing the homework is the only way to succeed in a math class! Homework is due weekly on Friday except on weeks when an exam is scheduled. I have a few rules concerning homework:

1. Homework must be stapled!

2. Fringe from spiral bound notebooks is not acceptable!

3. Writing just an answer and not showing your work is not worth any points, except in rare cases where there is no work to show.
Grading: Grades will be calculated according to the following scheme:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage of Grade</th>
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<tbody>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Final</td>
<td>25%</td>
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Note Taking: All of my lecture notes are available from the course web site, so you do not need to take notes in my class. In fact, I think taking notes is a waste of time for most students.

Through my undergraduate years I took copious detailed notes, but rarely looked at them. This actually hindered my learning because I wasn’t able to give as much attention to the concepts and examples being presented. I think it is more beneficial to actively follow the presentation and alert the instructor if you do not understand.

I am a slow learner and slow writer, so I wasn’t usually able to follow every step and write it all down. You may be different. If note taking is helpful to you, then of course I encourage you to take notes. If your reason for taking notes is that it helps you stay awake, then perhaps you should examine how you schedule your time.

Tutoring: The Rushing Math Center offers free drop-in tutoring, a computer lab, and study areas for undergraduates. The Rushing Student Center is underground between the LCB and JWB.

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
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<tr>
<td>Monday—Thursday</td>
<td>8 AM – 8 PM</td>
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<tr>
<td>Friday</td>
<td>8 AM – 6 PM</td>
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<tr>
<td>Weekends &amp; Holidays</td>
<td>closed</td>
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Private Tutoring: University Tutoring Services, 330 SSB offers inexpensive tutoring. There is also a list of tutors at the Math Department office in JWB 233.

Calculators: I encourage the use of graphing calculators for homework but not for exams. You may only use scientific calculators during exams. Cell phone calculators are not allowed.
Canvas: I will only use Canvas to disseminate grades. Please do not email me from within Canvas, I will not respond. You can access Canvas at: utah.instructure.canvas. Your username and password are the same as for CIS.

Grading Scale: The grade scale will be the usual: A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), E (0-59). If I do change the scale, I will simply shift everything down by a few points.

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services (CDS), 162 Olpin Union Building, 581- 5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDS.