MATH 1220-04 Calculus II, Spring 2020

Class Meetings: MTWF at 12:55-1:45 in JTB 140

Instructor: Sean Groathouse  
he/him/his pronouns  
preferred name/address: Sean

Email: sean@math.utah.edu

Office Hours:  
Tuesdays 3:30-4:30 in JWB 115 (Tentative)  
Wednesdays 1:50-2:50 in JWB 115 (Tentative)  
before and after class most days  
or by appointment

Text: *Calculus with Differential Equations*, by Varberg, Purcell, and Rigdon (9th edition)  
There is information on purchasing the textbook here: [http://www.math.utah.edu/schedule/bookInfo/](http://www.math.utah.edu/schedule/bookInfo/)

Course Information: Math 1220 Calculus II is a 4 credit course.

Prerequisite Information: “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 (continued).

Canvas: I will post announcements, homework assignments, grades, files, and exam reviews on Canvas, so it is important that you check Canvas regularly. You are also welcome to use the Canvas discussion board to discuss course problems or topics. You can access Canvas through CIS or at utah.instructure.com. It’s also important to check your UMail address regularly, or have this forwarded to an email you do check.

Grading: The grade components and weights are:

- **Homework Assignments (20%)**: Roughly three textbook sections are due most Fridays at the beginning of class (including days of exams, but not the week following). The homework will typically cover material covered up to and including the preceding Monday. The homework problems will be listed in Canvas under the Assignments tab. Four of the problems will be selected for grading by the grader, each graded out of 5 points. To prevent lost assignments, I do not usually accept homework electronically. I will not generally accept late homework, but I will drop the lowest homework score.

- **Quizzes (10%)**: We will have a short quiz at the beginning of each Wednesday class, except the first week and weeks of an exam. You are encouraged to work together on the quizzes, but must write up solutions yourself. There will be no makeup quizzes, but I will drop the lowest two scores.

- **Midterm Exams (45%, 15% each)**: Three 50-minute midterm exams will be given on these Fridays: January 31st, February 28th, and April 3rd. You will have the whole class period to complete the exam. A practice exam will be posted at least one week prior to the midterm that will cover the same material.

- **Final Exam (25%)**: We will have a two-hour comprehensive final exam on Wednesday April 29 from 1:00-3:00 pm in our normal room JTB 140. As with the midterms, a practice final will be posted at least one week prior.

Students with university excused absences (band, debate, student government, intercollegiate athletics) should make alternate arrangements with me as soon as possible if the absence interferes with any course components.
Final course letter grades will be determined with this scale:

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<thead>
<tr>
<th>Grade</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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<tbody>
<tr>
<td>A</td>
<td>[93, 100]</td>
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</tr>
<tr>
<td>A-</td>
<td>[90, 93]</td>
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<tr>
<td>B+</td>
<td>[87, 90]</td>
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<tr>
<td>B</td>
<td>[83, 87]</td>
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</tr>
<tr>
<td>B-</td>
<td>[80, 83]</td>
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<tr>
<td>C</td>
<td>[77, 80]</td>
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<tr>
<td>C+</td>
<td>[73, 77]</td>
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<tr>
<td>C-</td>
<td>[70, 73]</td>
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<td>D-</td>
<td>[60, 63]</td>
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<td>E</td>
<td>[0, 60]</td>
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Although I’m not philosophically opposed to curving grades, I find it’s usually not necessary. If I do need to curve the grades, I will explain any modifications to this scale in class and on Canvas.

Additional Resources

- **Tutoring Center & Computer Lab** – There is free tutoring in the T. Benny Rushing Mathematics Student Center (room 155, the lower level between JWB and LCB), as well as a computer lab. For more information see http://www.math.utah.edu/undergrad/mathcenter.php
- **Private Tutoring** – ASUU Tutoring Center, 330 SSB. There is also a list of tutors at the math department office JWB 233.
- **Departmental Videos** – The math department has a full set of lecture videos which you are welcome to use to supplement our course material. These can be found at http://www.math.utah.edu/lectures/

Calculators: Calculators are not required, and are not allowed on exams. You are welcome to use calculators on homework, but you should still write out the details of your computation. It is in your best interest not to become too dependent on your calculator since they will not be allowed on exams.

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

1. Compute derivatives and integrals for exponential, logarithmic, hyperbolic functions, and inverse trigonometric functions.
2. 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.
3. 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.
4. Compute improper integrals.
5. Understand the difference between an infinite sequence and infinite series and determine if a sequence converges or diverges.
6. Determine whether or not an infinite series of numbers converges or diverges using a variety of tests.
7. Understand what it means for a Power Series to converge or diverge and be able to find the Taylor Series for a given function. Determine how closely a Taylor polynomial approximates a function using Taylor’s Remainder Theorem.
8. Differentiate and integrate functions in polar coordinates.

**Additional Class Policies:**

- Please make sure you do your best throughout the semester, knowing the grading scheme and what’s expected of you, and talk to me if you need further study strategies. I am always happy to brainstorm ideas to help you maximize your study strategies and improve your mathematical understanding. No extra credit will be provided at the end of the course, so please talk with me early on about any concerns with your grade so we have time to address them.
• If you have extenuating circumstances which affect your class performance and you need guidance/advice/flexibility, please communicate with me as soon as possible so I can help you in some manner, which I’m truly happy to do. The longer you wait to communicate with me, the less I can do to help.

• If you want to appeal the grading of a homework assignment, quiz, or exam, I ask that you please bring it to me within one week of it being returned. This helps me maintain consistency in grading and helps make sure I can address any grading issues before the final grades are submitted. I’m always happy to look over any classwork with you, answer any questions you have, and fix any grading issues when appropriate.

• It is possible during the semester, I may need to modify this syllabus to help meet the learning goals of our class. If I do need to make any changes, I will announce them in class and on Canvas.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6-400.php

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 & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the student’s legal name as well as “Preferred first name” (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.
Wellness Statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

Course Roadmap Week-by-Week: Below is an outline and rough schedule of the sections and topic covered in this course.

**Week 1** Introduction, Chapters 6.1, 6.2

**Week 2** Chapters 6.3, 6.4, 6.5  **Note, Friday Jan. 17th is the last day to drop**

**Week 3** Chapters 6.6, 6.7, 6.8

**Week 4** Chapters 6.9, review, Exam 1 (Jan. 31)

**Week 5** Chapters 7.1, 7.2, 7.3

**Week 6** Chapter 7.4, 7.5, 7.6

**Week 7** Chapters 8.1, 8.2, 8.3

**Week 8** Chapters 8.4, review, Exam 2 (Feb. 28)

**Week 9** Chapters 9.1, 9.2 9.3  **Note, Friday Mar. 6th is the last day to withdraw**

**Week 10** Spring Break (Mar. 8 – Mar. 15)

**Week 11** Chapters 9.4, 9.5

**Week 12** Chapters 9.5, 9.6

**Week 13** Chapters 9.7, review, Exam 3 (Apr. 3)

**Week 14** Chapters 9.8, 9.9

**Week 15** Chapters 10.5-10.6

**Week 16** Chapter 10.7, review

**Week 17** Final Exam Wednesday April 29th from 1:00-3:00 pm in our usual room JTB 140.