

MATH 1220 Calculus II, Summer 2019

Class Meetings: Lecture: M-H at 8:00-9:30 in LCB 215 (*the class meets from 06.10.2019 to 07.31.2019*)

Instructor: Seungsu Lee, Ph. D student in mathematics.

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Office Hours: Monday 11-12 and Wednesday 1-2pm in JWB 311, or by appointment.

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).

Text:

- *Calculus with Differential Equations*, by Varberg, Purcell, and Rigdon (9th edition), ISBN: 0-13-230633-6. For information on purchasing the textbook, go to <http://www.math.utah.edu/schedule/bookInfo/>
- Class notes which will be posted on our Canvas web page. You will need to print those out and bring them to class, because I'll refer to them regularly. (Please note: You can print them in the Math Computer Lab for no cost.)

Canvas: Canvas will be used for posting course announcements, homework assignments, grades, files and any relevant supplementary material. You are also welcome to make use of the Canvas discussion board to discuss course problems or topics. You can access the Canvas page through CIS or by logging in at utah.instructure.com. Students should check the Canvas page regularly for course information and resources. Email notifications and correspondence will be sent to the student's UMail address (`[u-number]@utah.edu`); this email account must be checked regularly.

Grading: The following are the grade components and the percentage each contributes to a student's final grade:

- **Daily Quizzes (20%)**- There will be a 20 to 30-minute quiz on Canvas that opens every Monday, Tuesday, Wednesday morning at 9:30 a.m. and closes the next day by 8:00 am, including exam weeks. You will need to complete that online quiz on your time, outside of class hours, every Monday, Tuesday and Wednesday. Each daily quiz will be one to four questions about the material covered in class/video lecture that day. If you are keeping up with the work, these quizzes should be reasonably straight forward. There will be a total of about 37-40 of these quizzes. I will drop the lowest eight scores.
- **Midterm Exams (50%)**- Three 90-minute midterm exams will be given on selected days. Your lowest midterm score will count for 10% of your grade and your top two midterm scores will each count for 20% of your final grade. You will have the whole class period to complete the exam.
- **Final Exam (30%)**- A two-hour comprehensive exam will be given.

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.

Suggested Homework: There are suggested homework problems assigned for each section of the book that we cover. You can access that list of problems at Canvas webpage. It is important to do at least some of the homework problems even though I will not collect the homework. These problems are provided for you to practice, and maximize your success in the course. This practice is the best way to be prepared for the daily quizzes and weekly exams.

Course Structure Overview: This course is flipped, which means that students are expected to watch a lecture video before class, to get acquainted with the new material. At that point, students are likely still confused about the new mathematics, but they have an introduction to the main ideas. The in-class time then is spent working on or practicing more problems that cover that same content. It's called a flipped structure because we have intentionally flipped where the lecture and first set of practice occurs, compared to a traditional lecture course. There is much research to date regarding flipped classrooms in STEM courses, at the collegiate level, that suggests that flipped classrooms can provide a more equitable class. In other words, a flipped classroom, statistically, serves students at least as well as other active-learning strategies, and much better in many instances. Compared to a traditional lecture format, literally any amount of active, engaged learning that happens in class is better, for STEM courses. Much research continues to prove that claim. A flipped classroom is just one of many active-learning course structures that are helpful for students to learn.

Final course letter grades will be determined as follows: If X is your course percentage weighted according to the above, then $\{X \geq 93\% \Rightarrow A, X \geq 90\% \Rightarrow A-, X \geq 87\% \Rightarrow B+, X \geq 83\% \Rightarrow B, X \geq 80\% \Rightarrow B-, X \geq 77\% \Rightarrow C+, X \geq 73\% \Rightarrow C, X \geq 70\% \Rightarrow C-, X \geq 67\% \Rightarrow D+, X \geq 63\% \Rightarrow D, X \geq 60\% \Rightarrow D-, X < 60\% \Rightarrow E\}$.

The instructor retains the right to modify this grading scheme during the course of the semester; students will, of course, be well notified of any adjustments.

Important Dates: Class will meet every Monday, Tuesday, Wednesday, Thursday, however, there will be no class: Thursday, July 4th (Independence Day), Wednesday, July 24th (Pioneer Day).

- 1st Midterm : Thursday, June 20th.
- 2nd Midterm : Wednesday, July 3rd.
- 3rd Midterm : Thursday, July 18th.
- Final exam : Thursday, August 1st from 7:30-9:30 a.m. in LCB 215.

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-** University Tutoring Services, 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 will not be allowed on exams. They may be used 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.

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, veterans 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 students 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.

Additional Policies: Due to experience, I have decided to make some additional policies regarding my classroom administration and grading.

- I do not allow the use of laptop computers (where the screen is perpendicular to the desk) in my classroom, in order to minimize student distractions. At this point, it's almost impossible to type notes for a math class on a laptop in real time. Thus, it is unnecessary in class. If you are using a tablet or ipad or some similar device to take notes and the screen lies parallel to your desk, that is totally fine.
- There will be no retakes of exams, for any reason.
- If you have an emergent, extenuating circumstance that makes it necessary to take an alternate exam, it is your responsibility to discuss that with me, before the exam occurs, or as soon as possible. In general, I allow exams to be taken early, but not late.
- No cursing nor negative ranting (for example, math sucks) on any written work turned in, as it's unprofessional behavior. The penalty for such things on your written work will be a zero score on that assignment or test.
- I will regularly post announcements to the class in Canvas and will hold you accountable for receiving that information. Be sure to turn on your notifications in Canvas so you are alerted to announcements I make in Canvas as well as grade changes, discussion posts, etc.
- If you have questions about any exam/assignment grade, or you want to appeal the grading of the exam/assignment, you must turn it in to me (either on paper or in Gradescope depending on how the assignment/exam was graded) within one week of the exam/assignment being turned back in class. I'm happy to look over your appeal and/or questions and give my feedback in order to benefit your learning. But, it must be done in this time frame of a week from when I hand back the exam/assignment.
- If you cheat on any homework, project, quiz or exam, I will automatically give you a zero for that grade. Depending on the severity of the cheating, I may decide to fail you from the class. Please note that the use (or even just pulling it out of your pocket) of a cell phone or any other electronic device during any in-class exam is considered cheating and cause for receiving an automatic zero. Also, if you exhibit any other behaviors that are unethical, like offering me a bribe to give you a better grade (even if you later claim you were joking), I will report your behavior to the Dean of Students.

I reserve the right to change my policies stated in this syllabus at some point in the semester. If I do make a change to a policy, I will announce it in class and post an Announcement on Canvas about it.