

MATH 1440 : APPLICATIONS OF CALCULUS II

Room A127, Section 501 (M/W 12:00 - 1:15), CRN 51724

Spring 2020

Instructor: Ian Burch

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Office and Hours: A123 T/Th 10:00 - 10:30

STEM Center M/W 10:00 - 11:45 & T/Th 12:00 - 1:20

Course Description

This course will continue to explore derivatives and integrals and their applications. New integration techniques will be developed and then used for applications such as continuous averages and volumes. Students will be introduced to first-order differential equations and their numerous uses. Finally, we will develop sequences and series, and introduce Taylor polynomials

Course Goals

By the end of the course, students will be able to -

- Find definite and indefinite integrals using integration by parts, integral tables, and numerical integration.
- Analyze multivariable functions using partial derivatives and double integrals, and apply these techniques to applications such as optimization, least squares, and volumes.
- Solve differential equations graphically, numerically, and algebraically using separation of variables, and apply differential equations in context.
- Apply differentiation and integration to other areas, for example to Taylor polynomials and Taylor series, probability, trigonometric functions, etc.

Materials:

- Lial, Greenwell, & Ritchey, *Calculus with Applications, 10th or 11th Edition*
- Scientific or Graphing calculator
- Homework Folder

Late Work:

Homework past the due date will not be accepted without an emailed or written request prior to the deadline.

Grade Breakdown:

Final Exam	25%
2 Midterm Exams	25% (12.5% each)
Homework & Projects	30%
Weekly Quizzes	15%
Attendance	5%

Letter grades will be given as follows, with + or - given for the highest and lowest 3% in each range, respectively. Incomplete (I) grades will not be assigned without documented, extenuating, circumstances

90% - 100%	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
0% - 59%	F

Tentative Schedule:

Week 1: Integration Review	Week 9: Vector Fields
Week 2: U-Substitution	Week 10: Differential Equations
Week 3: Fundamental Theorem	Week 11: Applied DiffEq
Week 4: Numerical Integration	Week 12: Review & Midterm #2
Week 5: Integration by Parts	Week 13: Sequences
Week 6: Review & Midterm #1	Week 14: Series
Week 7: Applications, Averages	Week 15: Taylor Polynomials
Week 8: Applications, Volume	Week 16: Review for Fina

Expectations:

Students are expected to conduct themselves in a professional and collegial manner. Please refrain from using cell phones during class unless approved in advance by instructor. Absences may be excused only with a documented reason, preferably given in advance. Students with more than 4 absences may be dropped from the course

Disability Statement:

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 or arc.unm.edu for additional information.

If you need an accommodation based on how course requirements interact with the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment, we can discuss the course format and requirements, anticipate the need for adjustments and explore potential accommodations. I rely on the Disability Services Office for assistance in developing strategies and verifying accommodation needs. If you have not previously contacted them I encourage you to do so.

Academic Integrity:

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Credit-hour Statement:

This is a three credit-hour course. Class meets for two 75-minute sessions of direct instruction for fifteen weeks during the Spring 2020 semester. Students are expected to

complete a *minimum* of six hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week.

Title IX :

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see pg 15 -

<http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu).

For more information on the campus policy regarding sexual misconduct, see:

<https://policy.unm.edu/university-policies/2000/2740.html>

Citizenship and/or Immigration Status: All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration’s welcome is found on our website:

<http://undocumented.unm.edu/>.