Calculus III
MATH 2210, section 3, Spring 2019

Class Meetings: MWF 10:45am-11:35am in JFB 102 (with some exceptions listed below)
Instructor: Kevin Wortman
Email: kevin.e.wortman@gmail.com (or wortman@math.utah.edu). Please no Canvas messages.
Office Hours: MW 11:35am-12:00pm, and WF 9:45am-10:30am, in JWB 325, or by appointment.
Text: Calculus with Differential Equations, by Varberg, Purcell, and Rigdon (9th edition).
We’ll cover Chapters 11-14, except for Section 13.5. For information on purchasing the textbook, see http://www.math.utah.edu/schedule/bookInfo/

Course Information: Math 2210 is a 3 credit course.
Prerequisite Information: “C” or better in (MATH 1220 OR MATH 1250 OR MATH 1320) OR AP Calculus BC score of at least 4.
Course Description: Vectors in the plane and in 3-space, differential calculus in several variables, integration and its applications in several variables, vector fields and line, surface, and volume integrals. Green’s and Stokes’ theorems.

Canvas: Canvas will be used for posting grades. 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.

Correspondence: Email notifications and correspondence will be sent to the student’s UMail address ([u-number]@utah.edu). This email account should be checked regularly.

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

- **Homework Assignments (20%)** Weekly homework assignments will be due on the first lecture of the week (usually Monday). Assignments will usually cover material up to the previous Wednesday’s lecture. Late homework will generally not be accepted.

- **Quizzes (10%)** Given during classes on Wednesdays, excluding exam dates.

- **5 Exams (2 given during the final exam period) (70%, 14% each)** There will be one exam for each of the four units of material that we will cover (§1-9, §10-17, §18-26, and §27-34). There will also be a comprehensive exam. All exams are 50 minutes long. Both the unit 4 and the comprehensive exam will be given during the two-hour block for the final exam. Dates of the exams are February 6, February 27, April 3, and April 29.

- **Final Exam Time:** Monday, April 29th from 10:30am-12:30pm in JFB 102.

- **Course letter grades:** 100-94 A; 93-90 A-; 89-87 B+; 86-84 B; 83-80 B-; 79-77 C+; 76-74 C; 73-70 C-; 69-67 D+; 66-64 D; 63-60 D-; 59-0 E.

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 or quizzes.
Course Calendar:

Week 1. 1/7, §1; 1/9, §2; 1/11, §3.

Week 2. 1/14, §4; 1/16, §5; 1/18, §6.

Week 3. 1/21, No class (MLK); 1/23, §7; 1/25, §8.

Week 4. 1/28, §9; 1/30, §10; 2/1, §11.

Week 5. 2/4, §12; 2/6, Unit 1 Exam; 2/8, §13.

Week 6. 2/11, §14; 2/13, §15; 2/15, §16.

Week 7. 2/18, no class (Presidents); 2/20, §16-17; 2/22, §17.

Week 8. 2/25, Unit 2 Exam Prep; 2/27, Unit 2 Exam; 3/1, §18.


Week 10. No class (Spring Break)


Week 13. 4/1, Unit 3 Exam Prep; 4/3, Unit 3 Exam; 4/5 §28.

Week 14. 4/8, §29; 4/10, §30; 4/12, §31.

Week 15. 4/15, §32; 4/17, §33; 4/19, §34.

Week 16. 4/22, Unit 4 Exam Prep; 4/24, No class (Reading period); 4/26, No class (Reading period).

Week 17. 4/29 (10:30-12:30) Unit 4 and Comprehensive Exams (Final exam).

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

1. Perform basic vector computations: dot and cross products, projections of vectors onto vectors.

2. Determine the equation of a plane in 3-dimensions, including a tangent plane to a surface.

3. Find the parametric equations of a line in 3-dimensions.

4. Convert from rectangular to cylindrical and spherical coordinates. Understand when it’s prudent to switch coordinate systems in computing an integral.

5. Perform calculus operations on functions of several variables, including limits, partial derivatives, directional derivatives, and gradients; understand what the gradient means geometrically.

6. Find maxima and minima of a function of two variables; use Lagrange Multipliers for constrained optimization problems.

7. Compute line and surface integrals.

8. Compute double and triple integrals in rectangular, spherical, and cylindrical coordinates; proper use of double or triple integrals for finding surface area or volume of a 3-dimensional region.

9. Understand divergence and curl of a vector field.

10. Determine if a vector field is conservative and if so, find the corresponding potential function.

11. Use and apply Green’s Theorem, Gauss’ Divergence Theorem, and Stokes Theorem.
**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. Students have the right to appeal such action to the Student Behavior Committee. [http://regulations.utah.edu/academics/6-400.php](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 “Prefered first name” (if previously entered by you in the Student Profile section of your CIS account). Please advise the instructor of any name or pronoun preference you may have. 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](http://www.wellness.utah.edu) or 801-581-7776.