Math 2300-10: Multivariable Calculus
MWF 11:10–12:00pm in SC 1431
Fall 2018

Instructor: Spencer Dowdall

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Office Hours:
Mon/Tue 1:30–3:00
and by appointment

Course Information

Description: Multivariable calculus is a central topic in the curriculum that provides a foundation for more advanced mathematics and develops skills that are essential for further study in science, engineering, economics, and other disciplines. This course will build on key concepts from single-variable calculus (limits, continuity, derivatives, and integrals), and examine these in the context of multiple variables and higher dimensions. However, the high dimensionality introduces many complexities. This is a **fast-paced course that covers a lot of material. Do not fall behind**. Topics include: vectors, curves, and surfaces in space; vector-valued functions and functions of several variables; arclength and surface area; partial derivatives and gradient vectors; integrals in 2 and 3 dimensions; vector calculus, line and surface integrals, curl, divergence, Green's Theorem, and Stokes' Theorem.

Text: *Calculus, 8th edition* by James Stewart. We will cover chapters 12 through 16. **Reading the textbook** is essential for understanding the material. The lecture schedule will be posted on the course webpage along with **suggested problems** from each section. You are encouraged to read the text in advance of each lecture and to work through the suggested problems as each section is completed.

Course webpage: `https://math.vanderbilt.edu/dowdalsd/Fa2018math2300/`
View the webpage for course information (including this document), current announcements, instructor information, homework assignments, and the current schedule of topics. Grades for completed assignments will be available in Brightspace.

Final Exam: There will be a comprehensive final exam at 3:00pm on **Saturday December 15**, as designated by the university registrar (see `http://registrar.vanderbilt.edu/calendar/exams/`).

Midterm Exams: There will be three in-class exams on: Wednesday **September 12**, Wednesday **October 10**, and Wednesday **November 07**.

Quizzes: There will be four in-class quizzes designed to check basic understanding of the material. These will occur during the first 5–10 minutes of class, so it is important that you arrive on time. The quizzes are scheduled for **September 3**, **September 26**, **October 24**, and **November 28**.

Homework: Homework assignments will be posted to the course webpage. Assignments are **due at the start of class**, typically every other Wednesday. **Late homework will not be accepted** under any circumstances. Solutions should be *neat*, *legible*, and *stapled*. Students may work together in groups and discuss homework problems with each other, but your *solutions must be written up independently and in your own words*. Copying answers from another student or source, or allowing your answers to be copied, is a violation of the Honor Code. It is often said that the best way to learn mathematics is to do mathematics. To succeed in this class you should take the homework seriously and think carefully—and independently—about each problem.

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*This syllabus is dated **August 22, 2018** and will be followed as closely as possible, but the instructor reserves the right to modify or supplement it as needed. The most up-to-date version is available on the course website.*

Grading: Final grades will be computed according to the following breakdown: Homework & Quizzes–25%, Midterms–17% each, Final Exam–24%. Your lowest score among the quizzes and homework assignments will be dropped. Letter grades A/B/C/D will be determined by the usual percentage cutoffs of 90/80/70/60, with each grade range further subdivided with pluses and minuses. Exam scores will be curved when necessary.

Make-up policy: There will be no make-up exams or quizzes. It is your responsibility to arrange your schedule accordingly. Absences from exams or quizzes due to illness or other extraordinary circumstances must be adequately documented and, except in genuine emergencies, must be approved by the instructor in advance. See the Undergraduate Catalog section on 'Class Attendance' for examples of what may constitute a valid excuse. In cases where some graded item is excused, other graded items will be given more weight when determining final grades.

Attendance: Attendance is important for this class and will help you better understand the material. I strongly encourage you to actively participate by asking questions and engaging in class discussion. Students are expected to attend all scheduled classes and are responsible for all announcements, assignments, and material covered in class. The College of Arts and Science attendance policy applies in this class (see the Undergraduate Catalog and `https://as.vanderbilt.edu/academics/policies/`).

Office Hours: I strongly encourage everyone to visit office hours or make appointments to see me. Do not wait until it is too late – small deficiencies in the beginning tend to rapidly escalate!

Technology Policy: Do not use cell phones or computers in class. It is distracting. You may not use calculators or any other electronic devices for exams or quizzes.

While I do not recommend you rely on computers, you may use calculators or advanced computer programs to guide your way or check answers in homework problems. However, your solutions need to be self-contained and must demonstrate an understanding of what's going on. And remember that on exams you will have to work without computational aids.

Concerns: If at any time during the semester, you wish to discuss class procedures, schedule, grades, or any class situation, please contact me during regular office hours or via email. Any concern that cannot be resolved directly with me should be referred to Dr. John Rafter, Director of Undergraduate Studies.

Registration deadlines: The Open Enrollment Period ends on Wednesday, August 29th. This is the deadline for students to add a course or to make other changes in YES. Between August 30th and September 5th, any withdrawals or adjustments in level or in grading status must be completed using the add/drop form. If only the "DROP"" section of the form is filled out, the instructor may sign the form. If a student wishes to make any change that involves lling in the "ADD" section of a drop/add form (whether or not it also involves lling in the "DROP" section), then the student must see the DUS (John Rafter) or the Assistant DUS (Jakayla Robbins) in person. Per Math Department policy, the only change to a math course that will be approved is a change to the level of the course (e.g. switching from Math 1301 to Math 1300 or vice versa).

Accommodations: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Access Services Center (`www.vanderbilt.edu/student-access/`). They will determine with you what accommodations are appropriate and communicate them to the instructor. This service is confidential.

Honor Code: Vanderbilt's Honor Code (`www.vanderbilt.edu/student_handbook/the-honor-system/`) governs all work in this class. All work submitted for credit must be the student's own and should reflect the student's own understanding of the material.