

University of Virginia  
Course Syllabus: MATH 1320–400  
Calculus II  
Fall 2016

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**Instructor:** Eloísa Grifo

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**Class location:** Shannon House 107

**Class meeting time:** Tu–Th 2–3:15 pm

**Office hours:** Wed & Thursdays 10–11:30 am

**TA:** Mojdeh Tarighat

**Office:** Kerchof 401

**e-mail:** mojdeh@virginia.edu

**Class location:** Monroe Hall 111

**Class meeting time:** Wed 5–5:50 pm

**Office hours:** Mon 12:45–1:45 pm & Wed 9–10

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**Prerequisites:** Math 1310 or AP Calculus credit (level AB), or anything equivalent to this. This material is covered in Chapters 1–6 of the course text (which you should review as needed).

**Course Description:** Math 1320 is a second calculus course intended for students interested primarily in the natural sciences, but is open to all students.

Because this is a second course in calculus, you already know that calculus provides two fundamental tools for analyzing functions: the derivative and the definite integral. In this course, you will learn additional techniques for computing integrals as well as additional applications of integrals. You will be introduced to mathematical modeling with differential equations, learning two integration-based techniques for solving such equation as well as one technique for finding approximate solutions. You will learn new ways of describing curves in the plane and will apply the tools of calculus to analyze these curves. You will study how to define as well as to represent functions by power series.

**Course Objectives:** Upon successful completion of this course, students will

- (1) have developed an efficient strategy for determining whether techniques learned in this course permit exact computation of an integral, and when a technique does apply, they will be able to implement the technique;
- (2) be able to set up integral formulas to solve a wide variety of applied problems;
- (3) be able to solve exactly separable or linear first-order differential equations and be able to solve approximately initial-value problems for first-order equations via Euler’s method;
- (4) have developed intuition concerning when a series of real numbers converges and be able to confirm or correct that intuition by applying an appropriate test for convergence/divergence;
- (5) be able to use power series to define new functions, as well as represent “old” functions such as  $f(x) = e^x$ ,  $f(x) = \sin(x)$ , and  $f(x) = \cos(x)$ ;
- (6) be able to use the calculus tools to analyze curves defined parametrically or in polar coordinates;
- (7) have further developed their problem-solving skills and strategies through modeling and solving a wide variety of problems, including some with real-world applications;
- (8) be able to communicate mathematics with clarity and precision;
- (9) be well prepared to undertake further study in mathematics and to use calculus in addressing problems in the natural, life, and social sciences.

**Am I in the right calculus class?** Read the Mathematics Department's [Placement Information](#).

**Textbook:** *Single Variable Calculus: Early Transcendentals*, **7th edition**, by James Stewart (Publisher: Brooks/Cole Cengage Learning). An electronic edition of the text is provided through the online homework system WebAssign, to which you must have access. (Acquisition of a physical copy of the text is optional.) Any student who purchased WebAssign for Math 1310 at UVA may already have WebAssign access for this course via the same code used for Math 1310. Try your code!

If you must purchase WebAssign for Math 1320, you have several options:

- (1) purchase WebAssign single-term access on-line through the WebAssign website,
- (2) purchase a single-term WebAssign-access card at the UVA Bookstore,
- (3) purchase a physical (loose-leaf) copy of the text, bundled with a multi-term WebAssign-access card, at the UVA Bookstore, or
- (4) purchase WebAssign via (1) or (2) and, if you want a hard-copy of the text, buy a used copy from the Bookstore.

*There is a two-week grace period at the beginning of the term during which you have free WebAssign access to the text and course homework sets — go to <http://www.webassign.net/uva/login.html>, and via the gray button on the upper right, enter our class key: virginia 5984 5002.*

**Homework:** Most homework for this course will be delivered through the WebAssign system: go to <http://www.webassign.net/uva/login.html> and enter our class key virginia 5984 5002. The system will give you immediate feedback and you will be allowed to attempt problems multiple times. You should record your work on a given problem by hand (just as if you were working through a test problem) and then enter your response into WebAssign. Keep in mind that when you respond to problems on exams and quizzes your work, as well as your answers, will be evaluated. Your lowest webassign homework grade will be dropped, and the remaining ones averaged – this will count for 10% of your final grade.

There will also be written homework assignments, due every other week. Your answers to these should be as complete and carefully written as they would be on a test or exam. I will drop your lowest grade, and the remaining written homework grades will be averaged – this will count towards 5% of your final grade.

**iClickers:** To enhance classroom learning and to reward students for staying focused and engaged during class, we'll use the iClicker system. Register your iClicker at the Class Collab site. iClicker questions will be both non-computational (e.g., using a graph to estimate the value of a definite integral) and computational (e.g., compute the volume of a solid of revolution). For longer computational problems, you will be allowed to work with a partner from the class if you wish. Noncomputational problems will typically be answered quickly without collaboration. You will get 2 iClicker points simply for answering a question and 1 point for answering correctly. Thus, if I ask 4 iClicker questions during a class and you answer 3 correctly, then you'd earn 11 of the 12 iClicker points available for that day. Occasionally, I will anonymously poll the class using the iClicker system to get students' guesses concerning certain problems of interest.

This is how I will calculate your iClicker portion of your final grade:  $R = (\text{Your total number of iClicker points}) / (\text{Total number of iClicker points possible})$ . If you answer all the iClicker questions

I ask and answer half correctly, then  $R$  will be 0.833.... If your  $R$  value is greater than or equal to 0.83, you'll earn all 5 classwork points. If  $R < 0.83$ , then you'll earn  $(R + .17) \times 5$  classwork points.

**Quizzes:** There will be 15 minute weekly quizzes during the fourth-hour discussion section. These quizzes will usually consist of one or two problems similar to those from HW assignments due during the week preceding the quiz, or the problems discussed in class (both the lectures and the discussion section) up to the Wednesday of the previous week. The quality of your work as well as your final answer will be evaluated. Your lowest 2 quiz scores will dropped, and the remaining ones will be averaged to determine the quiz portion of your course grade. There will be *no makeup quizzes*.

**Midterms Exams:** There will be two evening midterm exams given during the semester. The exams are common to all sections of MATH 1220. The dates of these exams are as follows:

**Midterms Exam 1:** September 29th, 7-8:30 p.m.

**Midterms Exam 2:** November 10th, 7-8:30 p.m.

For those students who have a time conflict with another course, a make-up exam will be given the following morning beginning at 7:20 am. If you have a direct conflict with either of the above listed exam times, please notify me as soon as possible and at least one week before the exam date. If proper notice cannot be given, then a request for the make-up exam will be honored only in cases of extreme emergencies and at my discretion. Midterm and final exams will be graded in common, with all Math 1320 instructors participating.

**Final Exam:** The final exam will be given Saturday, December 10th. This is the time reserved for the MATH 1320 final exam by the University and all sections of MATH 1320 take the common final examination at the same time. It is University policy that final exams may not be taken early. The final exam is comprehensive.

**Course Grade:** The course grade will be determined as follows:

WebAssign homework:	10 points
Written homework:	5 points
Quizzes:	10 points
iClicker:	5 points
Midterm Exam 1:	20 points
Midterm Exam 2:	20 points
Final Exam:	30 points

The number of points you earn will be mapped to a letter grade as follows:

[98, 100]	A+	[83, 87)	B	[70, 73)	C-
[93, 98)	A	[80, 83)	B-	[67, 70)	D+
[90, 93)	A-	[77, 80)	C+	[63, 67)	D
[87, 90)	B+	[73, 77)	C	[60, 63)	D

In borderline cases, your letter grade may be higher — the one assigned to the interval immediately above the one your point total lies in.

**Calculators:** Calculators will not be allowed for any quizzes or exams. Thus, as much as possible, try to complete homework problems without using a calculator. (For some homework problems, you will find a calculator or [Wolfram Alpha](#) to be helpful.)

**Learning needs:** All students with special needs requiring accommodations should present the appropriate paperwork from the Student Disability Access Center ([SDAC](#)). It is the student's responsibility to present this paperwork in a timely fashion and follow up with the instructor about the accommodations being offered. Accommodations for test-taking (e.g., extended time) should be arranged at least 5 business days before an exam.

**Tips for success:**

- Use class time wisely: fully engage yourself in classroom discussions, asking and answering questions when appropriate.
- Seek understanding rather than trying to rely on memorized formulas.
- Take advantage of office hours as well as help available in the [Mathematics Tutoring Center](#).
- It is nearly impossible to understand mathematics without working problems yourself; devoting time and attention to homework assignments is crucial to succeed in this course.
- Before beginning work on a homework-problem set, think about material discussed in class pertaining to the section—make sure you know and understand the definitions, theorems, concepts, and problem-solving principles emphasized in class. Try to work problems without looking at your notes or the exposition in the text. When you work homework problems without relying on notes, you're re-enforcing your understanding of the principles you reviewed just before beginning work on the problem set.

**Course Content:** We will cover the following chapters of the course text:

Chapter 7: Techniques of integration

Chapter 8: Further applications of integration

Chapter 9: Differential Equations

Chapter 10: Parametric equations and polar coordinates

Chapter 11: Infinite series and sequences

**Important Dates:**

Classes Start .....	Tuesday, August 23rd
Last day to add a course .....	Tuesday, September 6th
Last day to drop a course .....	Wednesday, September 7th
First Test .....	Thursday, September 29th
Last day to withdraw from a course: .....	Tuesday, October 18th
Second Test .....	Thursday, November 10th
Last day of classes .....	Tuesday, December 6th
Final .....	Saturday, December 10th

**Honor code:** The Honor Code will be strictly observed in this class. Please remember to pledge each quiz and exam.