revised May 24, 2020

| **Meeting Times** | Section C3   5/26-7/17   MTWTh   10:10am-12:10pm EDT |
| | Meetings in BigBlueButton (Go to Canvas -> Conferences) |

Lecturer

Name:	Blair Seidler
Email:	blair@math.rutgers.edu
Office hours:	Tuesday 2-3:30pm EDT, Friday 10-11:30am EDT
	Or by appointment (also in Canvas -> Conferences)
Text message:	Phone number on Canvas course site
Web Page:	https://sites.math.rutgers.edu/~bas312/SU2020M251/home.html

Yes, you may text or email me questions. I will generally respond promptly to any text or email before 11pm EDT, later messages may not be answered until the next morning. Please include your name and "math251" the first time you text me. I will not text you except when answering your texts.

Prerequisite   CALC2 (Math 152)

Textbook   For those who desire a physical textbook: *Calculus, Early Transcendentals (4th Edition),* Jon Rogawski, Colin Adams, & Robert Franzosa, Macmillan, 2019. (ISBN: 978-1-319-05074-0). If you happen to have a copy of the 3rd edition, be aware the section numbers are different.

Topics Covered   The following sections from the text are to be covered in all sections of Math 251. We will cover these topics in a slightly different order than they are listed here. Your final exam will consist of problems on these topics.

- 12.1–12.7 Vectors and Planes in $\mathbf{R^3}$; Cylindrical and Spherical Coordinates
- 13.1–13.5 Vector-Valued Functions, Parametrizations
- 14.1–14.8 Partial Derivatives, Gradients, Optimization
- 15.1–15.6 Double and Triple Integrals; Change of Variables
- 16.1–16.5 Vector Fields, Line and Surface Integrals
- 17.1–17.3 Three Fundamental Theorems

Lectures will follow the schedule on the course web page, which is approximately equivalent to the schedule on the department page for Math 251. (Note that while sections 12.6, 13.5, and 15.5 are not listed on that outline and 13.4 is listed as optional, some examples from these sections may be covered in lecture, and students are responsible for knowing everything covered in lecture.)

Important Dates

First class:	Tuesday, May 26th
Exam #1	Monday, June 8th
Exam #2	Thursday, June 25th
Exam #3	Thursday, July 9th
Final Exam	Friday, July 17th 10am-1pm EDT

Web Page	Page for this section: https://sites.math.rutgers.edu/~bas312/SU2020M251/home.html

Main page for Math 251 at Rutgers:
https://math.rutgers.edu/academics/undergraduate/courses/949-01-640-251-multivariable-calculus

Format	You are expected to read the textbook sections for each class *before* the lecture. Reading guides will be available on the course web page to clarify what you are expected to come to class having seen. You are not expected to fully understand the topic just by reading the book, but you are supposed to know definitions and have a general sense of the material and the problem types that we are likely to discuss in class.

Each class meeting will be divided into three portions, and we will take a short (~5 minute) break in between the lecture and recitation:

- Lecture on current topic. At the start of class, we will discuss the reading and make sure that everyone knows definitions and the general ideas. We will try to make this more interactive than the typical lecture, at least in part because the online format means that the instructor cannot "read the room." Having a confused expression on your face will not let me know you have a question, because I will not be able to see you. If you are confused about something, please ask either through the microphone or in chat. The lecture portions of the class will be recorded in case you need to refer to them later.
- Recitation on previous day's topic. Much of the time, you will move into smaller "breakout rooms" to work on practice exercises in a small group. On other days, we may just have a full class discussion or Q&A session. Recitation sessions will generally not be recorded. In particular, the technology we are using does not allow breakout rooms to be recorded, so your group work will not be in the videos available through Canvas.
- There will be a 15-minute quiz at the end of almost every recitation. Class will end around 11:55 on any day when there is a quiz, which will allow you to take the quiz during our official class meeting time.
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Notes about breakout sessions: You will need to have microphones to talk to your group. Each room will have 4-5 students. You are strongly encouraged to turn on webcams in the breakout rooms. This is the only chance you will have to "see" your classmates and perhaps get to know them a little. It can be very helpful to have a partner to study for exams with (even if you are doing it on Zoom or FaceTime), and the online format will make finding such a study partner more challenging than usual.

Grading

MyMathLab Homework	40 points
Class Participation/Reading Quizzes	40 points
Quizzes	100 points
Midterm Exams (3 exams, 80 pts each)	240 points
Final Exam	180 points
Total	**600 points**

MyMathLab Homework:
We will be using MyMathLab for homework this summer. Details on how to obtain access are here. Late assignments will not be accepted. Please do not wait until the last minute to start assignments!

Class Participation:
This is a "remote synchronous" course, which means you are expected to attend every class at the designated time (MTWTh 10:10am-12:10pm EDT in our case). If you are unable to attend a class for any reason, please email or text me to notify me that you will be absent, preferably in advance. There will be poll questions at the beginning of class about the reading assignment for that day. You will be expected to ask and answer questions during the lecture part of each day's class. You will be expected to ask and answer questions in recitation when we are together as a class, and you will be expected to work with the other members of you group in breakout rooms when you are given problems to solve in recitation. Your class participation grade will be a combination of attendance, correct answers to reading polls, and activity as described above during whole class and breakout room sessions. I will post a score for each two-week block of the course so you will have an indication of how you are doing.

Quizzes:
There will be a written quiz in class at the end of most class meetings, so there will be at least 20 quizzes (each worth 10 quiz points). I will drop your two lowest quiz scores. There will be no make-up quizzes for any reason. If you must miss a quiz for some compelling reason, it will be one of the two quizzes dropped.

Midterm Exams:
There will be three midterm exams spaced at approximately two-week intervals during the course. The format of the exams is TBD, but you will be required to take exams during our regular class meeting time while in front of a computer with your webcam active so I can proctor the exam. You will certainly need to upload a PDF containing work for some or all of the problems. You may be required to use the Lockdown Browser feature for exams, but the department is still ironing out technical details.

Each of the midterm exams will also have an oral component. After the written portion of the exam, I will make an appointment to meet with each of you privately for approximately 15 minutes via Canvas. These appointments will be the day after the exam if at all possible, but the times will be negotiable. You will need to have your microphone and webcam active for these meetings, and you may be required to write on the virtual whiteboard. During this time, I will ask you questions about your work on some subset of the problems from the exam, so please make sure you keep all of your work. I may ask you to explain your reasoning or to tell me what you would do differently if I changed some of the parameters of the problem.

There will be no makeup exams for any reason. If you must miss one midterm exam for a truly compelling and documented reason, then your score on the final exam will count as 260 points of your grade instead of 180.

Final Exam:
The final exam is cumulative. The date and time will be determined by the university and cannot be changed. You cannot be excused from the final exam for any reason. The exact format of the final exam will be specified by the department and/or the Math 251 course coordinator. In any event, you will be notified of the time, date, and format of the final exam as soon as possible given the above constraints.

Final Grades   Final grades will be assigned by your point total according to departmental cutoffs.

Academic Integrity	Academic integrity is of critical importance. When grades are assigned for this course, your lecturer and Rutgers University are certifying that you have demonstrated a particular level of achievement. If students do not adhere to standards of academic integrity, that certification becomes meaningless. To that end, students are expected to abide by the academic integrity policy on the course website which includes text from the Rutgers University policy, links to the official Rutgers University policy, and specific interpretations of that policy for this particular course. You may find this document here. By participating in this course, you agree to comply with this policy in its entirety.
Technology Requirements	In order to participate in the course fully, you will need to have a decent internet connection, a webcam and a microphone, and the ability to scan and upload your work as PDF files. The official math department policy for summer 2020 can be found here: https://www.math.rutgers.edu/academics/undergraduate/1586-technology-requirements-for-math-courses-in-sum
Student Wellness Resources	For a list of resources for testing accommodations, other disability resources, counseling services, crisis management resources, etc. Please read this document.

- **How can I reach you with questions?**

For a quick question (e.g. you are stuck on a homework problem), the fastest way to get a hint from me is to take a picture of the work you have done on the problem so far and email it to me with your question.

For more in-depth discussions (e.g. you have no idea how to evaluate a double integral), the best way to get help is in office hours. For my scheduled office hours, you do not need to make prior arrangements to see me. I will be sitting in front of my computer with a Canvas conference open, and you can join if you like. You should receive an email notification every time I start an office hours conference in Canvas. If it is not possible for you to make my scheduled office hours, send me an email or text message and we can arrange another time.

- **Is this class graded on a curve? What does that even mean?**

If a class is graded on a curve, then a fixed and pre-determined percentage of students taking that course get each letter grade. That is, quotas are set for each letter grade, with no regard for actual achievement. For instance, a professor who grades a course on a curve may decide that the top 10% of student get A's, the next top 10% get B+, and so on. It may turn out that the top 10% of scores in the class are all 94% or above, or maybe 78% or above. This class is not graded on a curve. Not in any semester. Letter grades in Math 251 are not given out by quotas but rather determined by absolute achievement standards. These standards are summarized below, where "the next course" means "a course that has Math 251 as a prerequisite".

- A: The student has exhibited mastery of almost all topics in Math 251 and is well prepared for the next course.
- B: The student has exhibited mastery of some topics in Math 251 and proficiency in others and is prepared for the next course.
- C: The student has exhibited proficiency in most topics in Math 251 and may succeed in the next course with some extra self-study.
- D: The student has exhibited proficiency in few topics in Math 251 and success in the next course is unlikely without extensive additional study. Degree credit may be awarded but moving on to the next course is not recommended.
- F: The student has not shown sufficient proficiency in Math 251 to be successful in the next course.

In principle, all students could earn A if they all meet the above standard. Same for the grade of F. This course is not graded on a curve. It is also important to understand that there are no university standards for letter grades. That is, it is not true that 90% entitles you to a grade of A and it is not true that 60% entitles you to pass.

- **I scored above average on the exams, but I still failed!**

Since the course is not graded on a curve, it is well possible to score better than the class average yet still earn a final letter grade of F. It is an extremely common misconception of students that earning scores above or below the class median or class average entitles one to a certain grade.