

# Math 2153

## Calculus III

### Spring 2022

**Section number:** 14119

**Schedule:** MWF 11:30 am – 12:25 pm

**Room:** Journalism Building 251

**Instructor:** Emily Rudman

**Office:** MW 626

**Email:** rudman.21@osu.edu

**Office hours:** To be determined

**Textbook:** Calculus: Early Transcendentals, 3<sup>rd</sup> OSU custom edition, by Briggs, Cochran, and Gillett, published by Pearson

*\*NOTE: When you purchase the MyLab access code (to access the online homework) on the Carmen course page, this code will come with an online copy of the book. There is no need to purchase this book from the bookstore unless you prefer to have a physical copy.*

## Topics to be Covered:

### Chapter 13 and 14. Vectors and Vector-Valued Functions

- 13.1 Vectors in the plane
- 13.2 Vectors in three dimensions
- 13.3 Dot products
- 13.4 Cross products
- 14.1 Vector-valued functions
- 14.2 Calculus of vector-valued functions
- 14.3 Motion in space
- 14.4 Length of curves
- 14.5 Curvature and normal vectors

### Chapter 15. Functions of Several Variables

- 13.6 Cylinders & quadric surface & brief conic section review pgs 789-797 of sec 12.4
- 15.1 Graphs and level curves
- 15.2 Limits and continuity
- 15.3 Partial derivatives
- 15.4 The chain rule
- 15.5 Directional derivatives and the gradient
- 15.6 Tangent planes and linear approximation
- 15.7 Maximum/Minimum problems
- 15.8 Lagrange multipliers

## Chapter 16. Multiple Integration

- 16.1 Double integrals over rectangular regions
- 16.2 Double integrals over general regions
- 16.3 Double integrals in polar coordinates
- 16.4 Triple integrals
- 16.5 Triple integrals in cylindrical and spherical coordinates
- 16.6 Integrals for mass calculations
- 16.7 Change of variables in multiple integrals

## Chapter 17. Vector Calculus

- 17.1 Vector fields
- 17.2 Line integrals
- 17.3 Conservative vector fields
- 17.4 Green's theorem
- 17.5 Divergence and curl
- 17.6 Surface integrals
- 17.7 Stokes' theorem
- 17.8 Divergence theorem

## Exam Schedule:

**Exams:** There will be three in class exams (not including the final).

**Exam 1:** Wednesday, Feb 9

**Exam 2:** Wednesday, March 9

**Exam 3:** Monday, April 18

**Final:** There will be a comprehensive final exam:

**Final Exam:** Friday April 29 at 12 pm

Some sample exam problems can be found in Carmen Files.

## Grading and Missing Work Policies:

### Grade Breakdown:

Exam 1: 15%	(In person, during lecture)
Exam 2: 15%	(In person, during lecture)
Exam 3: 15%	(In person, during lecture)
Quizzes: 10%	(In person, ~3, during recitation)
Homework: 20%	(Online, via Carmen Assignment)
Final: 25%	(In person)

### Missing Quiz:

We expect to have three quizzes of equal weight throughout the semester. (the number is subject to change). We expect each quiz to be 10-15 minutes long and involve 1-2 questions.

There will be no makeup quizzes.

However, we will drop exactly one lowest quiz score. If you miss exactly one quiz, this will count as your one and only dropped quiz. If you miss more than one quiz, these additional scores of 0 will not be dropped.

If you don't miss any of the quizzes, we will drop your lowest score.

We have this policy to make it easier on students in case of sickness or emergencies. We highly suggest you don't miss any quizzes and save this in case you really need it.

### **Missing Homeworks:**

All homework in the course will be done online through MyLab (this is subject to change or to add additional assignments as needed). We expect to have homeworks due roughly once a week. We will have homework released by Monday at 11:59 pm at the latest and will be due at 11:59 pm on Sundays.

We will not extend deadlines or accept any late work.

However, we will drop 10% of the homework points for everyone.

For example, let's say at the end of the semester there has been a total of 120 homework points (\*it is important to note this 120 is just an example, we do not know how many homework points we will have at the end of this year). We will take 10% of these points (in this case 10% of 120 is 12) and take them off the score so the homework will be out of 108 ( $120 - 12 = 108$ ). It will not be possible to get over 100% on your homework grade.

Some examples, let's continue to use the case of 120 homework total homework points.

If you get 100 out of 120 homework points, your homework grade would be:  
 $100/108 \approx 93\%$ .

If you get 112 out of 120 homework points, your homework grade would be:  
 $112/108 \approx 104\%$ . which we will cap at 100%.

We have this policy to make it easier on students in case of sickness or emergencies. We highly suggest you don't miss any homeworks and save this in case you really need it (for sickness, power outages, mental health days, etc).

**Missing Exams:**

We will not offer any make up exams.

However, if you miss exactly 1 of Exam 1, Exam 2, or Exam 3, that 15% will be added to your final exam and your final would now be worth 40%.

For example, let's say you missed Exam 2 (for example, because you were sick). Your new course breakdown would be:

Exam 1: 15%  
Exam 2: **NONE IF MISSED**  
Exam 3: 15%  
Quizzes: 10%  
Homework: 20%  
Final: 40%

If you miss more than one exam, exactly one exam score can count towards the final and the other missed exams will be counted as a 0. For example, let's say you missed Exam 1 and Exam 2. Your new course breakdown would be:

Exam 1: **NONE IF MISSED**  
Exam 2: **0 out of 15%**  
Exam 3: 15%  
Quizzes: 10%  
Homework: 20%  
Final: **40%**

We have this policy to make it easier on students in case of sickness or emergencies. We highly suggest you don't miss any exams and save this in case you really need it.

**Academic Misconduct Statement:**

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-48.7). For additional information, see the Code of Student Conduct at <http://studentlife.osu.edu/csc/>.

**Disability Services Statement:**

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, arrange with me as soon as possible to discuss your accommodation so that they may be implemented in a timely fashion.

**Student Life Disability Services contact information:** [slds@osu.edu](mailto:slds@osu.edu)  
614-292-3307  
098 Baker Hall, 113 W. 12<sup>th</sup> Ave.

## **Additional Information:**

**Carmen:** It is important that you check Carmen daily as all course communication and resources are posted there.

Carmen will be used for posting grades only not calculation. Your official grade will be calculated as stated in the syllabus.

**Calculators:** A calculator will be useful for this course. However, you will not be able to use them during exams. It is strongly recommended that you use a computer algebra system like Maple, MatLab, Mathematics, or a program of your choice to generate graphs needed for the homework.

## **Help Sessions for this Class:**

There are multiple campus resources for help with Math 2153.

Drop-in tutoring (no appointment needed) information is available:  
<https://mslc.osu.edu/drop-tutoring>

- Tuesday, January 18th-Monday, April 25th
- Closed: March 13-20th; April 17th
- Monday-Thursday, 10:20am-6:20pm (In-person);
- Monday-Thursday 6:30pm-9:30pm (Zoom)
- Sunday, 3:30pm-6:30pm (Zoom)

The Mathematics and Science learning center (see <https://mslc.osu.edu/courses/math/2153>) also has tutoring available for this course by appointment. See the above link for information.

For help with any MyLab technical problems, please see the help power point (Pearson MyLab Mastering) listed under files on the Carmen page. If additional help is needed, please attend Pearson OSU Virtual Office Hours.

- Pearson OSU Virtual Office Hours Information

Mon 1/10/22: 11:30am - 1:00pm  
Tues 1/11/22: 12:30pm - 2:00pm  
Wed 1/12/22: 9:00am - 10:30am  
Thurs 1/13/22: 10:00am - 11:30am  
Fri 1/14/22: 9:00am - 10:30am  
Tues 1/18/22: 12:30pm - 2:00pm

LOCATION

<http://zoom.us/j/5255123067>