

MA252.02 Spring 2022: Calculus II Syllabus



10:00-10:50 MWF 223 Sellinger Hall
10:50-12:05 Tues 004 Knott Hall

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Zoom Room: <https://loyola.zoom.us/my/loberbro> or PMI: 410 617 2516

Moodle: moodle.loyola.edu

WeBWork: <https://webwork.loyola.edu/webwork2/MA252-Sp22-OBER>

Office (Drop-in) Hours: Wed: 11-noon, Thurs: 10:30-12:30, 3-4. Also by appointment (see my [schedule](#))



I reserve the right to make changes to the syllabus at any time during the term by announcing them in class and on Moodle. You are responsible for knowing not only what is discussed/announced in class but also what is posted on Moodle.

Prerequisites

At least a C- or better in MA251.

Course Description

A continuation of MA251. Techniques and applications of integration; improper integrals; parametric equations and polar coordinates; sequences and series.

Department Learning Aims

- *Calculate Accurately*: Students will be able to calculate accurately using algebra, calculus, or higher-level mathematics.
- *Write Proofs*: Students will be able to write proofs of theorems.
- *Interpret Accurately*: Students will be able to accurately interpret mathematical or statistical information in relation to procedures, concepts, or applications.
- *Program Quantitatively*: Students will be able to write computer programs or run computer packages to perform quantitative tasks.

Text

Required: *Calculus, Volume 2* by [openstax](#).

Calculators

A graphing calculator is not required but may be useful FOR HOMEWORK. You need nothing fancier than a TI-83 or its equivalent. DESMOS.COM is just as useful for homework. **YOU MAY NOT USE GRAPHING CALCULATORS ON QUIZZES OR EXAMS, although a scientific calculator is allowed.**

Homework

This course will emphasize problem solving and some applications of mathematics. Homework problems will be assigned from each section that we cover. You will be asked to do homework on the computer through [WeBWork](#). The WeBWork counts towards your grade. Even though I will not be collecting any of the homework assigned from the book, it is important for you to be able to do all of the problems and understand the concepts behind them.

Quizzes

There will be short quizzes every FRIDAY at the end of class unless told otherwise. They will cover the material on the week's homework problems (both textbook and WeBWork problems) and examples done during class. *I will only answer brief questions before the quiz*; questions should be taken care of in previous classes or office hours. There are no make-ups on quizzes.

Exams

There will be 2 in-class exams during the term. They are tentatively scheduled on Tuesday, February 15 and Tuesday, March 29. Other information about the exams will be announced in class as each exam approaches.

Final Exam

The final exam is cumulative and is on **Thursday, May 12 at 9 AM**. This exam will be a final opportunity to complete or master Learning Targets. In addition, the overall points of the exam will determine a +/- to the grade. Below 50% on the final and you earn a -; above 80% and you earn a +.

Engagement Score

Periodically there will be activities in class or extra problems that will count toward this score.

Extra Credit

Do not count on extra credit in this course to boost your grade. I make it a policy to not give extra credit on an individual basis so do not ask for it, especially at the end of the semester.

Honor Code

All students of the University are expected to understand the meaning of the [Loyola University Honor Code](#). Ignorance of the Code is not a valid reason for committing an act of academic dishonesty. The following constitute violations of the Code and are defined in the Community Standards Handbook: cheating, stealing, lying, forgery, plagiarism and the failure to report a violation. I expect you to work with others on homework (by collaborating, not copying!). I will ask you to sign a pledge on exams but not on other turned-in work (like quizzes) although I will expect the same honesty on all of them. Any questions or concerns should be directed immediately to me.

Classroom Etiquette

For online classes: I expect you to have your camera on unless you discuss it with me. If something comes up unexpectedly in which you feel more comfortable with your camera off, an email of warning before class will suffice.

When you come to class in person, I expect you to not only be in attendance physically but also mentally. That means no cell phones, no leaving class during lecture, no extraneous chatter, etc. If you know you must leave class, sit by the door to minimize the disruption. If cell phones and texting become a problem, I will confiscate the phone.

The goals of this course are best accomplished when in a setting of mutual respect. The study of mathematics does not usually lead to much controversy. That being said, we must all work to provide a safe environment that is conducive to learning. All are welcomed and encouraged to actively participate in the learning of mathematics, regardless of gender, race, nationality, native language, sexual orientation, gender identity, political ideology, and especially personal mathematical history. Any student who feels she or he is experiencing a hostile environment should speak to me immediately.

Speakers of Multiple Languages

If you are a speaker of more than one language or if English is not one of your first languages, there are resources [for Multilingual Students](#) including access to an ESL tutor, faculty who can help you navigate the university, and portals for other academic support. Multilingual students are encouraged to speak with me about their unique needs.

Student Athletes

If you are a student athlete, please provide me with your travel letter indicating when you will need to miss class to participate in athletic events. While travel for athletics is an excused absence, you will need to make up any missed work. Absences only on the travel letter will be accommodated.

The Counseling Center

The Counseling Center supports the emotional well-being of the student body and is committed to a respectful understanding and honoring of the social, emotional, and cultural contexts represented by each individual student. The Counseling Center provides brief individual and group counseling, emergency and crisis intervention, and comprehensive referral services for those in need of longer-term therapy. More information can be found on our webpage: www.loyola.edu/counselingcenter or by calling (410) 617-CARE (2273). To make an appointment, please call (410) 617-CARE (2273). For after-hours emergencies, please call our after-hours counselor at (410) 617-5530 or Campus Police at (410)617-5911. Let's Talk!

DSS Accommodations

If you are a student registered with **Disability Support Services (DSS)** who needs accommodations for this course, please make sure you ask DSS to send me a Faculty Notification Email (FNE). If DSS has already sent me your FNE, please schedule a brief meeting to discuss your accommodations during my office hours. If you are registered with DSS and need accommodations for this course, be sure to [contact the DSS office as soon as possible](#). Students with a physical or mental condition experiencing barriers in this or another course, please go to the [Disability Support Services' website](#) to learn more about accommodations at Loyola. Also, you can contact DSS at DSS@loyola.edu or (410) 617-5387 to schedule a meeting.

Title IX

Loyola University Maryland is committed to a learning and working environment free from sexual and gender-based misconduct including sexual harassment, sexual verbal abuse, sexual assault, domestic violence, dating violence, stalking, and sexual exploitation. Reports of such offenses are taken seriously and Loyola encourages students experiencing sexual misconduct to report the incident in accordance with the University's policy on [Reporting Sexual Misconduct](#). Because of the University's obligation to respond to reports of sexual misconduct, mandated reporters including faculty members, are required to report incidents of sexual misconduct to the Title IX coordinator even if the reporting party requests confidentiality. Information about confidential resources that are not required to report sexual misconduct to the Title IX coordinator may be found in the [Notice Rights and Options for Sexual Misconduct policy](#). For more information about policies and resources or reporting options, please see our [Community Standards](#), or visit [Title IX](#). Loyola is also committed to an environment free of other forms of harassment and discrimination. For information about policies and reporting resources, please visit <https://www.loyola.edu/departments/title-ix>.

Writing Center

The Loyola Writing Center is open seven days a week for both face-to-face and Zoom appointments. The complete schedule of hours is posted on the website: <https://www.loyola.edu/departments/writing-center/about/location-hours>. For questions, or help making an appointment, students can email lwc@loyola.edu.

The Study

The Study is located on the third floor of Jenkins Hall and serves as Loyola University Maryland's academic support center. Our mission is to help Loyola students become successful, independent learners. We do this through a variety of free academic support services, such as peer and professional tutoring (including ESL tutoring); academic success workshops; academic coaching; and time management and organization coaching. These services are available in person and

online, and students can register for them through The Study's website at www.loyola.edu/thestudy.

Food/Housing Insecurity and Textbook Needs

Any student who has difficulty securing their food, housing, or textbooks is urged to contact Christina Spearman, the Dean of Students, at cjspearman1@loyola.edu or 410-617-5171. Loyola may have resources available to help.

Peer Tutoring for Math/Stats

Tutoring is also available in a drop-in basis at the Math/Stats Seminar Room in 303 Knott Hall. Times and days are TBA.

Grading

This course will use standards-based grading or specifications grading, which is system that you may not be used to. The two key ideas of standards-based grading are (1) no partial credit and (2) anything graded can be attempted more than once. The driving reason for standards-based grading is that it is better to master 80% of the course content than to complete all skills with 80% accuracy. A list of standards that you pass is a list of things you can leave this course saying "I know how to do that!" Problems and/or standards will be marked on a scale of:

E: Expectations met or exceeded

An exemplary or adequate response which is correct or adequately correct. It communicates a very good or satisfactory understanding of the learning topic. It may contain some algebraic, conceptual, logical, numerical, symbolic, verbal, or visual flaws.

R: Reassessment Recommended

An uneven response which demonstrates misunderstanding of the content through several algebraic, conceptual, logical, numerical, symbolic, verbal, or visual errors.

F: Fragmentary

An incongruous or incomplete/missing response which demonstrates a significant misunderstanding of the content through numerous algebraic, conceptual, logical, numerical, symbolic, verbal, or visual errors.

To COMPLETE a Learning Target: E level on that target during quiz or exam times.

To MASTER a Learning Target: Earn E level on that target **a second time** during quiz or exam times.

To earn:	Do all of the following:
A	<ul style="list-style-type: none">◦ Complete all 10 Core Learning Targets, and Master at least 8 of them.◦ Complete 23 (~85%) of Supplemental Learning Targets, and Master at least 12 (~43%).◦ Have a final WeBWork grade of at least 90%.
B	<ul style="list-style-type: none">◦ Complete all 10 Core Learning Targets, and Master at least 5 of them.◦ Complete 20 (~71%) of Supplemental Learning Targets, and Master at least 6 (~43%).◦ Have a final WeBWork grade of at least 80%.
C	<ul style="list-style-type: none">◦ Complete all 10 Core Learning Targets, and Master at least 2 of them.◦ Complete 16 (~57%) of Supplemental Learning Targets.◦ Have a final WeBWork grade of at least 70%.
D	<ul style="list-style-type: none">◦ Complete at least 5 Core Learning Targets.◦ Have a final WeBWork grade of at least 60%.
F	(Given if not all the requirements for a D are met.)

The plus/minus of the grade is determined by the final exam AND the Engagement Score.

Add a plus (+) if:	Your final exam is at least 80%, and your Engagement Score is at least 85%.
Add a minus (-) if:	Your final exam is at below 50%, and your Engagement Score is below 50%.

Reassessment or Retakes: Quizzes or Learning Targets that receive a Reassessment Recommended grade may be reattempted in two different ways. The subsequent quiz will have the previous learning topics on it, so you may retake them if time allows. A second way is to reattempt a Learning Topic during office hours or an appointment. Reattempts in either form will cover the same Learning Target and have similar problems but will not be identical to past quizzes.

Reattempts of Learning Targets done in office hours are subject to some restrictions:

- You get reattempts on **3** Learning Topics, no questions asked. For any more reattempts, you must submit an explanation of what you got wrong, and the correct answer all work shown.
- You must schedule a 15-minute appointment for reattempts.
- You may schedule no more than two such appointments per week.
- You may attempt no more than two retakes during any one 15-minute appointment.
- The 15-minute length of the appointment is firm; no extra time will be allowed, including if a student arrives late to the appointment.
- Failing to appear for an appointment may result in a ban from office hours quiz retakes.
- Office hours appointments are available on a first-come, first-served basis.

Other restrictions may be put in place at the professor's discretion.

WeBWork Advice

- If you have problems with WeBWork, contact me right away.
- Download and print the generated PDF hardcopies of the problem sets.
- Keep your work in a notebook or some other organized way as if you were turning it in.
- Read and do the Intro problem set.
- Don't guess; it is neither efficient nor effective.
- Give exact values or 4 or 5 significant digits for (floating point) numerical answers.
- If I go through a problem in class or you are working with others, don't just go through and try and change the numbers in yours to match my or your friend's numbers.
- Keep track of the time and date due!
- Form a study group.

GENERAL SUGGESTIONS:

- This course will test your study and time management skills. The **homework WILL be time consuming** so DO NOT put off the homework until the night before they are due. I cannot and will not give extensions on these due dates.
- Participate in class, ASK QUESTIONS, **make use of my office hours**. If you get behind or stuck, see me or work with other students RIGHT AWAY.
- Form a study group. Learning math is best as a social activity. Working together on homework is allowed, as long as everyone contributes. I've also found that the best way to learn material is to try and explain it to someone else (SHAMELESS PLUG: become a tutor!). And hopefully that someone else can then explain another problem to you.
- READ THE BOOK. Lectures will be much more understandable. It will be important to READ the book, not just look at the highlighted boxes because I will not be able to cover all of the details or show nearly enough examples in class.
- If you think you'll need extra help, get it as soon as possible. Do not wait until right before an exam!

Core Learning Targets

- ☐ ☐ C1: Compute antiderivatives of functions.
- ☐ ☐ C2: Evaluate an integral using only basic techniques (power rule, linearity properties, etc.)
- ☐ ☐ C3: Evaluate an integral using substitution.
- ☐ ☐ C4: Set up an integral to compute the area between curves.
- ☐ ☐ C5: Set up an integral to compute volume of a solid of revolution
- ☐ ☐ C6: Evaluate an integral using integration by parts.
- ☐ ☐ C7: Demonstrate familiarity with parametric equations and derivatives.
- ☐ ☐ C8: Demonstrate familiarity with polar equations.
- ☐ ☐ C9: Evaluate a geometric series.
- ☐ ☐ C10: Determine the radius of convergence of a power series.

Supplemental Learning Targets

- ☐ ☐ S1: Use a finite summation to approximate the area under a curve.
- ☐ ☐ S2: Calculate an integral to find net area under a curve.
- ☐ ☐ S3: Calculate a derivative using FTC.
- ☐ ☐ S4: Set up an integral to compute volume using the disk method.
- ☐ ☐ S5: Set up an integral to compute volume using the washer method.
- ☐ ☐ S6: Set up an integral to find the mean of a continuous random variable.
- ☐ ☐ S7: Set up an integral of a probability density function to find probabilities.
- ☐ ☐ S8: Evaluate a trigonometric integral.
- ☐ ☐ S9: Evaluate an integral using trigonometric substitution.
- ☐ ☐ S10: Evaluate an integral using partial fractions.
- ☐ ☐ S11: Identify and apply a proper method(s) to evaluate an integral when not given a specific method.
- ☐ ☐ S12: Determine whether an improper integral over an infinite interval converges or diverges, and evaluate if possible.
- ☐ ☐ S13: Determine whether an improper integral with a discontinuous integrand converges or diverges, and evaluate if possible.
- ☐ ☐ S14: Solve a challenging problem that combines different skills and/or presents material from Chapters 1-3 + Pre-Reqs in a different way.
- ☐ ☐ S15: Calculate or set up an integral to calculate area under a parametric curve.
- ☐ ☐ S16: Calculate or set up an integral to calculate arc length of a parametric curve.
- ☐ ☐ S17: Calculate or set up an integral to calculate area of a region bounded by a parametric curve.
- ☐ ☐ S18: Calculate or set up an integral to calculate arc length of polar curves.
- ☐ ☐ S19: Demonstrate an understanding of the underlying concept of an infinite series.
- ☐ ☐ S20: Use the integral test to determine the convergence of a series.
- ☐ ☐ S21: Use the divergence test to determine the divergence of a series.
- ☐ ☐ S22: Use the direct comparison test to determine the convergence of a series.
- ☐ ☐ S23: Use the alternating series test to determine the convergence of a series.
- ☐ ☐ S24: Use the ratio test to determine the convergence of a series.
- ☐ ☐ S25: Identify and apply a proper method to determine the convergence of a series when not given a specific method.
- ☐ ☐ S26: Determine the interval of convergence of a power series.
- ☐ ☐ S27: Compute terms of a Taylor series using differentiation or integration.
- ☐ ☐ S28: Compute a Taylor series from a known series.