

Syllabus for MATH 136 - 01, Calculus 2

College of the Holy Cross, Fall 2023

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Office hours: 3:30pm – 5pm on Wednesdays and Thursdays

Meeting times and location: MWRF 8:00am – 8:50am, Swords 302

Course Objectives: At the end of this course, students should be able to:

- Explain calculus concepts such as improper integrals, convergence of sequences and series, power series, series, and solutions of differential equations
- Apply calculus concepts to evaluate lengths, areas, volumes, and to solve simple differential equations
- Determine convergence of sequences and series using a variety of methods, represent functions with Taylor and Maclaurin series, and determine error of approximating functions with polynomials.

Textbook: OpenStax (*Calculus Volume 2*).

Link to the book is here: <https://openstax.org/details/books/calculus-volume-2>

If you desire, you can get a hard copy of the text from Amazon for \$15-20. It is absolutely NOT required that you purchase a hard copy of the text.

Web materials: All class announcements, materials and grades will be posted on Canvas.

Quizzes:

There will be six in-class quizzes during the semester. The lowest quiz grade will be dropped.

Here are the dates you will be taking a quiz:

Quiz 1 (September 15), Quiz 2 (September 22), Quiz 3 (September 29), Quiz 4 (October 27), Quiz 5 (November 3), Quiz 6 (November 10)

It is strongly advised that you do all of assigned homework since the quizzes will closely resemble the homework problems.

Homework:

Homework Assignments will be posted on Canvas with their due dates. The solutions must be uploaded to Canvas as one PDF file. Late homework must be submitted as a hard copy, and ten points will be deducted from late homework. No homework assignment will be accepted after 5 days from the due date. No homework grade will be dropped.

No help from any Internet sources is allowed. Plagiarism will not be tolerated and will be treated as a violation of the Departmental Policy on Academic Integrity.

By doing mathematics you learn mathematics. You learn math best when you approach the subject as something you enjoy. Learn to explain mathematics to your classmates. Mathematics can be fun and rewarding when there are people around you who enjoy figuring out problems as much as you do. Take advantage of this opportunity and organize study groups. I will not consider working on homework problems with your classmates as a violation of the academic honesty policy in the department. However, you must prepare and submit your own solutions.

Please follow these guidelines when you submit homework assignments:

- Put your name, the date, and the homework assignment number at the top of the first page.
- Write neatly and show all your work.
- On the last page of your assignment, please write the name(s) of your classmate(s) with whom you work on homework problems (with an asterisk).
- Make sure you attach the honor code.

Here are the dates of homework assignments:

Homework 1 (posted on Canvas at 9am on September 1, due by 9am on September 8)
Homework 2 (posted on Canvas at 9am on September 14, due by 9am September 22)
Homework 3 (posted on Canvas at 9am on September 21, due by 9am September 29)
Homework 4 (posted on Canvas at 9am on October 6, due by 9am October 20)
Homework 5 (posted on Canvas at 9am on October 25, due by 9am November 3)
Homework 6 (posted on Canvas at 9am on November 3, due by 9am November 10)
Homework 7 (posted on Canvas at 9am on November 26, due by 9am December 4)

Mid-term exams:

There will be three mid-term exams during the semester. The mid-term exams are 90-minute exams; they will be held from 6pm to 7.30pm in Stein 120 on Thursday, October 5, Thursday, November 16, and Thursday, November 30. We will review for the first two midterm exams during class on the same day. The lowest midterm exam grade will be dropped.

Final exam: There will be a mandatory cumulative final exam in this course. Location and time of the final exam are to be determined. **Check for final exam schedule conflicts as soon as possible.**

Snow days: If classes are cancelled due to snow, or for other official reasons, any scheduled quiz or test will occur during next class meeting.

Grading: The course grade will be determined as follows:

Final exam: 15%

Mid-term exams: 28% (14% each)

Quizzes: 10%

Homework: 42%

Attendance and class participation: 5%

An incomplete grade is given at the discretion of the instructor.

Final class grade: Final exam is mandatory. If you score at least a 70% on the final exam, both your class grades before the final and after the final will be considered. Whichever one higher will be your final class grade. If you do not take the final exam, then it will be a zero on the final exam. If you miss the final exam for a valid reason, you must still take a make-up final exam and score at least a 70% on the final to be eligible for the final class grade option explained above. If you miss the final exam for a valid reason and you do not take a make-up final exam, then it will be a zero on the final exam.

If your final exam grade is less than 70%, then you do not qualify for the final class grade option explained in the previous paragraph, and the final class grade will be computed according to the criterion described in **Grading**.

Note: The lowest midterm exam grade will be dropped when computing the final class grade as explained above.

Calculators: Calculators are NOT permitted on quizzes, mid-term exams and the final exam.

Additional resources:

Jiaqi Fang is the grader for this course. Jiaqi's office hours are held 1pm - 2pm on Tuesdays and 2pm - 3pm on Fridays in Swords 330. You may contact Jiaqi at jfang24@g.holycross.edu.

There is a tutoring program through Academic Services and Learning Resources (ASLR). Calculus 2 is one of the subjects for which students can obtain tutoring. You may not discuss problems on written homework assignments with tutors from ASLR.

For more information see: <https://www.holycross.edu/support-and-resources/academic-services-and-learning-resources>

Issues with the course/instructor: If you have issues with this course and/or instructor which you are not comfortable discussing with your instructor, you should contact the Chair of the Department of Mathematics and Computer Science, Professor Ed Soares, at esoares@holycross.edu.

Academic Honesty: Collaboration on quizzes, mid-term exams and final exam is NOT allowed.

A necessary prerequisite to the attainment of the goals of the College is maintaining complete honesty in all academic work. Students are expected to present their own work in exams and in any material submitted for credit. Students may not assist others in presenting work that is not their own. Offenders are subject to disciplinary action. A violation of the Department Policy on Academic Integrity will result in a 0 for that quiz or exam, and a letter describing the occurrence of academic dishonesty will be sent to the Chair of the Department of Mathematics and Computer Science and your Class Dean.

For more on Academic Integrity see: <https://www.holycross.edu/academics/programs/mathematics-and-computer-science/node/211581/academic-integrity>

COVID-19:

- Masks are optional during class time, quizzes, mid-term exams, final exam and office hours.
- If you have any symptoms of illness, please do not attend the class. If you test positive for COVID-19, please do not attend the class even if you do not have symptoms, and please let me know immediately. You may attend class and office hours via Zoom.
- If I test positive for COVID-19, I will teach and hold office hours via Zoom until I am allowed to be back on campus.
- If classes are switched to remote learning due to COVID-19, I will teach and hold office hours via Zoom until restrictions are lifted.
- If I switch to teaching and holding office hours via Zoom, I will post all the Zoom links and passwords on Canvas.

Diversity and Inclusion: It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. Any suggestions you have pertaining to diversity and inclusion are encouraged and appreciated.

Section 1.6 321 – 365 (odd), 373, 375

Section 1.7 391 – 405 (odd), 411, 413, 415, 423, 425, 427, 429, 431, 435

Section 3.1 1 – 47 (odd), 48, 49, 50, 51, 53, 55, 57, 62

Section 3.2 69, 70, 71, 72, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107 - 125 (odd)

Section 3.3 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149 - 171 (odd), 172, 173, 175, 176, 177, 178, 180, 181

Section 3.4 183, 185, 189, 191, 193, 195, 197, 199, 201, 203, 205, 229 (odd), 232, 235

Section 3.5 245 – 259 (odd), 279 – 287 (odd), 294, 295, 297

Section 3.6 (Midpoint rule only) 302, 303, 304, 317

Section 3.7 347 – 395 (odd)

Section 2.1 1 – 19 (odd), 21, 22, 23, 25, 27, 29, 30, 35, 48, 49, 50

Section 2.2 59, 61, 62, 63, 67, 71, 73, 74, 75, 76 – 82, 84, 85, 90, 91, 101, 102

Section 2.4 (Arc length only) 171, 173, 176, 177, 179, 182, 183, 185, 186, 215

Section 2.7 299, 310 – 321, 322, 323, 324 – 334, 335, 340, 343, 345, 347

Section 2.8 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 359, 361, 365, 369

Section 5.1 1 – 11 (odd), 13, 15, 17, 23, 27, 29, 31 – 39 (odd), 41, 43, 47, 49, 51

Section 5.2 67 – 73 (odd), 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113

Section 5.3 139 – 167 (odd)

Section 5.4 195 – 229 (odd)

Section 5.5 251 – 279 (odd)

Section 5.6 317 – 327

Section 6.1 1 – 47 (odd)

Section 6.2 63 – 71 (odd), 79, 81, 87 – 94, 95, 97, 99, 101, 104 – 107

Section 6.3 117, 119, 121, 123, 130 – 135, 141 – 159 (odd)

Section 6.4 174 – 177, 195 – 229 (odd)

Final Exam Review

December 8, Friday, Last day of classes
December 12, Tuesday – December 16, Saturday, Final Exams
Final Exam is based on all sections covered in class.

The mind is not a vessel to be filled but a fire to be kindled.

— Plutarch