

Syllabus for MATH 135 – 01, Calculus 1

College of the Holy Cross, Fall 2022

Instructor: Dr. Neranga Fernando

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Office hours: 1:30pm – 3pm on Wednesdays and Thursdays, or by appointment.

Meeting times and location: MWF 8:00 am - 8:50 am, Swords 302

Course Objectives: Students completing the course should be able to recognize and use the following concepts and methods of calculus when they occur in their disciplines: -

Differentiation: definition via limits, derivations rules, applications including optimization.

Basic functions (exp and log, trig and inverse trig) and their derivatives

Textbook: OpenStax (*Calculus Volume 1*).

Link to the book is here: <https://openstax.org/details/books/calculus-volume-1>

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 seven 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 9), Quiz 2 (September 23), Quiz 3 (September 30), Quiz 4 (October 21), Quiz 5 (October 28), Quiz 6 (November 11), Quiz 7 (December 2)

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

Homework: Homework is due at the beginning of class. If you do not hand them in at the beginning of class, 10 points will be deducted. No homework grade will be dropped.

Here are the due dates of written homework:

Homework 1 (September 12), Homework 2 (September 19), Homework 3 (September 26),
Homework 4 (October 24), Homework 5 (October 31), Homework 6 (November 7)

I will post the homework problem numbers assigned to each written homework set on Canvas. It is strongly advised that you do all of assigned homework since the quizzes will closely resemble the homework problems. 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.
- Staple multi-page assignments. No paperclips or folded corners.
- 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).

Group Project: We will do group work in class as time permits. I will assign a topic to each group the week before fall break. Each group must write a report on the given topic and submit it in class on December 2.

Mid-term exams:

There will be two mid-term exams during the semester. The mid-term exams are 90-minute exams; they will be held from 6pm to 7.30pm on Wednesdays, October 5 and November 16, in Smith Labs 154. We will typically review for each midterm during class on the same day. No mid-term 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: 25%

Mid-term exams: 30% (15% each)

Quizzes: 15 %

Homework: 15%

Group Project: 10%

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 60% 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 60% 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 60%, 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**.

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

Additional resources:

Kyle Peterson is the grader for this course. His office hours are held from 7pm to 8pm on Tuesdays and Thursdays in Swords 328. You may contact Kyle at kbpete24@g.holycross.edu.

There is a tutoring program through Academic Services and Learning Resources (ASLR). Calculus is one of the subjects for which students can obtain tutoring. You may discuss homework problems with tutors from ASLR, and I would not consider it as a violation of the academic honesty policy in the department. However, you must prepare and submit your own solutions.

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.

Important:

1. Any student with special needs is encouraged to meet with me during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Office of Accessibility Services. The following is the **link to the Office of Accessibility Services**:

<https://www.holycross.edu/health-wellness-and-access/office-accessibility-services>

2. Please note that, consistent with applicable federal and state law, this course may be video/audio recorded as an accommodation only with permission from the Office of Accessibility Services. Students are not permitted to record the contents of this class under any other circumstances.

3. If you are an athlete and have conflicts with an important class activity (homework, quiz, mid-term, or final), please let me know in advance.

4. For College's Excused Absence Policy see:

<https://catalog.holycross.edu/requirements-policies/academic-policies/#coursepolicies>

5. All electronic devices (mobile phones, laptops etc.) must be turned off during class time, quizzes, mid-term exams and final exam.

Syllabus: Syllabus is subject to change. It is your responsibility to be aware of any changes I may make to the syllabus as they are announced in class. Students are responsible for all information given when they are absent.

Some Additional Notes:

1. I will hold a 3-hour final exam review session the day before (or two days before) the final exam. We will discuss and find a time that works for all of us. I will let you know the location after the final exam date is announced.

2. I will not post solutions to homework problems listed on the syllabus. I have given 3+ hours of office hours every week. Please bring all your questions regarding anything discussed in class, lectures notes, homework problems or anything posted on Canvas to my office hours. It is your responsibility to attend my office hours if you have any questions.

3. I will hand out problem sheets in class. Since we do not have time to work on all the problems on problem sheets in class, I will post their solutions on Canvas. However, I encourage you all to work on the problems and bring questions to my office hours.

Important Dates: **October 10 – 14**
 Wednesday – Friday, November 23 - 25

Fall Break – no classes
Thanksgiving break: no classes

Schedule of Topics and Suggested Homework Exercises

Chapter 1 Review

Section 2.1 16 - 23

Section 2.2 30 – 37, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55 - 80

Section 2.3 83, 84, 85, 86, 87, 89, 91, 93, 95, 97, 98, 99, 100, 101, 103, 105, 107, 108, 109, 110, 111, 113 – 125
(odd)

Section 2.4 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 150, 151, 153, 155, 157, 159, 161, 162, 163, 164,
165, 166, 167

Section 4.6 251, 252, 253, 254, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 295 – 305 (odd)

Section 3.1 1 – 29 (odd), 35, 37, 39, 40, 41, 43, 44, 47

Section 3.2 55 – 83 (odd), 90 - 98

Section 3.3 106 – 117, 123, 125, 127, 129, 130, 131, 132, 137, 139, 140, 141, 142, 143, 144

Section 3.4 151 – 161 (odd), 164

Section 3.5 175 – 184, 191 – 213 (odd)

Section 3.6 215 – 239 (odd)

Section 3.7 261 – 293 (odd)

Section 3.8 301 – 309 (odd), 317, 319, 321, 328, 329, 330

Section 3.9 331 – 353 (odd)

Section 4.3 91 – 95, 97, 98, 100 – 107, 109 – 133 (odd), 140, 141, 144, 145

Section 4.4 148 – 156, 161 – 169 (odd), 170, 171 – 181 (odd), 182, 190, 191, 192, 193

Section 4.5 194 – 200, 201 – 219 (odd), 220 – 245

Section 4.8 356 – 395 (odd)

Section 4.1 1, 3, 5, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17 – 41 (odd)

Section 4.7 315 – 322, 324, 325, 326, 329, 332 – 346

Section 4.2 50 – 55, 69 – 85 (odd)

December 9, Friday, Last day of classes
December 13, Tuesday – December 17, 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