

MATH 122 C and D Calculus II
Course Description
Fall Term 2025

Course Title: **Calculus II**

Description: A continuation of MATH 121 – Calculus II, may be elected by students who have had an introduction to analytic geometry and calculus in secondary school.

Topics include: a brief review of limits and the Fundamental Theorem of Calculus, sequences and series, natural logarithm and exponential functions, elementary transcendental functions, techniques of integration, power series and Taylor's theorem, applications of integrals including economics and probability, polar coordinates, improper integrals, ordinary differential equations.

Successful completion of this course satisfies the “Deductive Reasoning and Analytical Processes” distribution requirement.

Learning Outcomes: In this course, you will

- solve many types of integrals, including those with trigonometric functions and infinite bounds and domains
- explore infinite sequences and series and their convergence and limits
- learn to sit with hard mathematics and approach tough problems one step at a time
- become familiar with interdisciplinary applications of mathematics
- learn to write clean and concise solutions to mathematical problems

Instructor: Michael Olinick (molinick@middlebury.edu), 202 Warner, 443-5559. Home: 388-4290. Office Hours: Monday, Wednesday and Friday : 9:35-11 AM; Monday and Wednesday: 12:10 – 1 PM; Thursday: 10 - 11. **I am happy to make an appointment to see you at other mutually convenient times.**

Meeting Times: 122C: 11:15 AM– 12:05 PM Monday, Wednesday and Friday in Warner 100; 11:15 – 12:30 PM on Thursday in Warner 100.

 122D: 1:10 PM– 2:00 PM Monday, Wednesday and Friday in Warner 100; 12:45 – 2:00 PM on Thursday in Warner 100.

Course Websites: <http://f25.middlebury.edu/MATH0122C> or
[: http://f25.middlebury.edu/MATH0122D](http://f25.middlebury.edu/MATH0122D)

Prerequisites: A good background is a year's study of calculus in secondary school or completion of MATH 121: Calculus I at Middlebury. If most of the material in Chapters 1 - 5 of our text looks familiar, then you should begin the term in MATH 122. We realize that you probably haven't done much calculus in the past four months. Your differentiating and integrating skills will be a bit rusty at first, but they should soon be back in smooth working order. You can always transfer to Calculus I after one or two weeks if this proves advisable. Please note that you can not enroll in this course if you have received a 4 or a 5 on the Advanced Placement BC Calculus Exam; students with this background should sign up for MATH 200: *Linear Algebra*.

Textbook: Earl Swokowski, Michael Olinick, and Dennis Pence, *Calculus of a Single Variable Calculus* (2nd Edition) or *Calculus* (6th Edition). Your daily assignments will include a few pages of reading in the text. Be certain to read the book carefully (with pencil and paper close by!) and to complete the relevant reading before coming to class and before embarking on the homework problems. The text contains answers to odd-numbered problems. You should be able to pick up a copy at a nominal price. There are copies on reserve at the Davis Family Library. You can find links to digital versions of the chapters on the course website.

Requirements: There will be three midterm examinations and a final examination in addition to required daily homework assignments and, perhaps, an occasional very short paper. The midterm examinations will be given in evening outside normal class meetings to eliminate time pressure. Tentative dates for these tests are:

Monday, October 6
Monday, November 3
Wednesday, December 3

The College's Scheduling Officer has now set the times and dates of the Final Exam as

2 PM to 5PM on Thursday, December 11 for MATH 122C and MATH 122D

(Revised October 10)

Course Grades: Each of the three midterm exams will be worth approximately 20%, the final about 30%, team projects roughly 10%. I will make adjustments with later work counting more heavily if students show improvement over earlier results.

The mathematics department regards a C grade as an indication of satisfactory *understanding* of the course material, a B as good/very good understanding and an A as an excellent/superior grasp of the material. Typically, but not always, these tend to correlate with averages in the 70's, 80's and 90's, respectively. I do strive to issue course grades keeping in mind the hundreds of students I have had in calculus classes over the years.

Accommodations: Students who have *Letters of Accommodation* in this class are encouraged to contact me as early in the semester as possible to ensure that such accommodations are implemented in a timely fashion. For those without *Letters of Accommodation*, assistance is available to eligible students through the [Disability Resource Center](#). Please contact ADA Coordinators Jodi Litchfield or Peter Ploegman for more information: Peter Ploegman can be reached at pploegman@middlebury.edu or 802-443-2382 and Jodi Litchfield can be reached at litchfie@middlebury.edu or 802-443-5936. All discussions will remain confidential.

Homework: Mathematics is not a spectator sport! You must be a participant. The only effective way to learn mathematics is to do mathematics. In your case, this includes working out several hundred calculus problems.

There will be daily written homework assignments which you will be expected to complete and submit. They will be corrected and assigned a numerical score, but I view these assignments primarily as **learning** rather than testing experiences. I will occasionally assign some

challenging problems which everyone may not be able to solve. You should, however, make an honest attempt at every problem.

Each homework assignment will probably take you between 2 and 3 hours to complete; this includes the reading and problem solving. If you keep pace with the course by spending an hour or so each day on it, then you will be quite successful. If you wait until the end of the week and then try to spend one 6 hour block of time on the material, then experience shows you face disaster!

One of the essential characteristics of college life that distinguishes it from secondary school is the increased responsibility placed on *you* for your own education. **Most of what you will learn will not be told to you by a teacher inside a classroom.** Even if our model of you were an empty vessel waiting passively to be filled with information and wisdom, there wouldn't be time enough in our daily meetings to present and explain it all. We see you, more appropriately, as an *active* learner ready to confront aggressively the often times subtle and difficult ideas our courses contain. You will need to listen and to read carefully, to master concepts by wrestling with numerous examples and problems, and to ask thoughtful questions.

Grades: Grades in the course will be based primarily on the examinations, team projects and class participation; effort and success on the homework will be considered in border line situations

Help: Please see me **immediately** if you have any difficulties with this course. There are ample resources on campus for assistance. One regularly scheduled event are the "Drop In" tutoring sessions on Sunday, Tuesday, Wednesday and Thursday evenings from 7 to 9 PM in the Quantitative Center at Bi-Hall. These sessions should begin by this Thursday.

Academic Integrity: As an academic community devoted to the life of the mind, Middlebury requires of every student complete intellectual honesty in the preparation and submission of all academic work. Details of our Academic Honesty, Honor Code, and Related Disciplinary Policies are available in Middlebury's *Handbook*.

Honor Code: The four examinations are to be taken without any information of any kind about the exam or its questions from any source but me. (I will give you a clear idea about what to expect on each exam.) Exams will be closed book, closed notes, and taken **without calculators**. Any departure from these policies would be a violation of the Honor Code and thus would be subject to a judicial review.

Homework is a different story: Calculators are o.k. for checking work and for doing tedious calculations. You may make use of a free version of [Desmos](#), for example, for graphing and visualizing functions and their derivatives/integrals. I encourage you to discuss problems with other students. But when you do that you must give credit for another's contributions by naming the person on your solution. **Writing up** each problem solution must be done by you only. Failure to follow these requirements is a violation of the Honor system. The principle here is simple: consultation and collaboration are welcome, but you must explicitly acknowledge **any and all** intellectual content that isn't solely yours. This rule should apply in **all** of your work at Middlebury College.