

MA 241-005: Calculus II for Engineering
Spring 2021
MWF 12:50 - 1:40 PM EST

Instructor: Ella Pavlechko

Email: epavlec@ncsu.edu

Office Hours: MWF 3-4 PM over Zoom and by Appointment

Recitation Leaders: Alyssa Oswald and Tim Ablondi

Office Hours: TBD

Recitations: A (12:50-1:40 EST with Alyssa):

B (12:50-1:40 EST with Tim):

C (4:30-5:20 EST with Alyssa):

D (4:30-5:20 EST with Tim):

Moodle page/Course Webpage: <https://wolfware.ncsu.edu/>

Homework: <https://www.webassign.net/ncsu/>

Catalog Description:

Prerequisite of C- or better in MA 141 or placements via AP or IB exams. Mastery of algebra, trigonometry, and derivatives is essential for success in MA 241.

Second of three semesters in a calculus sequence for science and engineering majors. Techniques and applications of integration, elementary differential equations, sequences, series, power series, and Taylor's Theorem. Use of computational tools.

Grade Calculation:

Homework	15 %
Lecture Quizzes	3 %
3 Term Tests	60 %
Final Exam	22 %

If you have 4 or fewer unexcused absences during the semester (this includes lecture and recitation) and complete all Tests, your lowest Test grade will be replaced with your Final Exam grade (if your Final Exam grade is higher).

Grading Scale: The final grade will be assigned using the plus/minus grading system

A+: 98-100	A: 93-97.99	A-: 90-92.99
B+: 88-89.99	B: 83-87.99	B-: 80-82.99
C+: 78-79.99	C: 73-77.99	C-: 70-72.99
D+: 68-69.99	D: 63-67.99	D-: 60-62.99

This policy is *strict* - I will not be rounding grades for individual students.

WebAssign: Homework assignments will be completed through WebAssign. On the first day of classes you will be able to log in using your Unity ID and password (same as your email) and pay for access. You will have to purchase access (\$77.95) to use the WebAssign system, which you can do at the school's bookstore or online at the WebAssign page. You will be allowed to use WebAssign for the first two weeks of class without paying, but you will be denied access to assignments if payment is not made by Feb 2nd. You typically have 5 submissions for each question. Usually assignments will be due one week after the topic is covered in class, but I recommend working on the problems a little bit every day. You are welcome to work together on assignments, but copying someone else's answers is not allowed.

Homework Extensions: Students can request an extension on any assignment through WebAssign, which will make the assignment due 24 hours after the original Due Date. There is a 25% penalty on any work completed during the extension (you still get full credit for anything submitted before the due date).

Additionally, each student will get one “Penalty Removal” during the semester, where the 25% penalty is lifted from one extension. After you have requested an extension through WebAssign, complete the “WebAssign Penalty Removal” on Moodle to indicate you’d like the penalty to be removed on that assignment.

Textbook: Calculus II for Scientists and Engineers; by Franke, Griggs and Norris. The pdf of the textbook can be found in the “Resources” tab of Webassign. The homework in Webassign correlates to the exercises in this textbook.

Lectures: Online Lectures will be held over Zoom during our scheduled class time (MWF 12:50-1:40). I have provided an approximate pacing guide for the semester (below), which may be adjusted as needed.

Attendance will be recorded in lectures. Attending the Lecture and completing the corresponding Lecture Quiz will count your attendance as ‘present’ for that day. Any student who is not an active class participant the full class period (e.g., doing other work, socializing, sleeping, text messaging, leaving early) is recorded as an unexcused absence.

If you are unable to attend the live Lectures, they will be recorded and posted to the Moodle page. If you miss class or are late, you are responsible for all material covered and assignments due.

When you first join the meeting your Video will be turned off. While I’m presenting I ask you keep your Audio turned off. Occasionally I’ll send you guys into break-out rooms to collaborate on problems; there I ask you unmute your audio and video so you can work with your classmates. If you have a question during lecture you can un-mute yourself and ask, or use the chat feature.

Lecture Quizzes: Each day after Lecture there is a short Lecture Quiz due by 11:59PM related to the lecture video for that day. Attending the Lecture and completing the Lecture Quiz will mark your attendance as ‘present’ for the lecture that day. The quizzes can be found on the Moodle page.

There will be no extensions for Lecture Quizzes with unexcused absences.

Recitations: Online Recitations will be held every Tuesday and Thursday over Zoom. This will be our time to review previously covered content/examples and occasionally learn new material; so by coming to recitation I assume you have seen the lecture videos from the previous day.

Attendance will be recorded in recitations. To be marked ‘present’ for recitation you must enter that day’s attendance code into the Moodle attendance portal. You are expected to arrive on time to class to receive the attendance code. Any student who is not an active class participant the full class period (e.g., doing other work, socializing, sleeping, text messaging, leaving early) is recorded as an unexcused absence.

If you are unable to attend the recitation, they will be recorded and posted to the Moodle page. If you miss class or are late, you are responsible for all material covered and assignments due.

Term Tests: There are 4 scheduled tests during the semester (see schedule for dates). Until the DELTA proctoring services are open, or in-person Tests become a viable option, Tests will be held online using Moodle. The Tests will take place during class times on test day. There will be a Homework Assignment on the Moodle page to get you familiar with the format to view/submit the Tests online. If in-person services become available during the course, we will switch to that.

Final Exam: The Final Exam is mandatory and cumulative. The Exam will be 2.5 hours long on **Friday, May 7th from 12:00 - 2:30 PM**. The only way to take the final exam at another time is to request a change through the Department of Registration and Records, 1000 Harris Hall.

Make-up Test Policy: All anticipated absences must be excused in advance of the test date; the student must provide proper documentation, and a make-up test scheduled in advance of the absence. Excused emergency absences must provide documentation verified by the proper authorities in order to schedule a make-up Exam.

Excused anticipated absences include: University duties or trips (certified by an appropriate faculty or staff member), required court attendance (certified by the Clerk of Court), religious observances (certified by the Department of Student Development: 515-2441).

Excused absences include: illness (certified by an attending physician), or family emergencies (certified by the Department of Student Development: 515-2441). COVID-19-related absences will be considered excused; documentation need only involve communication with the Instructor.

Corrections to grading: If you feel that an error was made in the grading of a test, present and explain the error in an email to the Instructor/TA's within 1 week after the test is returned. Grade changes will not occur outside of this timeframe.

Academic Integrity: I assume that anything turned in with your name on it is your own work. Each time you submit a Test, Homework, or Quiz, you affirm the honor pledge. "I have neither received nor given unauthorized aid on this assignment." The minimum penalty for cheating is a grade of zero on the assignment; violators will be reported to the Academic Integrity Review Board, which can impose additional sanctions. The code of student conduct can be found at <http://studentconduct.dasa.ncsu.edu/code/>

Course Expectations Related to COVID-19:

- **Testing Positive:** If you test positive for COVID-19, or are told by a healthcare provider that you are presumed positive for the virus, you will need to follow university guidelines (<https://healthypack.dasa.ncsu.edu/coronavirus/>). COVID-19-related absences will be considered excused; documentation need only involve communication with the Instructor. However, you will be expected to develop a plan to keep up with your coursework during any such absences.
- **Technology Requirements:** This course may require particular technologies to complete coursework. If you need access to additional technological support, please contact the Libraries' Technology Lending Service: ([Technology Lending](#)).
- **Electronically Hosted Components:** Please be advised this course is being recorded for current and potential future educational purposes. By your continued participation in this recorded course, you are providing your permission to be recorded.

Academic Considerations related to COVID-19: If you need to make a request for an academic consideration related to COVID-19, such as a discussion about possible options for remote learning, please

talk with the Instructor for the appropriate process to make a COVID-19 request (a university-level form can be found [here](#)).

If the delivery mode has a negative impact on your academic performance in this course, the university has provided tools to potentially reduce the impact:

- Enhanced S/U Grading Option: [Enhanced Satisfactory/ Unsatisfactory Grading Option](#)
- Late Drop: [Enhanced Late Drop Option](#)

In some cases, another option may be to request an incomplete in the course. Before using any of these tools, discuss the options with your instructor and your academic advisor. Be aware that if you use the enhanced S/U, you will still need to complete the course and receive at least a C- to pass the course.

Disability Services: Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office: <https://dro.dasa.ncsu.edu/enrolled-students/>

Non-discrimination Policy: NC State prohibits discrimination, harassment, and retaliation that are based upon a person's race, color, religion, sex, national origin, age, disability, gender identity, sexual orientation, or veteran status. If you feel that you have been the subject of prohibited discrimination, harassment, or retaliation, you should contact the Office for Institutional Equity and Diversity (OIED) at 919-515-3148. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at <http://policies.ncsu.edu/policy/pol-04-25-05> or <http://oied.ncsu.edu/divweb>

Academic Resources

- Math Multimedia Center - no appointment needed - email mathtutoring@ncsu.edu to get help with math or to schedule a Zoom session.
- Math Tutors for Hire - <https://math.sciences.ncsu.edu/tutors-for-hire/>
- University Tutorial Center - <https://tutorial.dasa.ncsu.edu>
- Office Hours & Email

Health and Well-Being Resources

These are difficult times, and academic and personal stress are natural results. Everyone is encouraged to [take care of themselves](#) and their peers. If you need additional support, there are many resources on campus to help you:

- Counseling Center ([NCSU Counseling Center](#))
- Health Center ([Health Services | Student](#))
- If the personal behavior of a classmate concerns or worries you, either for the classmate's well-being or yours, we encourage you to report this behavior to the NC State CARES team: ([Share a Concern](#)).
- If you or someone you know are experiencing food, housing or financial insecurity, please see the Pack Essentials Program ([Pack Essentials](#)).
- NC State Protect the Pack Resources for Students: [Resources for Students | Protect the Pack](#)

Technology Resources

- Keep Learning: [Keep Learning](#)
- NC State Keep Learning, tips for students opting to take courses remotely: [Keep Learning Tips for Remote Learning](#)
- Introduction to Zoom for students: <https://youtu.be/5LbPzzPbYEW>
- Learning with Moodle, a student's guide to using Moodle: <https://moodle-projects.wolfware.ncsu.edu/course/view.php?id=226>
- NC State Libraries [Technology Lending Program](#)

Schedule: The following is the pacing guide for the course

Week	Day	Date	Lecture/Problem Session Number	Section(s) Covered
1	Mon	Jan 18	MLK Day	
	Tues	Jan 19	Lecture 1	Syllabus, 0.1, 0.2
	Wed	Jan 20	Lecture 2	0.3, 0.4, 0.5, 0.6
	Thurs	Jan 21	Problem Session 1	Calc 1 Review
	Fri	Jan 22	Lecture 3	1.1: Arclength
2	Mon	Jan 25	Lecture 4	1.2: Average value
	Tues	Jan 26	Problem Session 2	1.1, 1.2
	Wed	Jan 27	Lecture 5	1.3: Ropes & Springs
	Thurs	Jan 28	Problem Session 3	1.3
	Fri	Jan 29	Lecture 6	1.3: Emptying a Tank
3	Mon	Feb 1	Lecture 7	1.3: Emptying a Tank
	Tues	Feb 2	Problem Session 4	1.3
	Wed	Feb 3	Lecture 8	1.3: Hydrostatic Force
	Thurs	Feb 4	Problem Session 5	1.3
	Fri	Feb 5	Lecture 9	1.3: Center of Mass
4	Mon	Feb 8	Test #1	Chapter 0 & 1
	Tues	Feb 9	Wellness Day	
	Wed	Feb 10	Lecture 10	2.1: Trig. Integrals
	Thurs	Feb 11	Problem Session 6	2.1
	Fri	Feb 12	Lecture 11	2.1: Trig Integrals
5	Mon	Feb 15	Lecture 12	2.2: Trig. Substitution
	Tues	Feb 16	Problem Session 7	2.2
	Wed	Feb 17	Lecture 13	2.3: Partial Fractions
	Thurs	Feb 18	Problem Session 8	2.3
	Fri	Feb 19	Lecture 14	2.4: Integral Tables

6	Mon	Feb 22	Lecture 15	2.5: Numerical Integration
	Tues	Feb 23	Problem Session 9	2.5
	Wed	Feb 24	Lecture 16	2.6: Improper Integrals
	Thurs	Feb 25	Problem Session 10	2.6
	Fri	Feb 26	Lecture 17	2.6: Improper Integrals
7	Mon	Mar 1	Test #2	Chapter 2
	Tues	Mar 2	No recitation	
	Wed	Mar 3	Lecture 18	3.1: Intro to Diff. Eq.
	Thurs	Mar 4	Problem Session 11	3.1
	Fri	Mar 5	Wellness Day	
8	Mon	Mar 8	Lecture 19	3.1: Euler's Method 3.2: Separable Equations
	Tues	Mar 9	Problem Session 12	3.1, 3.2
	Wed	Mar 10	Lecture 20	3.2: Orthogonal Trajectories 3.3: Exponential Growth, Newton's Law
	Thurs	Mar 11	Problem Session 13	3.2, 3.3
	Fri	Mar 12	Lecture 21	3.3: Logistic Growth, Mixing Problems
9	Mon	Mar 15	Lecture 22	3.4: 2nd Order Linear Diff. Eq.
	Tues	Mar 16	Problem Session 14	3.3, 3.4
	Wed	Mar 17	Lecture 23	3.5: Undetermined Coefficients
	Thurs	Mar 18	Problem Session 15	3.5
	Fri	Mar 19	Lecture 24	3.5: Superposition Principle
10	Mon	Mar 22	Lecture 25	3.6: Springs & Circuits
	Tues	Mar 23	Problem Session 16	3.6
	Wed	Mar 24	Wellness Day	
	Thurs	Mar 25	Problem Session 17	Review ?
	Fri	Mar 26	Lecture 26	Review

11	Mon	Mar 29	Test #3	Chapter 3
	Tues	Mar 30	No Recitation	
	Wed	Mar 31	Lecture 27	4.1: Sequences
	Thurs	Apr 1	Problem Session 18	4.1
	Fri	Apr 2	Lecture 28	4.2: Series
12	Mon	Apr 5	Lecture 29	4.2: Series
	Tues	Apr 6	Problem Session 19	4.2
	Wed	Apr 7	Lecture 30	4.3: Direct/Limit Comparison
	Thurs	Apr 8	Problem Session 20	4.3
	Fri	Apr 9	Lecture 31	4.4: Alternating Series
13	Mon	Apr 12	Lecture 32	4.5: Ratio Test
	Tues	Apr 13	Problem Session 21	4.4, 4.5
	Wed	Apr 14	Lecture 33	4.6: Power Series
	Thurs	Apr 15	Wellness Day	
	Fri	Apr 16	Lecture 34	4.7: Power Series Representations
14	Mon	Apr 19	Lecture 35	Review
	Tues	Apr 20	Problem Session 22	Review
	Wed	Apr 21	Test #4	Chapter 4
	Thurs	Apr 22	No Recitation	
	Fri	Apr 23	Lecture 36	4.8: Taylor & Maclaurin Series
15	Mon	Apr 26	Lecture 37	4.8: Maclaurin & Binomial Series
	Tues	Apr 27	Problem Session 23	4.8
	Wed	Apr 28	Lecture 38	4.9: Taylor Polynomials
	Thurs	Apr 29	Problem Session 24	4.9
	Fri	Apr 30	Lecture 39	Review
	Friday	May 7	FINAL EXAM	12:00 - 2:30 PM EST