

MA 242 (050): Calculus III

Spring 2021

Lecture: MWF 9:35-10:25am SAS 2203 or attend via [video](#)

Recitation: TH 10:40-11:30am over Zoom

Instructor: Leslie Kurtz (lakurtz@ncsu.edu)

Office: SAS Hall, Room 3240

Virtual Office Hours: MWF 10:40am-11:40am over Zoom or by appointment

Recitation Leader:

Emily McGovern (ecmcgove@ncsu.edu) Virtual Office Hours: TH 2-3pm over Zoom

Class Web Page: <https://kurtz.wordpress.ncsu.edu> This is the place to find old tests, helpful worksheets, and complete test solutions

Moodle Page: <https://wolfware.ncsu.edu/courses/my-wolfware/> This is the place to check your attendance, access Zoom links, get class notes & videos, and homework hints.

Prerequisites: MA 241 with a grade of C- or better

Content: 4 credit hours. This is the third of three semesters in a calculus sequence for science and engineering majors. Vectors, vector algebra, vector functions, functions of several variables, partial derivatives, gradients, directional derivatives, maxima and minima, multiple integration, line and surface integrals, Green's Theorem, Divergence Theorem, Stokes' Theorem, and numerous applications will be covered.

Textbook: Calculus III for Engineers and Scientists (Franke, Griggs, Norris). This ebook is accessible via WebAssign. The combined cost for the book and the webassign homework is about \$78

Grade Calculation:

WebAssign/Quizzes	10%
Projects	5%
Tests	55%
Final Exam	30%

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

WebAssign: Homework assignments will be completed through WebAssign. See <http://webassign.ncsu.edu> for homework questions and due dates. You must log in using your unity ID and password (same as your email). You will have to purchase an access card to use the WebAssign system, which you can do at the school's bookstore or online at the WebAssign page.

Tests: There are 4 scheduled tests during the semester. Calculators of any kind are not permitted on tests or the final exam. Both the tests and the final exam will be proctored over Zoom. You will be allowed a single (double sided) piece of paper with notes, formulas, examples, etc.

Test 1: Feb 12
Test 2: Mar 10
Test 3: Apr 2
Test 4: Apr 21

Please note: After the tests are returned, you have 3 days to look them over and compare them to the solutions online. If you believe there is an error in the grading of your test, you need to notify me within these 3 days. Grade changes will not occur outside of this timeframe.

Final: The final will be given on Friday May 7 from 8:30-11am over Zoom

Make-Up Test Policy: All anticipated absences must be excused **in advance of the test date** and a make-up test scheduled if possible in advance of the absence. These include University duties or trips (certified by an appropriate faculty or staff member), required court attendance (certified by the Clerk of Court), or religious observances (certified by the Department of Student Development: 515-2441). Emergency absences must be reported within one week of returning to class and must be appropriately documented (illness by an attending physician or family emergencies by Student Development). No other make-ups will be given. It is not wise to miss a test.

Attendance: Attendance will be recorded daily in both class and recitation. You can attend our MWF lecture either in-person or virtually. Our TH recitations will be over Zoom.

If you miss no more than 4 days AND attend every test, I will replace your lowest test grade with your final exam grade (assuming it is higher).

If you miss class or are late, you are still responsible for all material covered and assignments due.

Additional online lectures are also available for free. You can find them in webassign under resources.

Academic Integrity: I assume that anything turned in with your name on it is your own work. Each time you submit a test, WebAssign, or quiz, you affirm the honor pledge, "I have neither received unauthorized aid nor given 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 <https://studentconduct.dasa.ncsu.edu/code/>

Nondiscrimination 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>.

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

COVID ADDENDUM:

Course Delivery Changes Related to COVID-19: Please be aware that the situation regarding COVID-19 is frequently changing, and the delivery mode of this course may need to change accordingly, including possibly moving from synchronous in-person recitations to an asynchronous online format. Regardless of the delivery method, we will all strive to provide a high-quality learning experience.

Due to the Coronavirus pandemic, public health measures have been implemented across campus. Students should stay current with these practices and expectations through the [Protect the Pack](https://www.ncsu.edu/coronavirus/) website (<https://www.ncsu.edu/coronavirus/>). The sections below provide expectations and conduct related to COVID-19 issues.

Health and Participation in Class

We are most concerned about your health and the health of your classmates and instructors/TAs.

- If you test positive for COVID-19, or are told by a healthcare provider that you are presumed positive for the virus, please work with your instructor on health accommodations and follow other university guidelines, including self-reporting ([Coronavirus Self Reporting](#)): Self-reporting is not only to help provide support to you, but also to assist in contact tracing for containing the spread of the virus.
- If you feel unwell, even if you have not been knowingly exposed to COVID-19, please do not come to class.
- If you are in quarantine, have been notified that you may have been exposed to COVID-19, or have a personal or family situation related to COVID-19 that prevents you from attending this course in person (or synchronously), please connect with your instructor to discuss the situation and make alternative plans, as necessary.
- 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 your instructor for the appropriate process to make a COVID-19 request (a university-level form can be found [here](#)).

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](#)).

Community Standards related to COVID-19

We are all responsible for protecting ourselves and our community. Please see the [community standards](#) (released on 7/28/2020) and Rule 04.21.01 regarding Personal Safety Requirements Related to COVID-19 [RUL 04.21.01 – Personal Safety Requirements Related to COVID-19 – Policies, Regulations & Rules](#).

Course Expectations Related to COVID-19:

- **Face Coverings:** All members of the NC State academic community are required to follow all university guidelines for personal safety with face coverings, physical distancing, and sanitation. Face coverings are required in class and in all NC State buildings. Face coverings should be worn to cover the nose and mouth and be close fitting to the face with minimal gaps on the sides. In addition, students are responsible for keeping their course/work area clean. Please follow the cleaning guidelines described by the university.

- **Course Attendance:** NC State attendance policies can be found at: [REG 02.20.03 – Attendance Regulations – Policies, Regulations & Rules](#) . Please refer to the course’s attendance, absence, and deadline policies for additional details. If you are quarantined or otherwise need to miss class because you have been advised that you may have been exposed to COVID-19, you should not be penalized regarding attendance or class participation. However, you will be expected to develop a plan to keep up with your coursework during any such absences. If you become ill with COVID-19, you should follow the steps outlined in the health and participation section above. COVID 19-related absences will be considered excused; documentation need only involve communication with your instructor.

- **Classroom Seating:** To support efficient, effective contact tracing, please sit in the same seat when possible and take note of who is sitting around you; instructors may also assign seats for this purpose.

- **Technology Requirements:** This course may require particular technologies to complete coursework. Be sure to review the syllabus for these expectations, and see the [syllabus technology requirements](#) for your course. 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.

Grading/Scheduling Changing Options Related to COVID-19

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.

Tentative Class Schedule

Dates	Section & Topics
Jan. 19–22	1.1 3D Coordinate System 1.2 Vectors 1.3 Dot Product
Jan. 25–29	1.3 Dot Product cont. 1.4 Cross Product 1.5 Lines & Planes
Feb. 1–5	2.1 The Calculus of Vector Functions 2.2 Parametrized Curves in Space 2.3 Tangent Vectors, Arc Length, and Curvature
Feb. 8–12	2.4 Intrinsic Properties of Curves in 3D Space Tuesday Feb 9 Wellness Day (no class) 3.1 Multivariable Functions Test 1 Review & Homework Session Friday Feb 12 Test 1 (over Zoom)
Feb. 15–19	3.2 Limits & Continuity 3.3 Directional Derivatives: Partial Derivatives 3.3 Geometrical Interpretation of Partial Derivatives 3.3 Tangent Plane 3.4 Differentiability of multivariable functions
Feb. 22–26	3.5 Directional Derivative & the Gradient Vector 3.5 Chain Rule 3.6 Optimization
Mar. 1–5	3.6 Optimization 3.7 Constrained Optimization 4.1 Double Integrals Friday March 5 Wellness Day (no class)
Mar. 8–12	4.1 Double Integrals cont. Test 2 Review & Homework Session Wednesday March 10 Test 2 (over Zoom) 4.2 Applications of Double Integrals
Mar. 15–19	4.3 Triple Integrals 5.1 Polar Coordinates
Mar. 22–26	5.2 Cylindrical Coordinates 5.3 Spherical Coordinates Wednesday Mar 24 Wellness Day (no class) 5.3 Spherical Coordinates cont.

Mar. 29–Apr. 2	6.1 Vector Fields 6.2 Line Integrals 6.3 Line Integrals of Vector Fields Test 3 Review & Homework Session Friday Apr 2 Test 3 (over Zoom)
Apr. 5–9	7.2 Curl & Divergence 6.3 Conservative Vector Fields 6.4 Parametric Surfaces
Apr. 12–16	6.5 Surface Integrals 6.5 Mass of a Surface 6.5 Flux
Apr. 19–23	6.5 Flux Test 4 Review & Homework Session Wednesday Apr 21 Test 4 (over Zoom) 7.3 Green's Theorem
Apr. 26–30	7.4 Stokes' Theorem 7.5 Divergence Theorem Review for Final
Friday, May 7	Final Exam, 8:30-11am (over Zoom)