MA 242 (002): Calculus III
Fall 2024

Section 002, MWF 9:35-10:25am, Broughton 2211

Instructor: Leslie Kurtz (lakurtz@ncsu.edu)
Office: SAS Hall, Room 3240
Office Hours: Mon 1:45-2:35pm
Wed 11:40am-12:40pm
Fri. 11:40am-12:40pm
Recitation Leader: Diego Cornejo (djcornej@ncsu.edu)

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, get class notes, and homework hints. This is also where to go to find Zoom links for office hours and class recordings.

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	15%
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: Graded homework is assigned via WebAssign: https://www.webassign.net

You will need our class key to self-enroll. Any webassign enrollment questions should be answered in this FAQ: https://docs.google.com/document/d/1J0bSkhmH-odVskB1XbkhudT7SjK0C0O5kDMcJJzWEbg/edit?usp=sharing

Tests: There are 4 scheduled tests during the semester. Calculators of any kind are not permitted on tests or the final exam. **Each student is required to turn in 5 blue "Examination" booklets prior to the first test (students taking their tests with the DRO don't need to do this). Students who fail to do so will lose 5 points on Test 1. After Test 1, students who have not brought blue books will continue to lose 5 points on each test/exam until they bring them in. **Do not write anything on the books**. Blue books can be purchased at the bookstore.**

Test 1: Sept 12
Test 2: Oct 10
Test 3: Oct 31
Test 4: Nov 14

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 Wednesday December 11 from 8:30-11am, Broughton 2211

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 are expected to arrive on time to class. Any student who is not an active class participant the full class period (e.g., doing other work in class, socializing, sleeping, text messaging, leaving early) is recorded as absent. 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/

Health and Participation in Class

- 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 (https://healthypack.dasa.ncsu.edu/services-provided/covid-19/)
- 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.

Health and Well-Being Resources:

These are difficult times, and academic and personal stress are natural results. If you need additional support, there are many resources on campus to help you:

- **Counseling Center**: https://counseling.dasa.ncsu.edu
- **Health Center**: https://healthypack.dasa.ncsu.edu
- 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: https://cm.maxient.com/reportingform.php?NCStateUniv&layout_id=2
- If you or someone you know are experiencing food, housing or financial insecurity, please see the **Pack Essentials Program**: https://dasa.ncsu.edu/support-and-advocacy/pack-essentials/

Tentative Class Schedule

Dates	Section & Topics
Aug 19-23	1.1 3D Coordinate System 1.2 Vectors 1.3 Dot Product
Aug 26-30	1.4 Cross Product 1.5 Lines & Planes
Sept 2 Sept 3-6	**Labor Day (No class)** 2.1 The Calculus of Vector Functions 2.2 Parametrized Curves in Space 2.3 Tangent Vectors, Arc Length, and Curvature
Sept 9-13	3.1 Multivariable Functions 3.2 Limits (time-permitting) **Thursday Sept 12: Test 1 (held during recitation)** 3.3 Directional Derivatives: Partial Derivatives

Sept 16 **Sept 17** Sept 18-20	3.3 Geometrical Interpretation of Partial Derivatives **Wellness Day (No class)** 3.3 Tangent Plane 3.4 Differentiability of multivariable functions
Sept 23-27	3.5 Directional Derivative & the Gradient Vector 3.5 Chain Rule 3.6 Optimization
Sept 30-Oct 4	3.6 Optimization 3.7 Constrained Optimization (time permitting) 4.1 Double Integrals
Oct 7-11	4.1 Double Integrals 4.2 Applications of Double Integrals **Thursday Oct 10: Test 2 (held during recitation)** 4.2 Cont.
Oct 14-15 Oct 16-18	**Fall Break (No class)** 4.3 Triple Integrals 5.1 Polar Coordinates
Oct 21-25	5.2 Cylindrical Coordinates 5.3 Spherical Coordinates 6.1 Vector Fields
Oct 28-Nov 1	6.2 Line Integrals 6.3 Line Integrals of Vector Fields **Thursday Oct 31: Test 3 (held during recitation)** 6.3 Conservative Vector Fields
Nov 4-8	7.3 Green's Theorem 6.4 Parametric Surfaces 6.5 Surface Area
Nov 11-15	6.5 Surface Integrals 6.5 Flux **Thursday Nov 14: Test 4 (held during recitation)** 6.5 Cont
Nov 18-22	7.2 Curl & Divergence 7.4 Stokes' Theorem

Nov 25-26 **Nov 27-29**	7.5 Divergence Theorem **Thanksgiving Break (No class)**
Dec 2-3 **Dec 11**	Review for the Final **Wednesday Dec 11: Final Exam 8:30-11am, Broughton 2211**