

# Vector Calculus – Spring 2021

**Course:** Math 3740 Section 001

**Place:** Zoom

**Time:** MWF 12:00PM - 12:50PM

**Instructor:** Giordano Tierra Chica

**Email:** [gtierra@unt.edu](mailto:gtierra@unt.edu)

**Office Hours Location:** Zoom. You can send me an email during office hours or in advance to set an appointment.

**Office Hours:** Monday 1:00PM - 2:00PM, Wednesday 1:00PM - 2:30PM, Friday 1:00PM - 2:00PM.

**Prerequisites:** Math 2700 and Math 2730.

**Textbook:** Vector Calculus by Jerrold Marsden and Anthony Tromba, W. H. Freeman, 6th edition.

**Course Goals:** Theory of vector-valued functions on Euclidean space. Derivative as best linear-transformation approximation to a function. Divergence, gradient, curl. Vector fields, path integrals, surface integrals. Constrained extrema and Lagrange multipliers. Implicit function theorem. Jacobian matrices. Green's, Stokes', and Gauss' (divergence) theorems in Euclidean space. Differential forms and an introduction to differential geometry.

**Topics Covered:** We will discuss material related to the following topics as time permits:

The Geometry of Euclidean Space, Differentiation, Higher-Order Derivatives: Maxima and Minima, Vector-Valued Functions, Double and Triple Integrals, The Change of Variables Formula and Applications of Integration, Integrals Over Paths and Surfaces, The Integral Theorems of Vector Analysis.

**Exam Dates:** Exam I (in person): Friday 12<sup>th</sup> February from 12:00PM to 12:50PM in SAGE 116.

Exam II (in person): Friday 12<sup>th</sup> March from 12:00PM to 12:50PM in SAGE 116.

Exam III (in person): Friday 9<sup>th</sup> April from 12:00PM to 12:50PM in SAGE 116.

Final Exam (in person): Wednesday 28<sup>th</sup> April from 10:30AM to 12:30PM in ENV 160.

**Course Grading:** Homework/Quizzes - 30%, Exam I- 15%, Exam II- 15%, Exam III- 15%, Final Exam - 25%.

**Letter Grades:** A = [100,90], B = (90,80], C = (80,70], D = (70,60], F = (60, 0].

**Homework:** "Naked numbers are not acceptable." Solutions must include a short write-up describing the problem, your solution technique, and procedural details. All things must be clearly labeled with your name and the problem number or statement. Hand written work must include the steps for solution presented in a neat orderly fashion and in a fairly large size.

**Minimum Technology Requirements:** Reliable Internet access, speakers, microphone and a computer that satisfy the Canvas and Zoom technical requirements.

**Computer Skills & Digital Literacy:** Using Canvas, Zoom and scanning documents (this can be done using a smartphone)

**Technical Assistance:** Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: UIT Student Help Desk site (<http://www.unt.edu/helpdesk/index.htm>)

Email: [helpdesk@unt.edu](mailto:helpdesk@unt.edu)

Phone: 940-565-2324

In Person: Sage Hall, Room 130

Walk-In Availability: 8am-9pm

Telephone Availability: Sunday: noon-midnight, Monday-Thursday: 8am-midnight, Friday: 8am-8pm, Saturday: 9am-5pm

Laptop Checkout: 8am-7pm

For additional support, visit Canvas Technical Help (<https://community.canvaslms.com/docs/DOC-10554-4212710328>)

**Attendance Policy:** Attendance is strongly recommended but not required, except for the in person exams. Students will need the lecture notes in order to prepare for the exams. The textbook by itself is not a suitable resource for exam preparation, since the lecture notes are not exactly the same as the material in the textbook, and the textbook contains much more material than is needed for exam preparation. Important information and announcements are oftentimes made during class time, and students are responsible for that information. Students who miss class have the responsibility to check the recordings and learn about any class announcements.

**Policies:** Late work is unacceptable. No make-ups.

**COVID-19 Impact on Attendance and Performance:** While attendance and performance is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact me if you are unable to attend class or meet course deadlines because you are ill or due to a related issue regarding COVID-19. It is important that you communicate with me prior to skip deadlines so I may make a decision about accommodating your request to get extensions on the deadlines and/or preparing make-ups.

If you are experiencing any symptoms of COVID-19 (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html> ) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance and meeting deadlines is important part of succeeding in this class, your own health, and those of others in the community, is **MUCH** more important.

**Canvas:** The important information and announcements made during class time will be also posted in Canvas. Please go there regularly to see important announcements.

**Extra credit:** Do not expect to be able to do some extra work to help your grade either before or after the final exam. Your best bet to help your grade is to do the required work at the time it is assigned.

**Disabilities:** The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda> . You may also contact them by phone at 940.565.4323.

**Cheating:** No cheating will be tolerated. Anyone caught cheating will be subject to any penalty the instructor deems appropriate, up to and including an automatic F for the course. Furthermore, a letter will be sent to the appropriate dean.

**Class Recordings:** Synchronous (live) sessions in this course will be recorded for students enrolled in this class section to refer to throughout the semester. Class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.