

# MATH 271, Multivariable Calculus

## Syllabus, Fall 2025

### Course Information.

- 4 semester hours
- Professor: Thomas Scofield
- Text: *Calculus Volume 3* (openstax), Version 2016, by Herman, Strang, et al.

### Catalog Description.

Partial derivatives, multiple integrals and vector calculus.

**Student Learning Outcomes.** Upon completion of this course, students will be able to

- Differentiate/integrate in two and three variables.
- Find maxima/minima of functions of multiple variables and solve optimization problems.
- Demonstrate an understanding of vector fields and line integrals, in particular by utilizing the Fundamental Theorem for Line Integrals.
- Relate line integrals to area integrals via Green's Theorem.
- Relate surface integrals to volume integrals via Stokes' Theorem and the Divergence Theorem.

### Topics include

1. Partial differentiation
2. Finding maxima/minima, optimization
3. Gradient of functions
4. Directional derivatives
5. Integration in 3 dimensions
6. Integration using cylindrical and spherical coordinates
7. Vector fields
8. Line integrals in 2 and 3 dimensions
9. Surface integrals
10. Green's Theorem
11. Stokes' Theorem
12. Divergence Theorem

Methods of Evaluation.	<u>Assessment</u>	<u>Pct</u>
	Homework assignments	10%
	Quizzes	11%
	Midterm tests (Oct. 1, Nov. 5, and Dec. 5)	54%
	Final (Dec. 15, at 9 am)	25%

**Policies.**

- You are expected to attend class faithfully, in person. When you cannot, regardless of reason, you are responsible for catching yourself up.
- Before class begins, visit the restroom, and prepare yourself for a prompt beginning. This includes parking your electronic devices.
- If written work is assigned, you are to submit only work which is done by you. You **may** collaborate with other students, but after you have hashed out ideas, those must be written up in isolation using your words. **You are not to use AI tools to produce (any) evaluated work attributed to you.** Violations of this policy shall result in a score of zero. Repeated instances shall result in a course grade of "F".
- Course administration (communication, assignments, scores, etc.) is conducted in MyOpenMath. The calendar is something you should check regularly for assignments, daily readings and learning objectives, and anything else deemed useful.
- Homework is submitted in MyOpenMath and, most often, auto-checked and scored right away. Each assignment has its own deadline, and it is up to you to stay on top of the schedule. If you should miss a deadline, you have a bank of 12 late passes that, when used, extend a deadline (usually) 72 hours. **You may not use more than one late pass per assignment.** Be a good steward of your late passes as, almost certainly, there will be times when circumstances beyond your control are the cause of lateness.
- All in-class evaluations in the course are calculator-free.
- You are expected to take exams on the dates specified, or provide sufficient cause why you cannot. Family trips, pre-arranged flights, etc. are *not* sufficient cause.

**Accommodations.** Calvin University is committed to providing reasonable accommodations for students with documented disabilities. Students with disabilities requiring special assistance to facilitate participation in this class are urged to contact Disability Services in the Center for Student Success ([disabilityservices@calvin.edu](mailto:disabilityservices@calvin.edu)) as soon as possible to explore arrangements.

**Exceptions.** I reserve the right to make changes or exceptions to course policies, including those described in this document, either for the entire class or for individuals. The ultimate goal in this course is **learning**, and formal requirements should not unnecessarily stand in the way of that. Thus, if you think that any of the conditions of the course are interfering with learning, please speak with me about this, and we will consider what can be done.