

Math 254: Calculus IV

Winter 2023 – Section 001

Course number: 68075

Credit hours: 4

Instructor: Tuan Pham, email: tnpham@eou.edu

Office: Loso Hall 225, telephone: 541-962-3465

Office hours: M,T,Th,F 11:45-12:45 PM and 2-3 PM or by appointment

Time and place: M,T,Th,F 1:00 - 1:50 PM at Badgley 146.

Canvas: <https://eou.instructure.com/courses/37822>

Textbook: “*Essential Calculus*”, 2nd Edition by James Stewart.

Prerequisite: Math 253 with a grade of C- or better.

Catalog description: Multivariable Calculus including equations of lines and planes, cylinders and quadric surfaces, vector functions, Calculus of vector functions, functions of several variables, partial derivatives, the gradient vector, maximum and minimum values, iterated integrals, multiple integrals, cylindrical and spherical coordinates, triple integrals in cylindrical and spherical coordinates.

Learning Outcomes: Upon successful completion of this class, a student should be able to:

- Find the domain of multivariate functions;
- Find limits and determine continuity of multivariate functions;
- Compute various partial derivatives of multivariate functions;
- Find tangent planes to surfaces;
- Compute directional derivatives and the gradient vector;
- Determine maximum and minimum values of multivariate functions;
- Compute various multiple integrals over various regions and in various coordinate systems;
- Compute line integrals, using Greens Theorem when appropriate;
- Find the curl and divergence of multivariate functions;
- Compute surface integrals;
- Use Stokes Theorem and the Divergence Theorem appropriately.

Grading components:

Homework: 25%

Attendance: 15%

Quizzes: 10%

Mathematica labs: 10% (extra credit)

Midterm: 25%

Final exam: 25%

Means of assessment:

- **Homework:** there will be 8 homework sets to be turned in on paper in class every Tuesday. A schedule of homework assignments was posted on the course website and Canvas.

Students are encouraged to work together, but must individually write in his/her own words and reflect his/her own understanding. Only a few selected problems will be graded in detail. The rest will be given credit on the basis of completion.

- **Attendance:** the instructor will check attendance every day of class, except for the first week. Students who show up receive 1 point. Students who do not show up receive 0 point. The lowest 2 scores will be dropped.
- **Quizzes:** quizzes will be given in class at random times on random days. They are to test students' understanding of recent topics.
- **Mathematica labs:** it is not always feasible to sketch 3D graphs by hand. A mathematical software can be very useful in visualizing 3D objects and computing tricky integrals (exactly or approximately). An optional component of this course are the lab assignments using a mathematical software called Mathematica for computation and visualization purposes. No programming experience is required. There will be 5 lab assignments to be submitted on Canvas as pdf or word documents. These lab assignments are for extra credit.
- **Midterm Exam:** there will be one midterm exam taken at the Testing Center (Zabel Hall 112) from **February 13-15, 2023**. A 4" x 6" handwritten double-sided note card is allowed. A scientific calculator is allowed. Graphing/programmable/transmittable calculators are not allowed.
- **Final exam:** this exam will only cover the material after the midterm exam. Thus, it is not a cumulative exam. It will be held at the regular classroom (Badgley 146) **from 1 PM to 3 PM on Thursday, March 23, 2023**. A 4" x 6" handwritten double-sided note card is allowed. A scientific calculator is allowed. Graphing/ programmable/transmittable calculators are not allowed.

Make-up work: make-up exams will be given only in exceptional circumstances, with appropriate documentation, such as illness or family emergency. If possible, notify the professor as soon as you are aware of the issue. Late assignments may be accepted within one week after the due date under similar conditions.

Grade lines: the course grade lines will not be harder than the standard grade lines: A 100-93%, A- 92.99-90%, B+ 89.99-87%, B 86.99-83%, B- 82.99-80%, C+ 79.99 - 77%, C 76.99-73%, C- 72.99-70%, D+ 69.99-67%, D 66.99-63%, D- 62.99 - 60% and F < 60%.

Other Learning Resources:

- The instructor has office hours dedicated to help you. Don't hesitate to make an appointment if the office hours conflict with your schedule.
- Your fellow classmates are also a good resource. Form a study group and you will find it helpful.
- You can find peer tutors at the Math Lab in Loso Hall 232. They have drop-in hours (no appointment necessary) which vary from term to term. You can find the latest information here: <https://www.eou.edu/lcenter/math-lab-schedule/>
- The Learning Center at Loso Hall 234 (next to the Math Lab) and the Library are great study places for you and your group.

Academic Misconduct Policy:

Eastern Oregon University places a high value upon the integrity of its student scholars. Any student found responsible for an act of academic misconduct (including but not limited to

cheating, unauthorized collaboration, fabrication, facilitation, plagiarism or tampering) may be subject to having his or her grade reduced in the course in question, being placed on probation or suspended from the University, or a combination of these.

Students with Disabilities policy:

Any student who feels he or she may need an accommodation for any type of disability must contact the Disability Services Office in Loso Hall, Room 234. Phone 541-962-3081.