This is the final part in a sequence designed to introduce you to the beauty and power of calculus and prepare you for more advanced work in math, science, or engineering.

# **COURSE INFORMATION**

- Instructor: Dr Margaret Doig, 402-280-3844 or margaretdoig@creighton.edu
- Class meetings:
- Office Hours: after class or by appointment, on zoom (same link as the class)

# COARSE CONTENT AND GOALS

We will roughly follow Ch. 12-16 in Whitman College's *Single and Multivariable Calculus: Early Transcendentals* available for free <u>online</u> or for a small fee on <u>paper</u>. I will supplement the text with some extra material and problems to cover a few gaps. Our goals include:

- Describe and manipulate 3-D objects (vectors, curves, and surfaces), multivariable functions, and vector fields.
- Extend the concepts of differentiation and integration to multivariable functions and vector fields. Develop multivariable versions of the techniques of Calculus I and II.
- Expand critical thinking and problem-solving skills to apply the given techniques to unfamiliar problems, including applications in physics and engineering.
- Evolve a sophisticated understanding of differentiation and integration and why the given techniques work.

# FORMAT

For the average topic, you will have a short assignment to prepare in advance (and a short quiz to check it). I will lecture briefly in class and lead you through a set of problems to explore the topic and our motivations for studying it, with the goal that you develop much of the material yourself from scratch. For homework, you will have some drill-style problems on Derivita and some written problems to help you engage fully with the material. Finally, we will cement your understanding and evaluate it with weekly quizzes and three exams, plus a cumulative final.

# **EVALUATION AND GRADING**

Attendance is required. Late work may not be accepted. Grades will be assigned 40% for homework, 30% for quizzes, and 30% for exams. The cut-offs for grades will be A: 93, A-: 90, B+: 87, B: 83, B-: 80, C+: 77, C: 73, C-: 70, D: 60.

# POLICIES

We will follow all university and college policies. Please read the attached Syllabus Supplement.