WARNING: This course is difficult. You should to be prepared to read the textbook, review notes regularly, come to office hours when necessary, and do lots of homework.

Professor: David McClendon (2046 ASC, phone x2574 (231-591-2574 off campus), hours MTWR 10-11 or by appointment, email: `mcclend2@ferris.edu`)

Class meeting times and locations: MTWR 8:00-8:50. Some days we meet in STR 120; others we meet in STR 105. See the attached calendar for the locations of class meetings.

Web: I maintain a personal web page at `http://mcclendonmath.com/320.html`; this page contains handouts, old exams, and some notes.

Required materials: You need two items for this course:

1. The textbook *Vector Calculus* (4^{th} edition) by Susan Jane Colley, ISBN 978-0-321-78065-2.
2. The software package *Mathematica*; a link to where you can download this software (for free) is on my web page.

Recommended materials: I recommend also that you also have:

1. A three-ring binder, in which to keep handouts.
2. Colored pens or pencils, for better note-taking.

Prerequisite: Math 230 with a grade of C- or better, or the equivalent. This means knowledge of limits, derivatives and integrals for functions of the form $y = f(x)$.

Course material: Multivariable calculus. This means functions of several variables, limits, partial and total derivatives, multiple integrals and vector fields, with applications.

Learning outcomes: After completing Math 320, it is my hope and expectation that students will be able to:

1. Solve problems involving conic sections, quadric surfaces, parametric equations and coordinate systems.
2. Compute and interpret quantities involving vectors, vector-valued functions and vector geometry.
3. Compute limits of vector-valued functions and functions of several variables; determine whether such functions are continuous.
4. Compute quantities related to differentiation of functions of several variables and vector-valued functions.
5. Compute double, triple, and line integrals, and solve problems applying such integrals.

Grading policy: Homework: 20%. Three midterm exams: 18.3333% each. Final exam: 25%. Grades will be curved at the end of the semester, but an average of 90% guarantees you at least an A-, an average of 80% guarantees you at least a B-, etc.

Attendance policy: I have no formal attendance policy. That said, **nothing** is more correlated with strong performance in my classes than attendance in lectures.

Homework: There will be regular homework assignments, due on the dates listed on the attached list of assignments. Most homework problems come from the textbook, but some will be assignments that I write which make heavy use of *Mathematica*. I reserve the right to add/subtract problems from the homework assignments and alter due dates as necessary.

You can turn in homework in class, during office hours or by putting it in the slot next to my office door marked "INBOX". Homework received by the time I go home on the due date will receive full credit. I will accept two late assignments from each student, but on the first late assignment, I will deduct 25% of your score, and on the second, I will deduct 50% of your score. Further late homework will not be accepted.

I will grade a subset of problems from each assignment for correctness. Not all problems count the same, and not all assignments count the same.

Midterms: There are three midterms given in class on **Thursday, February 8**, **Monday, March 19** and **Monday, April 23**. You will not be permitted to use any study aids, calculators or computers on the exams; exam questions use numbers and expressions that a Math 320 student should reasonably be able to manipulate by hand. The midterms are not directly cumulative, but mathematics is "inherently cumulative".

You may make up an exam that you miss (whether your absence is excused or not) but the makeup exams are considerably more difficult. If you miss an exam, contact me ASAP; you are to make up the exam at the *earliest possible time*.

Final exam: The final is cumulative and as with the midterms, you will not be permitted to use any study aids or technology.

Getting help: The best place to receive help is my office. In class, I will not have time to take homework questions, and I will not be able to present all perspectives on a topic. In office hours, I am able to discuss the material at a much more friendly pace and offer some alternate viewpoints that may help you understand the material better.

If you cannot make my scheduled office hours, you can come talk to me any time my office door is open. Also, I am more than happy to make an appointment to discuss the material with you. I also know some more advanced students whom I can recommend as a tutor. Send me an email.

Students with disabilities who require reasonable accommodations to fully participate in course activities or meet course requirements should register with the Educational Counseling and Disability Services office (x3057, `ecds@ferris.edu`). While ECDS will send me a letter outlining the accommodations to make for you, I would appreciate it if you could contact me immediately for assistance with any necessary classroom accommodations.

Academic dishonesty: Papers will be monitored for "magic answers". Issues with academic dishonesty are taken very seriously, will almost always result in an F for the class, and will be referred to the Office of Student Conduct.