

**Department of Mathematics and Statistics**  
**MAT 309 — Calculus and Analytic Geometry 3 — Spring 2018**

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**Course Description:** Course develops main ideas of differentiation and integration of functions of several variables and introduces vector calculus. Topics include vectors, analytic geometry of 3-dimensional space, functions of several variables, partial derivatives, directional derivatives, integrals of functions of two and three variables, vector fields, line integrals, Green's theorem, and the divergence theorem (4 credit hours).

**Prerequisites:** MAT 308.

**Course Objectives:** The student will learn concepts and techniques of calculus of several variables. Primary skills to be acquired involve understanding equations of simple surfaces in 3-dimensional space, finding partial derivatives and integrals of functions of several variables, setting up and calculating line and surface integrals.

**Instructional Activities:** Lectures, problem solving, assignments.

**Field, Clinical, Laboratory Experiences, Resources:** None.

**Instructor:** Dubravko Ivanšić [DOO-brahv-ko EE-vahn-shich] Ivanšić is the last name.

**Phone & e-mail:** 809-3552, [divansic@murraystate.edu](mailto:divansic@murraystate.edu)

**Office:** Faculty hall 6A-1 (in the Department of Mathematics and Statistics annex)

**Course webpage:** (A link to this has also been placed on Canvas.)

<http://campus.murraystate.edu/academic/faculty/divansic/18spring/309home.html>

**Office Hours:** Ask me or check the webpage.

**Textbook & Content Outline:** J. Stewart, Essential Calculus, early transcendentals, 2nd edition. We plan to cover chapters (or their portions) 10–13 of “Essential Calculus”.

**Homework:** To promote a continuous effort in the course, homework problems will be assigned. Typically, a section will be assigned once we have covered it and selected problems will be discussed in class. The list of homework problems may be found on the webpage. A smaller portion of the homework problems is to be written up and handed in. In order to succeed in the course you will need to work on all the problems, since test problems will be based on *all* problems assigned for homework and those done in class, not just the ones you hand in.

The problems that you hand in should be reasonably neat and all the sheets should be stapled together. You do not have to write the statement of the problem, but should write brief explanations in words where necessary and should follow rules of “mathematical grammar” when writing. Points will be taken off if these guidelines are not followed or if the homework is late.

**Don't fall behind:** Calculus 3 mainly deals with functions of several variables so almost all of the material will be new to you. You will need to be comfortable with differentiating and integrating functions of one variable — make sure you refresh this knowledge. In addition, a lot of material is packed into a tight schedule, hence, many things will be left to you to figure out on your own. We will not be able to answer all homework questions, so if any remain, come to office hours to address them. Typically, this is a challenging course for many people, so it is important that you are up to date from the very beginning.

Mathematics is best learned by doing and to acquire proficiency it is essential that you do many homework problems. For quality results, expect to spend at least one to two hours of study time for every hour of class time. If some things aren't clear to you, see me for help as soon as possible and not the day before the exam.

**Attendance:** Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins. Attendance is strongly encouraged every day, and roll will be taken. If you missed eight or fewer classes during the semester, you get 3% bonus points. Note that you are not penalized for missing a class (the points are in excess of your total grade), so an absence is counted as such regardless of the reason (“excused” or not).

**Seating:** If there are seats available in the front rows of the classroom, no one will be allowed to sit in the back rows.

