

**Math 211      Analytic Geometry and Calculus III      Fall 2011**

**Instructor:** Fred Schultheis

**Office:** PPHAC 218

**Email:** schulthf@moravian.edu

**Office Hours:** MW 10:00 am - 11:30 pm and by appointment

**Phone:** 610-625-7887

**Required Text:** Vector Calculus, Susan Jane Colley, third edition

One may think of calculus as the mathematics of infinite quantities and to deal with infinite things mathematically one uses the concept of a limit. Some important applications of the limit concept are continuity, differentiation, and integration. The first two semesters of calculus study these concepts in the context of functions of one independent variable. Third semester calculus extends these concepts to functions of more than one independent variable. To study such concepts one needs a deeper understanding of 2, 3, and higher dimensional space. One of the most useful tools for understanding and working with this geometry is the vector and so we will begin by studying vectors. The main content of the course is contained in Chapters 1-6. Additional topics will be covered as time permits.

**Course Description**

The course meets MWF from 11:45 to 12:55 in PPHAC 112. Homework assignments will be given at each class meeting. Students are expected to complete these assignments by the next class meeting, where they will be discussed. No one can learn mathematics without doing it themselves and so, to the student, homework is the most important part of the course. Since class participation is important, students are expected to attend every class.

**Course Goals**

In this course you will be learning the basic notions of the geometry of 2 – *space*, 3 – *space*, and the calculus of functions of several variables. Upon completing the course, successful students will

1. be able to visualize and solve geometric problems using vector analysis,
2. understand the higher dimensional calculus conceptually and be able to compute the corresponding objects using the various techniques studied in class
3. be able to apply these calculus concepts.

### Grading

Your final grade will be based on 3 hourly exams (100 points each), Maple projects (100 points), class participation (50 points), and a comprehensive final exam (175-200 points). Exams may be in class, take home, or a combination of the two. **The final exam is scheduled for Wednesday, December, 14, 2011 at 1:30.** I reserve the right to give weekly quiz if it appears to be necessary. The following grading scale is used for assigning your final grade.

		86 – 89	<i>B+</i>	76 – 79	<i>C+</i>	66 – 69	<i>D+</i>	$\leq 59$	<i>F</i>
93 – 100	<i>A</i>	83 – 85	<i>B</i>	73 – 75	<i>C</i>	63 – 65	<i>D</i>		
90 – 92	<i>A-</i>	80 – 82	<i>B-</i>	70 – 72	<i>C-</i>	60 – 62	<i>D-</i>		

### Learning Disability Accommodations

Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

### Cultural Awareness

One goal for this course is to develop an appreciation of the beauty and utility of mathematics. To help foster this appreciation you are encouraged to spend some time outside of class thinking and discussing mathematics.

There are no specific assignments for this portion of the course but many opportunities for you to earn extra credit. Some examples of activities that foster cultural awareness include: attending talks, giving a talk, reading a paper, or solving a problem.

Some typical cultural events include, but are not limited to

- attending an epsilon talk (5 points)
- attending a Mathematics Colloquium at Moravian (7 points)
- attending a math talk at another LVAIC school (9 points)
- attending the EPADEL conference in April (10 points)
- review an article on mathematics related to the course (5 points)
- solving a problem outside the scope of the class ( $5 - \infty$  points) with 5 additional points available for presenting the solution to the class

**If you attend an event relevant to your mathematical growth you need to write a short paper that explains what the event was and how it deepened your appreciation of mathematics. For any talks you attend a write up is due within one week of when the talk was given. No culture points will be accepted after the second last Friday of the term.**

### ACADEMIC HONESTY POLICY GUIDELINES-MATHEMATICS COURSES

The Mathematics and Computer Science Department supports and is governed by the Academic Honesty Policy of Moravian College as stated in the

Moravian College Student Handbook. The following statements will help clarify the policies of members of the Mathematics faculty.

In all homework assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thoughts of others, however, you must acknowledge the source. For graded homework assignments, you may not use a solution manual or the help, orally or in written form, of an individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources you will be violating the Academic Honesty Policy of Moravian College. For homework which is not to be graded, if you choose, you may work with your fellow students. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and ungraded. All in-class or take-home tests and quizzes are to be completed by you alone without the aid of books, study sheets, or formula sheets unless specifically allowed by your instructor for a particular test.