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## Math 243: Calculus 3

Spring Semester 2010  
(3 Credits)

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**Instructor:** Dr. Angela Pile      **email:** apile@lhup.edu  
Department of Mathematics      **office:** Robinson 415  
**web:** www.lhup.edu/apile      **phone:** 570.484.2972

**Meeting Times:**      **Lecture:** MWF 2:30 – 3:20 PM Raub 407  
                                 **Office Hours:** MWF: 9:00 – 10:00  
                                 M & W: 3:30 – 4:30  
                                 or by appointment

**Textbook:**      **Essential Calculus** by James Stewart

**Prerequisites:**      Math 142: Calculus 2 or permission of the instructor.

**Course Description:**      Multivariate calculus and its applications are studied, along with three-dimensional analytic geometry. A study of series, culminating with power series representation for functions, is presented. Polar equations and their graphs are studied.

This course consists of two main topics: Convergence and Multivariate Calculus. The concepts of convergence of an infinite sequence, and an infinite sum are introduced. Commonly used tools for testing convergence of series and power series representations of functions are presented. Major topics of multivariate calculus along with three-dimensional analytic geometry are studied.

**Course Goals:**      Upon completion, the students will be able to:

- To generate an appreciation and understanding of the use of power series as an alternate representation of analytic functions through a study of infinite series in general.
- To demonstrate polar representation of functions and their graphs.
- To demonstrate the analytic geometry of  $\mathbf{R}^3$ .
- To demonstrate the differentiation and integration of multivariate functions.
- To solve applied problems using multivariate calculus.

## Evaluation and Assessment:

All exercises in the exams will be graded based on the following five-point rubric:

- 5 Excellent work; no errors (~A+)
- 4 Good work with minor errors (~A-)
- 3 Good work with more serious errors (~B-)
- 2 Work reflects large gaps in understanding (~C-)
- 1 Incomplete work with large gaps (~D-)
- 0 No work, or unrelated work, or illegible

Note that scores of 0 or 1 are not considered acceptable.

Grades in the course will reflect students' demonstrated attainment of course objectives and goals.

Approximately:

- 50% of your grade will be based on performance on the two mid-term exams

**Exam 1 – Friday, February 19**

**Exam 2 – Monday, March 22**

- 20% of your grade will be based on homework.
- 30% of your grade will be based on the final exam.

**Final Exam – Tuesday, May 4 from 2:00 – 3:50 PM**

However, final course grades will be determined by the judgment of the instructor.

## Exams:

Exams must be taken during class on the above scheduled dates. Approved make-up exams must be completed within the week of the scheduled exam date. All work on exams should be done independently without assistance from others. The final exam will be cumulative, but the emphasis will be on material from the final third of the semester.

## Homework:

There will be two different types of homework. The first type of homework will be assigned daily. You are encouraged to work together to complete the daily homework. Each class will begin with students presenting some of the assigned homework problems on the board. Students will be randomly assigned to present a problem each day and are allowed two passes throughout the semester. The second type of homework will be group problems. There will be two or three students in each group. Members will take turns being the scribe and the authenticator. Group problems will be turned in bi-weekly and have two scores, one for writing and one for correct mathematics.

**Final Exam:**

This exam must be taken during the scheduled examination time. The final exam will be cumulative.

**Expectations:**

During this semester,

- I intend to treat each student with respect and I therefore expect each student to be respectful to myself and to every other member of the class.
- You should attend all classes. If you have to miss a class due to some uncontrollable circumstance, it is your responsibility to find out what material was covered during that missed class and what assignments were distributed.
- You are expected to devote about 9 hours weekly, besides the 3 in-class hours, to this course.
- Cell phones are a disruption and are not allowed during class. Please turn your cell phone off or turn it on silent (not vibrate).

**Special Needs:**

Students with disabilities are encouraged to discuss requests for reasonable accommodations with the professor at the beginning of the semester. In order for accommodations to be provided, your disability must be verified by the **Office for Disability Services**, 104 Russell Hall, **484-2665**.

**Academic Honesty:**

All work in this course must be completed in an ethical and honest manner consistent with the Lock Haven Academic Honesty Policy. In particular, you are encouraged to collaborate in small groups when working out homework problems but you should make sure that each member of your group contributes a fair share of work to the group effort. This is of special importance since you will be evaluated on the basis of your individual understanding of the material, and will not be allowed to collaborate during exams.

**Disclaimer:**

The instructor reserves the right to change or modify this course and the syllabus for justifiable reasons, subject to appropriate and timely notice to the students enrolled in this class.