

MATH 6 –MATH ANALYSIS III (#59945)
Fall 2014

Instructor: Mr. Conrad Perez
Class Time: D 12:00 PM – 12:50 PM
Classroom: CCI-200
Office: FEM-1H
Office Hours: MWF: 10:00 AM – 11:00 AM; or by appointment
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Textbook: Calculus Multivariable (Tenth Edition) by Anton, Bivens, and Davis

Important Dates: Drop Deadline- Fri. Oct. 10, 2014.
Days Off- Mon. Sept. 1; Tue. Nov.11; Thurs.-Fri. Nov.27 - 28.
Final Exam- Mon. Dec. 8, from 12:00 PM to 1:50 PM

Course Prerequisites: C or better grade in Math 5B or equivalent.

Course Overview: The course will cover all or parts of chapters 11 – 15 as time permits. The course objective is to obtain a solid understanding of the following concepts and problems that involve calculus:

- A. Compute the vector dot and cross products and use them in application problems.
- B. Determine the equations of lines, planes, and quadric surfaces as well as draw their graphs.
- C. Sketch the graphs of points, cylindrical surfaces and vectors in 3-dimensional space.
- D. Convert both individual points and surfaces between coordinate axes systems (rectangular, cylindrical, and spherical).
- E. Determine the limit, derivative, and integral of a vector valued function.
- F. Determine the unit tangent, normal, and bi-normal vectors for a given vector valued function.
- G. Determine the arc length and curvature of vector valued functions.
- H. Solve applied kinematics problems.
- I. Determine limits, continuity, and differentiability for functions of several variables.
- J. Determine partial derivatives.
- K. Apply the chain rule to functions of multiple variables.
- L. Write the equation of a tangent plane at a point.
- M. Determine directional derivatives and gradients for functions of two and three variables.
- N. Find the relative extrema for functions of two variables and test for saddle points.
- O. Use the Lagrange Multiplier Method to find constrained extrema for functions of two and three variables.
- P. Set-up and calculate double integrals over rectangular and non-rectangular regions.
- Q. Set-up and calculate double integrals over polar regions.
- R. Set-up and calculate triple integrals in rectangular coordinates.

- S. Use multiple integrals to determine the centroid and center of mass of objects.
- T. Set-up and calculate triple integrals in cylindrical and spherical.
- U. Set-up and calculate line integrals.
- V. Set-up and calculate surface integrals.
- W. Find the divergence and curl of a vector field.
- x. Apply Green's, Stokes', and the Divergence Theorem.

Attendance: After 5 absences, students may be dropped from the class. Late arrival and leaving class early will be considered as an absence. Any canceled classes will have a note posted on the classroom door.

Behavior: A student may be suspended from the class if he or she engages in a classroom behavior that interferes with the learning environment. Such behavior includes, but is not limited to, disruptive conversations with fellow students, regular tardiness, sleeping, and leaving the classroom during class time. Students are expected to turn off all pagers, cell phones, and other electronic devices during class time.

Assignments: There will be 4-5 exams (including the final) worth 100 points apiece. Homework assignments are worth 10 points and quizzes that are given will be worth 1-10 points. Some homework and/or extra credit may be assigned as group work during the semester. No homework will be accepted after its due date or no make-up exams will be given without prior arrangements being made before the homework's due date or before the exam. Quizzes cannot be made up. A student caught cheating will receive an F on the assignment and/or may be dropped from the course.

Grading: The course grade is based upon the points earned from the homework, quizzes, exams, extra credit, and the final. At any time during the course, the grade of a student is determined as follows:

$$\frac{\text{Points Earned}}{\text{Total Points Possible}} \times 100 = \text{grade of the student}$$

The grade will be based upon the following percentages (**NO ROUNDING**):
 90-100% A 80-89% B 70-79% C 65-69% D 0-64% F

Note: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.