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| **MTH 201: Calculus III** |  | **MTH 201** |
| **S11: MWF 10:00-10:50, BB 1006****S14: T-TR 13:00-14:15, BB 1007.** |  |
| **Fall 2013** |  |
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Instructor

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***Office: Orme Gray 406***

***Office Hours: M-W-F: 10:50 -12:30 pm***

**Current Catalog Description**

This course covers hyperbolic functions, integration techniques and improper integrals. The course covers also infinite sequences and series: limits of sequences of numbers, bounded sequences, integral test for series, comparison tests, ratio and root tests, alternating series, absolute and conditional convergence, power series, Taylor and MacLaurin series, and applications of power series. Polar functions, polar coordinates, and graphing of polar curves are also covered. In addition, topics from multivariable calculus are introduced: functions of several variables, partial derivatives, double integrals, applications to double integrals, and double integrals in polar form.

Course Prerequisite/Co-requiste

MTH 102

**Textbook and References**

Thomas’ Calculus, 12th Edition

**Course Type**

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| **R**equired | [ ]  | **E**lective | [ ]  | **S**elective **E**lective | [ ]  |

**Course Learning Outcomes**

1. Determine the convergence or divergence of improper integrals

2. Apply convergence tests for sequences and series (comparison, integral, ratio and root tests) as well as alternating series;

3. Work with power series;

4. Find the Taylor and Maclaurin series

5. Approximate functions using Taylor and Maclaurin series

6. Operate on Taylor and Maclaurin series.

7. Apply the Taylor’s formula with remainder.

8. Simplify indefinite and evaluate definite triple integrals, including triple integrals using cylindrical and spherical coordinates

9. Use triple integrals in applications.

10. Graph, differentiate and integrate curves given in polar coordinates, including conic sections.

11. Explain the concept of limits and continuity in functions of several variables

12. Find partial derivatives of functions of several variables.

13. Simplify indefinite and evaluate definite double integrals.

14. Use double integrals in applications.

15. Simplify indefinite and evaluate definite triple integrals

16. Use triple integrals in applications.

**Student Outcomes Addressed in this Course**

1. Students will acquire the skills needed to solve definite, indefinite, improper and double integrals.

2. Students will be able to solve applied problems using integrals.

3. Students will be able to identify simple series and to find and/or estimate the sum of a series using partial sums.

4. Students will be able to test the convergence of sequences and series, and to create Maclaurin series for transcendental functions.

Course Grading and Performance Criteria

Your grade will be made up of the following components:

3 exams worth 70% and a Final exam (cumulative) 30%.

Tentative Exam dates:

Exam 1: October 24 2013

Exam 2: November 28 2013

Exam 3: Jan 14, 2014

**Topics Covered in the Course**

We will aim at following this schedule for the material (15 weeks of instruction).

• 7.6-7.7: Hyperbolic and inverse trigonometric functions (0.75 weeks)

• 8.1-8.5: Review of basic integration techniques (0.75 weeks)

• 8.7: Improper integrals (2 weeks)

• 10.1: Sequences (0.5 weeks)

• 10.2-10.5: Infinite series, Tests of convergence (2 weeks)

• 10.6: Alternating series (0.75 weeks)

• 10.7: Power Series (1 week)

• 10.8-10.10: Taylor, MacLaurin series and applications (2 weeks)

• 11.3-11.4: Polar Coordinates; Graphing in Polar coordinates (0.75 weeks)

• 14.1: Functions of several variables (0.75 weeks)

• 14.2:Limits and continuity (0.75 weeks)

• 14.3: Partial Derivatives (0.75 weeks)

• 15.1-15.2: Double Integrals over rectangles and general regions (1 week)

• 15.3: Areas by double integrals (0.75 weeks)

• 15.4-15.6: Double Integrals in polar form (0.75 weeks)

**Homework**

Problem sets will be assigned roughly once a week. You are HIGHLY recommended to work on the problems because you will have drop quizzes, roughly twice a month and these are based on the homework problems. I will have NO makeups for the quizzes!

**Missing Exams policy**

Exam dates are set at the beginning of the semester. In general you are not allowed to miss any exams. Under the extreme and exceptional circumstance where you have to miss an exam, you have to let me know ahead of the set date of the exam and provide a valid hospital report or relevant documents.

**Final exams cannot be missed under any circumstances.**

#### **Policy on Cheating and Plagiarism**

Students caught cheating on an exam receive a grade of zero on the exam in their first cheating attempt and receive a warning. Students caught cheating for the second time will receive a grade of “F” in the course and another warning. Plagiarism on assignments and project work is a serious offense. If plagiarism is detected, a student will be subject to penalty, similar to the cheating case, which ranges from receiving a zero on the assignment concerned to an “F” in the course in addition to a warning.

#### **Attendance Policy**

1. Students are held responsible for all the material presented in the classroom, even during their absence.
2. Students can miss no more than the equivalent of five weeks of instruction and still receive credit for that course.
3. Instructors have the right to impose specific attendance regulations in their courses, provided that the above-stated limit of absences is not exceeded, and the minimum number of absences allowed is no fewer than the equivalent of two weeks of classroom instruction, after the Drop and Add period.
4. Instructors will inform the Departments Chairperson and the Guidance Office, of any prolonged unexplained absence.
5. Students who exceed the allowed number of absences must withdraw from the course; otherwise, the course grade will be recorded as “F” (NP).

**Withdrawal policy** “Students wishing to withdraw from one or more courses must follow the withdrawal procedure provided by the Registrar’s Office. Students withdrawing from courses after the late registration period and before the withdrawal deadline will receive Ws for all the courses in progress.”

***Deadline for withdrawal from courses***:

WI: October 29 2013

WP/WF: December 6 2013

**Course Evaluation**

Completion of the online course evaluations is required. Students will not be able to access their course grades until they have completed the course evaluations.