

MATH 414 Introduction to Analysis III

1. Catalog Description

MATH 414 Introduction to Analysis III

4 units

Prerequisite: MATH 413.

Continuation of Introduction to Analysis II covering such topics as differentiation and integration of functions of several variables and other advanced topics. 4 lectures.

2. Required Background or Experience

Math 412.

3. Learning Objectives

Students should:

- a. Re-emphasize and obtain a deeper understanding of the definition of function in the context of this course.
- b. Obtain an understanding of the limiting processes basic to functions of a single and several variables. This understanding will make much of the literature of mathematics accessible and will provide a deeper insight into computational processes with which students are somewhat familiar.

4. Text and References

See course supervisor. Suggested texts include:

- Bartle, Rudin or Goldberg.

5. Minimum Student Materials

Paper, pencils, and notebook.

6. Minimum University Facilities

Classroom with ample chalkboard space for class use.

7. Content and Method

- a. Topology of \mathbb{R}^n
- b. Differentiation in \mathbb{R}^n
- c. Integration in \mathbb{R}^n
- d. Inverse and implicit function theorems

8. Methods of Assessment

Comprehensive final exam, mid-term exams or quizzes, homework.