MATH 481/546: Advanced Calculus I & II
Spring 2024 Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Mathematical Sciences takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: Systematic development of partial differentiation, multiple and improper integrals, transformations, inverse and implicit function theorems, and integrals over curves and surfaces.

Number of Credits: 3

Prerequisites: Math 480 with a grade of C or better.

Course-Section and Instructors:

Course-Section	Instructor
Math 481-002	Professor D. Shirokoff

Office Hours for All Math Instructors: Spring 2024 Office Hours and Emails

Required Textbook:

Title	*Introduction to Real Analysis*
Author	Trench
Edition	2013
Publisher	Digital Commons @ Trinity
ISBN #	Digital Version

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 1, 2024**. It will be strictly enforced.

COURSE GOALS

Course Assessment: Outcomes are assessed through assignments, two midterm exams, and a comprehensive final

exam.

POLICIES

DMS Course Policies: All DMS students must familiarize themselves with, and adhere to, the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. DMS takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Assignments	40%
Midterm Exams (2)	30%
Final Exam	30%

Your final letter grade will be based on the following tentative curve.

A	90 - 110	**C**	70 - 75
B+	86 - 89	**D**	60 - 69
B	80 - 85	**F**	0 - 59
C+	76 - 79		

Attendance Policy: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced.

Lectures: Class lectures will take place in person and may be recorded. If circumstances prevent classes from occurring in person, class lectures will take place via Webex at the regularly scheduled time.

Practice Problems: Each week, practice problems will be posted on Canvas with a suggested completion date. These problems do NOT need to be handed in. However, completing these problems is necessary for succeeding in this class. Some of these problems may appear on midterm exams, or the final exam.

Assignments: Assignments will be given that require you to interact with and reflect upon the course content. Assignments will be posted on Canvas. Each assignment must be submitted in class on the due date. Late assignments will not be accepted after solutions are posted to Canvas. These assignments must be completed individually. Any submitted assignments bearing substantial similarities to each other will be assigned a score of zero.

Exams: There will be two midterm exams, held during class time, and one comprehensive final exam. The overall midterm exam score is calculated by averaging your two (2) highest scores out of these three (3) exams.

Midterm Exam I	
Midterm Exam II	
Final Exam Period	May 3 - May 9, 2024

The final exam will test your knowledge of all the course material taught in the entire course. Make sure you read and fully understand the Math Department's Examination Policy. This policy will be strictly enforced.

Makeup Exam Policy: There will be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event an exam is not taken under rare circumstances where the student has a legitimate reason for missing the exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the Math Department Office/Instructor that the exam will be missed.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Spring 2024 Hours)

Further Assistance: For further questions, students should contact their instructor. All instructors have regular office hours during the week. These office hours are listed on the Math Department's webpage for Instructor Office Hours and Emails.

Accommodation of Disabilities: The Office of Accessibility Resources and Services (OARS) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please If you need an accommodation due to a disability please contact the Office of Accessibility Resources and Services at oars@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services office authorizing your accommodations will be required.

For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Office of Accessibility Resources and Services (OARS) website at:

https://www.njit.edu/accessibility/

Important Dates (See: Spring 2024 Academic Calendar, Registrar)

Date	Day	Event
January 16, 2024	Tuesday	First Day of Classes
January 22, 2024	Monday	Last Day to Add/Drop Classes
March 10, 2024	Sunday	Spring Recess Begins
March 16, 2024	Saturday	Spring Recess Ends
March 29, 2024	Friday	Good Friday - No Classes
April 1, 2024	Monday	Last Day to Withdraw
April 30, 2024	Tuesday	Friday Classes Meet
April 30, 2024	Tuesday	Last Day of Classes

May 1, 2024	Wednesday	Reading Day 1
May 2, 2024	Thursday	Reading Day 2
May 3 - May 9, 2024	Friday to Thursday	Final Exam Period

Course Outline

Week	Dates	Topic
1	1/16 & 1/18	4.5, 5.1: Analytic functions and Structure of Rn
2	1/23 & 1/25	5.2-5.3: Continuity and partial derivatives
3	1/30 & 2/1	5.4: Chain rule and Taylor's Theorem
4	2/6 & 2/8	6.1-6.2: Continuity and differentiability of transformations
5	2/13 & 2/15	6.3: Inverse Function Theorem
6	2/20 & 2/22	Review and Midterm (February 22)
7	2/27 & 3/29	6.4: Implicit Function Theorem
8	3/5 & 3/7	7.1-7.2: Multiple integrals
9	3/12 & 3/14	Spring Break – No Class
10	3/19 & 3/21	7.3: Change of variables in multiple integrals
11	3/26 & 3/28	8.1: Metric spaces
12	4/2 & 4/4	Review and Midterm (April 4)
13	4/9 & 4/11	8.2: Compact sets in metric spaces
14	4/16 & 4/18	8.3: Continuous functions on metric spaces
15	4/23 & 4/25	Extra/review
16	5/2 (No class)	Friday Schedule – No class

Updated by Professor D. Shirokoff - 12/19/2023
Department of Mathematical Sciences Course Syllabus, Spring 2024