MATH 546: Advanced Calculus
Spring 2019 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: Rigorous treatment of the calculus of real-valued functions of several real variables: the geometry and algebra of n-dimensional Euclidean space, limit, continuity, derivative, and the Riemann integral of functions of several variables, the inverse and implicit function theorems, series, including Taylor series, optimization problems, integration on curves and surfaces, the divergence and related theorems

Number of Credits: 3

Prerequisites: Math 545 or Math 480.

Course-Section and Instructors

Course-Section	Instructor
Math 546-002	Professor A. Bose

Office Hours for All Math Instructors: Spring 2019 Office Hours and Emails

Required Textbook:

Title	*Advanced Calculus*
Author	P. M. Fitzpatrick
Edition	2nd
Publisher	AMS
ISBN #	978-0821847916
Extra Materials	W. Trench, *Introduction to Real Analysis*, Digital Commons@Trinity. Provided by instructor (or search *trench introduction to real analysis* for a pdf file)

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 8, 2019**. It will be strictly enforced.

COURSE ASSESSMENT

Criteria: Outcomes are assessed through homework 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:

Homework	20%
Midterm Exams	40%
Final Exam	40%

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

A	90 - 100	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.

Homework Policy: Homework assignments will be given frequently. Each assignment must be handed in at the beginning of class on the due date. Late assignments are NOT accepted. Solutions will be graded for correctness, completeness, and clarity.

Exams: There will be two midterm exams held in class during the semester and one comprehensive final exam. Exams are held on the following days:

Midterm Exam I	February 26, 2019
Midterm Exam II	April 9, 2019
Final Exam	May 10 - 16, 2019

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

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.

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

Accommodation of Disabilities: Disability Support Services (DSS) 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 contact Chantonette Lyles, Associate Director of Disability Support Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Disability Support 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 Disability Support Services (DSS) website at:

- http://www5.njit.edu/studentsuccess/disability-support-services/

Important Dates (See: Spring 2019 Academic Calendar, Registrar)

Date	Day	Event
January 22, 2019	T	First Day of Classes
February 1, 2019	F	Last Day to Add/Drop Classes
March 17 - 24, 2019	Su - Su	Spring Recess - No Classes, NJIT Open
April 8, 2019	M	Last Day to Withdraw
April 19, 2019	F	Good Friday - No Classes, NJIT Closed
May 7, 2019	T	Friday Classes Meet/ Last Day of Classes
May 8 & 9, 2019	W & R	Reading Days
May 10 - 16, 2019	F - R	Final Exam Period

Course Outline

Week	Topic
1	5.1: Structure of Rn
2	5.2-5.3: Continuity and partial derivatives
3	5.4: Chain rule and Taylor's Theorem
4	6.1-6.2: Continuity and differentiability of transformations
5	6.3: Inverse Function Theorem and review
6	**MIDTERM (FEBRUARY 26)** and 6.3: Inverse Function Theorem
7	6.4: Implicit Function Theorem
8	7.1-7.2: Multiple integrals

9	Spring Break – No Class
10	7.3: Change of variables in multiple integrals
11	8.1: Metric spaces and review
12	**MIDTERM (APRIL 9)** and 8.1: Metric spaces
13	8.2: Compact sets in metric spaces
14	8.3: Continuous functions on metric spaces
15	Extra/review
16	Friday Schedule – No class