Fall 2023

MATH 238-001, Fall 2023: General Calculus II

Ivaylo Peltekov

MATH 238: General Calculus II
Fall 2023 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: A continuation of MATH 138. Topics include applications of integral calculus and an introduction to ordinary differential equations.

Number of Credits: 3

Prerequisites: MATH 138 with a grade of C or better or MATH 139 with a grade of C or better or MATH 111 with a grade of C or better or placement.

Course-Section and Instructors:

Course-Section	Instructor
Math 238-001	Professor I. Peltekov

Office Hours for All Math Instructors: Fall 2023 Office Hours and Emails

Required Textbook:

Title	*Calculus: Concepts & Contexts*
Author	Stewart
Edition	4th
Publisher	Cengage Learning
ISBN #	978-0495557425

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 13, 2023**. It will be strictly enforced.

COURSE GOALS

Course Objectives: Students should -

- develop greater depth of understanding of integration and its importance in scientific and engineering applications,
- learn about series, including their convergence properties and their use in representing functions,
- gain experience in the use of approximation in studying mathematical and scientific problems and the importance of mathematically understanding and evaluating the accuracy of approximations,
- learn new ways of mathematically representing curves and how to use calculus in these settings, and
- learn alternative coordinate systems which are natural for many problems and learn how calculus can be applied in these systems.

Course Outcomes

- Students should gain an appreciation for the importance of calculus in scientific, engineering, computer, and other applications. Students should gain experience in the use of technology to facilitate visualization and problem solving. Course Outcomes Students have improved logical thinking and problem-solving skills.
- Students have a greater understanding of the importance of calculus in science and technology.
- Students are prepared for further study in mathematics as well as science, engineering, computing, and other areas.

Course Assessment: The assessment of objectives is achieved through homeworks, quizzes, and exams.

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	10%
Quizzes	15%
Exam I	20%
Exam II	25%
Final Cumulative Exam	30%

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

A	88 - 100	**C**	62 - 68
B+	83 - 87	**D**	55 - 61
B	76 - 82	**F**	0 - 54
C+	69 - 75		

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. Students are expected to attend class. Each class is a learning experience that cannot be replicated through simply "getting the notes." Attendance at all classes (both lecture and recitation) will be recorded and is mandatory.

Homework: Homework is a requirement for this class. All homework for the semester is listed above by section.

Quiz Policy: Quizzes will be given weekly throughout the semester. They will be based on the lecture, homework and the in-class discussions.

Exams: There will be two exams and a final. Each exam will test the material taught since the beginning of the semester. **ESTIMATED** dates for the exams are:

Midterm Exam I	TBA
Midterm Exam II	TBA
Final Exam Period	December 17 - December 23, 2023

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: Fall 2023 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 need an accommodation due to a disability, please contact the Office of Accessibility Resources and Services at oars@njit.edu, or visit Kupfrian Hall 201 to discuss your specific needs. A Letter of Accommodation Eligibility from the office authorizing student accommodations is 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: Fall 2023 Academic Calendar, Registrar)

Date	Day	Event

September 4, 2023	Monday	Labor Day
September 5, 2023	Tuesday	First Day of Classes
September 11, 2023	Monday	Last Day to Add/Drop Classes
November 13, 2023	Monday	Last Day to Withdraw
November 21, 2023	Tuesday	Thursday Classes Meet
November 22, 2023	Wednesday	Friday Classes Meet
November 23 to November 26, 2023	Thursday and Saturday	Thanksgiving Recess - Closed
December 13, 2023	Wednesday	Last Day of Classes
December 14, 2023	Thursday	Reading Day 1
December 15, 2023	Friday	Reading Day 2
December 17 to December 23, 2023	Sunday to Saturday	Final Exam Period

Course Outline

(This outline is subject to change throughout the semester)

Lecture	Sections	Topic	Assignment
1		Introduction/ Precalculus/Calculus 1 Review	Finish what is not completed in class
2	5.3	Evaluating Definite Integrals	5.3 Ex.:1-30
3	5.4	The Fundamental Theorem of Calculus	5.4 Ex.: 1,2,8, 9, 13, 25
4	5.5	The Substitution Rule	5.5 Ex.: 3-33,40-47
5	5.6	Integration by Parts	5.6 Ex: 1-29
6	5.7	Additional Techniques of Integration	5.7 Ex.: 2, 6, 8, 19
6	5.7	Additional Techniques of Integration	5.7 Ex.: 20-27
8	5.1	Improper Integrals	5.10 Ex.: 5-25
9	*Catch up and Review for Exam*		Chapter 5 Review Ex.: 9-32
10	**EXAM I**		
11	6.2	Volumes	6.2 Ex.: 5, 7, 8, 14, 16
12	6.2	Volumes	6.2 Ex.: 2, 10, 13, 14
13	6.3	Volumes By Cylindrical Shells	6.3 Ex. 9,10, 11, 12
14	7.1	Modeling with Differential Equations	7.1 ex. 7, 9, 11, 13, 14
15	7.3	Separable Differentiable Equations	7.3 ex. 2-18 evens
16	8.1	Sequences	8.1 Ex.: 4, 6, 14, 16, 41

17	8.2	Series	8.2 Ex.: 4, 6, 22, 26
18	*Catch up and Review For Exam*		
19	**EXAM II**		
20	8.3	Integral and Comparison Tests	8.3 Ex.: 6, 10, 16, 18
21	8.4	Other Convergence Tests	8.4 Ex.: 21, 22, 26, 29
22	8.4	Other Convergence Tests	
23	8.5	Power Series	8.5 Ex.: 13, 14, 19, 20
24	8.6	Representations of Functions as Power Series	8.6 Ex.: 5, 6, 7, 8
25	8.7	Taylor and Maclaurin Series	8.7 Ex.: 5, 6, 13, 14
26	*Catch up and Review for Final Exam*		
27	*FINAL EXAM*		

Updated by Professor I. Peltekov - 8/28/2023
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