NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 238-002: General Calculus II
Spring 2021 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 orMATH 111 with a grade of C or better or placement.

Course-Section and Instructors

Course-Section	Instructor
Math 238-002	Professor J. Zaleski

Office Hours for All Math Instructors: Spring 2021 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, April 5, 2021**. 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/Classwork	20%
Exam I	20%
Exam II	20%
Final Exam	30%

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

A	90 - 100	**C**	70 - 74
B+	85 - 89	**D**	60 - 69
B	80 - 84	**F**	0 - 59
C+	75 - 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. 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 Policy: Integrity – Your work is expected to be your own. Help from tutors, classmates etc. is encouraged but you are responsible for mastering the material. Homework will be assigned at all classes. The homework assignments are in the syllabus and online. In order to do the assignments, you need to have a student access code for WebAssign. You can get an access code with a new book purchase that is bundled with WebAssign or by buying the access code separately at the campus bookstore. If you buy a new book from

another source make sure it is bundled with WebAssign. In addition, on the first day of class you will be given a further code that is needed to access the homework assignments. There will be no makeup homework.

Quiz Policy: Quizzes will be given 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	Lecture 10 (Subject to Change)
Midterm Exam II	Lecture 20 (Subject to Change)
Final Exam Week	May 7 - 13, 2021

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 2021 Hours) Students are encouraged to use the tutoring center as needed throughout the semester.

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: 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 contact Chantonette Lyles, Associate Director of the Office of Accessibility Resources and Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibilty Resources and Services 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/studentsuccess/accessibility/

Important Dates (See: Spring 2021 Academic Calendar, Registrar)

Date	Day	Event
January 19, 2021	T	First Day of Classes

January 23, 2021	S	Saturday Classes Begin
January 25, 2021	M	Last Day to Add/Drop Classes
March 14 - March 21, 2021	Su - Su	Spring Recess - No Classes
April, 2, 2021	F	Good Friday - No Classes
April 5, 2021	M	Last Day to Witdraw
May 4, 2021	T	Friday Classes Meet
May 4, 2021	T	Last Day of Classes
May 5 & May 6, 2021	W & R	Reading Days
May 7 - May 13, 2021	F - R	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	5.4	The Fundamental Theorem of Calculus	5.4 Ex.: 8, 8, 9, 13, 25
3	5.5	The Substitution Rule	5.5 Ex.: 8, 10, 29, 40, 42
4	5.6	Integration by Parts	5.6 Ex: 4, 6, 12, 17
5	5.7	Additional Techniques of Integration	5.7 Ex.: 2, 6, 8, 20
6	5.7	Additional Techniques of Integration	5.7 Ex.: 22, 23, 25
7	5.9	Approximate Integration	5.9 Ex.: 5, 8, 10,
8	5.10	Improper Integrals	5.10 Ex.: 8, 14, 16,19,23
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. 5, 9,10, 11, 12
14	6.4	Arc Length	6.4 Ex.: 7,9,10,11
15	6.5	Average Value	6.5 Ex.: 1,2,5, 6, 15
16	8.1	Sequences	8.1 Ex.: 4, 6, 14, 16, 41
17	8.1	Sequences	8.1 Ex:15,16,17,24,25,41
18	8.2	Series	8.2 Ex.: 4, 6,18, 22, 26
19	*Catch up and Review For Exam*		
20		**EXAM II**	
21	8.3	Integral and Comparison Tests	8.3 Ex.: 6, 10, 16, 18,19
22	8.4	Other Convergence Tests	8.4 Ex.: 14,15,21, 22, 23,25
23	8.4	Other Convergence Tests	8.4 Ex: 26,29,30,31,32

24	8.5	Power Series	8.4 Ex: 26,29,30,31,32
25	8.6	Representations of Functions as Power Series	8.6 Ex.: 3,4,5, 6, 7, 8
26	8.7	Taylor and Maclaurin Series	8.7 Ex.: 5, 6, 7,8,9,12,13, 14,15
27	*Catch up and Review for Final Exam*		
28		**FINAL EXAM**	

Updated by Professor J. Zaleski - 1/6/2021
Department of Mathematical Sciences Course Syllabus, Spring 2021