Mathematics Department
Calculus II | MTH 151 | 4 Credits

Farmingdale State College
State University of New York

Prerequisites/Corequisites: MTH 150 or MTH 130.

Type of Instruction: Lecture

Meeting Days and Times:

MW	03:05 pm - 04:20 pm	GLSN 122
R	03:05 pm - 03:55 pm	LUPT 233

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General Education: This class fulfills 4 credits of the mathematics competency area of the General Education Requirements at Farmingdale State College.

Catalog Course Description: A continuation of the calculus of one variable. Differentiation and integration of the transcendental functions. Integration techniques. Infinite series.

Course Learning Outcomes: Upon successful completion of the course a student will be able to

— Differentiate and integrate transcendental functions.

— Examine various techniques of integration and apply them to definite and improper integrals.

— Approximate definite integrals using numerical integration techniques and solve related problems.

— Distinguish between the concepts of sequence and series, and determine limits of sequences and convergence and approximate sums of series.

— Define, differentiate, and integrate functions represented using power series expansions, including Taylor series.

General Course Requirements:

Homework	25%
Exam 1	25%
Exam 2	25%
Final Exam	25%

Homework

Homework will be assigned in WebAssign. Students should check regularly for updates.

Exams

There will be two mid-terms worth 25% and a cumulative final worth 25%. The midterms will be in-class on the dates indicated in the calendar. The date of the final is set by the registrar.

Grade Scale

Grade	Minimum %
A	93
A−	90
B+	87
B	83
B−	80
C+	77
C	73
C−	73
D+	67
D	60
F	0

Required Materials

– Textbook - Calculus: Early Transcendentals, 8th Edition.

– WebAssign access code and account.

– Graphing Calculator

Note: Calculators with a computer algebra system (C.A.S) are not allowed.

Makeups: Make-up exams and quizzes will be given to students who miss exams for valid reasons at the discretion of the instructor. In general, acceptable reasons for absence from class include illness, serious family emergencies, special curricular requirements (e.g., field trips, professional conferences), military obligation, severe weather conditions, religious holidays and participation in official university activities such as music performances, athletic competition or debate. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) will be excused. Other reasons also may be approved. In addition, if you are already aware of a conflict with an exam date, then you need to discuss this with your instructor within the first two weeks of class.

Religious Absences: If you are unable to attend class on certain days due to religious beliefs, please consult with your instructor well in advance of the absence so that appropriate accommodation can be made.

Disability Services Center: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Services Center, Roosevelt Hall, Room 151, or call 631-420-2411 as soon as possible this semester.

Temporary Grades: A grade of "I" (incomplete) is reported when, for some reason beyond their control, the student misses the final examination or has not completed a portion of the required work for the course. The decision to grant an "I" is at the sole discretion of the instructor. No achievement points are awarded for an incomplete. All incompletes must be resolved and a change of grade submitted no later than 30 days after the beginning of the next semester (fall to spring,

winter intersession to spring, spring to fall, summer session to fall). An instructor may grant an extension of an incomplete grade until the end of the semester by documenting and filling the approved form with the Registrar prior to the conclusion of the 30 day period. Any incomplete grade not finalized or extended by the instructor within the 30 day time period mentioned above will automatically be changed to an "F". An incomplete does not constitute successful completion of a prerequisite.

Academic Honesty: This course expects all students to act in accordance with the Academic Integrity Policy at the Farmingdale State College. If you work on the homework with your classmates, you must write your own solutions individually. There should be no help given or received on midterms or the final exam. Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g. papers, projects, examinations and assessments - whether online or in class); presenting, as one's own, the ideas, words or calculations of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; using unauthorized aids in preparing work for evaluation (e.g. unauthorized formula sheets, unauthorized calculators, unauthorized programs or formulas loaded into your calculator, etc.); and presenting the same or substantially the same papers or projects in two or more courses without the explicit permission of the instructors involved. A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions. Such sanctions include failing the assignment in question and depending on the severity of the incident failing the course and/or other remedies.

Copyright Statement: Course material accessed from Blackboard or the Farmingdale website is for the exclusive use of students who are currently enrolled in the course. Content from these systems cannot be reused or distributed without written permission of the instructor and/or the copyright holder. Duplication of materials protected by copyright, without permission of the copyright holder, is a violation of the Federal copyright law, as well as a violation of SUNY copyright policy.

Cancellation of Classes: Weather and other campus-wide cancellations will be listed on the home page, Facebook and Twitter and you can also sign up for RAVE and SUNY Alert. Go to the Rave web page and use your Farmingdale user ID and password to enter the site. For SUNY-Alert, please visit the University Police web page. You may also be notified via email of class cancellations.

Electronic Devices Policy: Please silence all electronics while in class. Use of electronics during exams is prohibited.

Attendance Policy: This course will not deduct points for absences. For absences on exam or quiz days please see the make-up policy above.

Use of Email: It is Farmingdale State College policy that instructors and students use the Farmingdale email system or the Blackboard email system to contact one another.

Disclaimer: The instructor reserves the right to adjust the syllabus. By taking this course, you acknowledge that you have read this syllabus and abide to it and any such changes.

Date	Topic	Student Learning Outcomes
Week 1	5.1 and 5.2	1. How to define a definite integral as the limit of a Riemann sum. 2. How to evaluate definite integrals using summation properties. 3. How to use the Midpoint Rule to find an approximation to an integral 4. How to apply various properties of definite integrals.
Week 2	5.3 and 5.4	1. How to establish the Fundamental Theorem of Calculus and apply it. 2. How to identify the relationship between differentiation and integration as inverse processes 3. How to establish indefinite integrals as functions. 4. How to apply the Fundamental Theorem of Calculus in various disciplines
Week 3	5.5 and 6.1	1. How to replace a relatively complicated integral by a simpler integral using the Substitution Rule. 2. How to replace a relatively complicated definite integral by a simpler definite integral using the Substitution Rule. 3. How to use the Substitution Rule to simplify the calculation of functions that possess symmetry properties. 4. How to establish the area of a region between two curves as the limit of a Riemann sum.
Week 4	6.2 and 6.4.	1. How to establish the volume of a solid of revolution as the limit of a Riemann sum. 2. How to establish, using calculus, the definition of work done to move an object when the force applied on the object is not constant.
Week 5	6.5 and 7.1.	1. How to define the average value of a continuous function on an interval and to establish the Mean Value Theorem for Integrals. 2. How to obtain and use integration by parts as the rule corresponding to the Product Rule for differentiation.
Week 6	7.2	1. How to evaluate integrals involving certain products of powers of trigonometric functions.
Week 7	7.3 and 7.4	1. How to evaluate integrals of certain forms using trigonometric substitutions 1. How to integrate any rational function by expressing it as a sum of partial fractions. 2. How to convert a non-rational function to a rational function by an appropriate substitution.
Week 8	7.5 and 7.6	1. How to recognize which technique or formula to use when given a particular integral to evaluate. 2. How to recognize that not all continuous functions have antiderivatives. 1. How to use tables to integrate functions that have elementary antiderivatives.
Week 9	7.7 and 7.8.	1. How to find approximate values of definite integrals using the Midpoint Rule and the Trapezoidal Rule and obtain the error bounds involved. 2. How to find approximate values of definite integrals using Simpson's Rule and obtain the error bounds involved. 3. How to evaluate a definite integral where the interval is infinite or where a function has an infinite discontinuity.
Week 10	8.1 and 11.1	1. How to define and evaluate the length of a curve defined on a finite interval as the limit of Riemann sums. 2. How to define and obtain the arc length function describing the distance a particle traveled along a curve. 3. How to define sequences and determine their convergence or divergence.
Week 11	11.2 and 11.3.	1. How to define a series and determine its convergence or divergence. 2. How to develop the Integral Test to determine the convergence or divergence of a series.
Week 12	11.4 and 11.5.	1. How to develop the Comparison Tests to determine convergence or divergence of a series. 2. How to develop the Alternating Series Test to determine the convergence or divergence of an alternating series. 2. How to estimate the sum of an alternating series by comparing remainders.
Week 13	11.6 and 11.8.	1. How to develop the Ratio and Root Tests to establish the absolute convergence of a series. 2. How to define power series and determine where a given power series converges.
Week 14	11.9 and 11.10.	1. How to represent certain types of functions as sums of power series. 2. How to differentiate and integrate a power series term by term. 3. How to represent certain types of functions as Taylor series or Maclaurin series. 4. How to multiply and divide power series to obtain a new power series
Week 15	Final Exam.	