

Massasoit Community College

Instructor:

Office:

Email:

Phone:

Office Hours:

Course: Calculus II

Course Number: MATH222-XX

Semester:

Classroom:

Day and Time:

Course Description: This course is a continuation of MATH221 Calculus I. This is a second course in the sequence of calculus of one variable intended for undergraduate mathematics, science, technology or engineering majors. Topics include techniques and applications of integration, indeterminate forms, improper integrals, and infinite series. Prerequisite: C- or higher in MATH221 Calculus I; waiver by placement testing results; or departmental approval.

Required Text and Materials:

1. Calculus: Early Transcendental Functions (custom textbook with EnhancedWebAssign access card), Larson/Edwards, 6th edition, Cengage, ISBN: 9781305000643.

Your textbook should come packaged with a WebAssign access card. Homework assignments must be completed online in WebAssign. If you do not purchase your textbook through the bookstore, please make sure that it comes with a WebAssign access code.

2. A TI-83/84 graphing calculator is required for this course. All assessments will assume that you have a graphing calculator. A TI-83/84 can be rented through the library for a small fee. You may not use any other technologies, such as cell phones, iPods, tablets, laptops, etc. on in-class assessments. You also may not borrow/share calculators, or borrow mine. Also, any calculator with a computer algebra system, such as a TI-89, TI-89 Titanium, TI-92, TINSpire, or others may NOT be used on in-class assessments!

Course Topics:

Review: Integration

- 5.5 Integration by Substitution
- 5.7 The Natural Logarithmic Function: Integration
- 5.8 Inverse Trigonometric Functions: Integration

Chapter 6: Differential Equations

- 6.2 Differential Equations: Growth and Decay
- 6.3 Differential Equations: Separation of Variables

Chapter 7: Applications of Differentiation

- 7.1 Area of a Region Between Two Curves
- 7.2 Volume: The Disk Method
- 7.3 Volume: The Shell Method

Chapter 8: Integration Techniques, L'Hopital's Rule, and Improper Integrals

- 8.1 Basic Integration Rules
- 8.2 Integration by Parts
- 8.3 Trigonometric Integrals
- 8.4 Trigonometric Substitution
- 8.5 Partial Fractions
- 8.6 Integration by Tables and Other Integration Techniques
- 8.7 Indeterminate Forms and L'Hopital's Rule
- 8.8 Improper Integrals

Chapter 8: Infinite Series

- 9.1 Sequences
- 9.2 Series and Convergence
- 9.3 The Integral Test and p -Series
- 9.4 Comparison of Series
- 9.5 Alternating Series
- 9.6 The Ratio and Root Tests
- 9.7 Taylor Polynomials and Approximations
- 9.8 Power Series
- 9.9 Representation of Functions by Power Series
- 9.10 Taylor and Maclaurin Series

Teaching Procedures: This course will be taught in a lecture/discussion format with ample opportunity for student questions. Generally, class will begin with a question and answer session on the most recent homework assignment. New material will then be presented in a lecture format and homework be assigned to reinforce the topics covered in class.

Instructional Objectives:

COURSE OUTCOMES	OUTCOMES ACTIVITIES
At the end of this course, students will be able to	

<p>Solve applied problems using differentiation and integration.</p>	<ol style="list-style-type: none"> 1. Solve differential equations using separation of variables. (CT,QS,R,TS) 2. Find the area of the region between two curves. (CT,QS,R,TS) 3. Find the volume of a solid of revolution by the disc or washer method or by the shell method. (CT,QS,R,TS) 4. Other applications as time permits.
<p>Demonstrate an understanding of various integration techniques in order to solve many different types of integrals.</p>	<ol style="list-style-type: none"> 1. Solve problems using integration by parts. (CT,R,QS) 2. Solve problems involving trigonometric integrals and those involving trigonometric substitution. (CT,R,QS) 3. Solve problems involving partial fractions. (CT,R,QS) 4. Solve problems using integration tables and other integration techniques. (CT,R,QS)
<p>Demonstrate an understanding of the concept of indeterminate forms in order to solve application problems.</p>	<ol style="list-style-type: none"> 1. Solve problems using L'Hôpital's Rule. (CT,R,QS) 2. Determine when L'Hôpital's Rule does not apply. (CT,R,QS) 3. Determine the divergence or convergence of an improper integral. (CT,R,QS) 4. Evaluate an improper integral that converges. (CT,R,QS)
<p>Demonstrate an understanding of sequences and series in order to develop various techniques to solve application problems.</p>	<ol style="list-style-type: none"> 1. Find the general term of a sequence. (CT,R,QS) 2. Determine the convergence or divergence of a given sequence. (CT,R,QS) 3. Determine if a sequence is monotonic. (CT,R,QS) 4. Determine the convergence or divergence of a series. (CT,R,QS) 5. Find the sum of a given convergent series. (CT,R,QS) 6. Use the integral test, the direct comparison test, the limit comparison test, the alternating series test, the ratio test and the root test approximately to determine the convergence or divergence of a series. (W, CT,R,QS) 7. Determine whether a series converges conditionally or absolutely. (CT,R,QS) 8. Approximate the sum of a series. (CT,R,QS) 9. Find Maclaurin polynomials of degree n for a given function. (CT,R,QS)

	10. Find the Taylor polynomial of degree n centered at r for a given function. (CT,R,QS) 11. Find the interval of convergence for a given power series. (CT,R,QS) 12. Find a power series for a given centered function centered at a given value. (CT,R,QS) 13. Find the Taylor and Maclaurin series for given functions. (CT,R,QS)
Strengthen core Competencies** in order to increase success in this and other courses and in the workplace.	Referenced above

**Indicate the Core Competencies that apply to the outcomes activities and assessment tools: Critical Thinking (CT); Technology Skills (TS); Oral Communications (OC); Quantitative Skills (QS); Reading (R); Writing (W).

Basis for Student Grading: Grades for this course will be assigned as follows:

Grade	Average
A	93%-100%
A-	90%-92%
B+	87%-89%
B	83%-86%
B-	80%-82%
C+	77%-79%

Grade	Average
C	73%-76%
C-	70%-72%
D+	67%-69%
D	63%-66%
D-	60%-62%
F	0-59%

The grade you earn is the grade you will receive in this course. Grades are not negotiable. You will not be allowed to make up work, substitute alternative assignments, or submit extra assignments in order to improve your grade during the semester or after the semester ends.

Grades of incomplete are given only in situations when extenuating circumstances prevent a student from taking the final exam or fulfilling a specific requirement in the course. The grade of "I" cannot be used to give students additional time to complete course assignments in order to raise their grade.

Basis for Evaluating Student Performance: The grade for this course will be weighted based on the following categories:

- *Homework (10%):* Homework will be assigned in WebAssign at the end of each section. It is due by the next class period.
- *Exams (60%):* There will be four in-class exams given throughout the semester, approximately every 3 weeks. Exams must be taken during the regular class time and no make-up exams will be given. The lowest exam grade will be dropped. Your exam average will account for 60% of your final grade.

- *Final Exam (30%)*: The course will culminate in a cumulative final exam. It will be worth 30% of your final grade.

There is no extra credit available for this course.

Tentative Test Schedule/Assignment(s) Schedule:

Assignment:	Tentative Date:
Test 1	
Test 2	
Test 3	
Test 4	
Final Exam	

Attendance: Attendance for this course is mandatory. After the third absence, students will lose two points per absence thereafter from their final average. I will take attendance at the beginning of every class, and students not present at that time will be marked absent for the class, even if they show up late. If you must miss a regular class, you are still responsible for the material that was presented in class. The average student needs to attend all class meetings in order to be successful in this course.

Accommodations Statement: Massasoit’s Disability Services office provides accommodations to students who qualify for services based on a documented disability. Students interested in accessing classroom or testing accommodations must contact Disability Services directly. In an effort to avoid any lapse in services, new and returning students are encouraged to contact Disability Services at the beginning of each semester to receive an Accommodation Letter for the current semester. Students on all campuses can contact Disability Services at 508-588-9100 X 2132 or by e-mail at DisabilityServices@massasoit.edu for further information or questions.

Title IX Statement: Massasoit Community College is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, stalking, or retaliation, we encourage you to report it to *Yolanda Dennis, Chief Diversity Officer and Title IX Coordinator, Office of Diversity and Inclusion, at 508-588-9100, x1309 or ODI@massasoit.edu*. While you may talk to a faculty member, understand that as a “responsible employee” of the College, the faculty member must report what you share to the College’s Title IX Coordinator. On and off campus resources and interim measures are available to assist you. Information about both of these policies can be found at www.massasoit.edu/title-ix and www.massasoit.edu/eo. We are here to support you.

Academic Integrity: Academic dishonesty will not be tolerated. Please see the following URL for more information on the college's policies on academic integrity:

<http://www.massasoit.edu/academics/policies/academic-honesty/index>