

MAT212– Calculus II (Spring 2024) Course Syllabus

Instructor

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Office Hours: 12 – 2 pm on MW and 9-10 am on T

Office: MCT278

Section	Face-to-Face Meet	Online Component
01	10 -10:50 MWR at MCT 258	Tuesday Asynchronous in d2l (watch videos & make notes)
05	12 -12:50 MWR at DHC 202	

Important Sites

D2L <https://d2l.ship.edu>

Zoom Office Hours <https://ship.zoom.us/j/94338091000>

Course Materials

D2l provides links to videos, notes, and homework. You will submit your class activities to this site and you can check your grades.

Text Book (optional): OpenStax Calculus Volume II (<https://openstax.org/details/books/calculus-volume-2>)

Calculator: TI-83 will be allowed.

Course Description

This is a continuation of calculus I. We study more methods of integration, its applications, and infinite series. *Prerequisite: Grade of C or better in MAT 211*

If you feel you're in the wrong course, please contact the Mathematics Department secretary (math@ship.edu) as soon as possible. **Your schedule can be changed only during the first week of class.**

Course Goals

- Students will determine the area between curves, the volume of a solid using its cross-section, the volume of a solid of revolution, the length of a curve, the area of surface, mass from density,
- Students will solve integration by the integration-by-parts, reduction formulas for trig functions, trig substitution for sum or difference of two squares, partial fractions decompositions, and trapezoidal and Simpson's rules, and solve improper integration.
- Students will determine the convergence or divergence of given sequences and series.
- Students will identify a power series to represent a function and estimate the interval of convergence.

Tentative Schedule

Exam 1: Thursday of February 8

Exam 2: Thursday of March 7

Exam 3: Thursday of April 11
Exam 4: Tuesday of April 30 (asynchronous online)
Final: To be announced (it will be on the final week, and cumulative)

Tutoring

Free, drop-in or appointment-required Learning Center Tutoring at Mowrey

Grading

Your grade will be based on your notes, homework, quizzes, and a cumulative Final. I will use the following grading scheme:

Class Activities	10%	Attendance +Note Submission+ Quizzes
Homework	20%	MOM work on line
Exams	70%	Exam1, 2, 3, 4 & Final (each 20%)

At the end of the course, I will assign grades based on the following scale:

Percentage	90 -100	87-89	84-86	80-83	77-79	74-76	70-73	60-69	0-59
Final Grade	A	A-	B+	B	B-	C+	C	D	F

Expectations

In class, you will learn new ideas and work on problems to master the ideas. If you have any questions, please do not hesitate to ask in class or in my office hours. Every week, you will **submit 1 pdf file for your class activities to d2l**, unless you are asked not to. (I recommend Adobe Scan or Genius Scan app to take a picture of your work, save it as one single pdf file, and then upload it in d2l. The instruction is available below.)

If you miss any class, you can find **study materials (book, notes, videos) in d2l and contact me** immediately to find extra information. You can email me or come to my office.

Homework: You will see homework links in d2l. **You can redo homework** assignments as many times as you want **before the deadline**.

Scan App Information

Adobe Scan app

- Android link: https://play.google.com/store/apps/details?id=com.adobe.scan.android&hl=en_US
- Apple link: <https://apps.apple.com/us/app/adobe-scan-digital-pdf-scanner/id1199564834>
- Video tutorial: <https://www.youtube.com/watch?v=MCyhOkBpELc>

Genius Scan app

- Android link: https://play.google.com/store/apps/details?id=com.thegrizzlylabs.geniuscan.free&hl=en_US
- Apple link: <https://apps.apple.com/us/app/genius-scan-pdf-scanner/id377672876>
- Video tutorial: <https://www.youtube.com/watch?v=PAmUKvvUjgs>

Tentative Course Calendar (Spring 2024)

Adjustments and updates to the course schedule, due to inclement weather or other unforeseen events, will be announced in class.

Week	Section and Topic	STUDENT LEARNING OBJECTIVES - TSWBT (the student will be able to):	Assignments
1 1/22-28	M (1.0) TA(1.1, 1.2) W (1.3, 1.5) R(2.1a)	<ul style="list-style-type: none"> Review derivative and integral formulas and differentiation rules Review approximating areas and definite integrals Review Fundamental Theorem of Calculus and substitution rules Evaluate areas between curves 	Weekly HW in d2I
2 1/29-2/4	M(2.1b) TA(2.2a) W(2.2b) R(2.2c)	<ul style="list-style-type: none"> Evaluate the area of the regions defined with respect to y. Evaluate the volume of a solid with nonconstant cross-sections Find the volume of a solid of revolution Find the volume of a solid of revolution with cavities 	
3 2/5-11	T(2.4) TA(2.5a) W(2.5b, Review) R(Exam)	<ul style="list-style-type: none"> Determine the length of a curve and a surface area of a solid of revolution Develop formulae for mass with density and work by a force Solve physical application problems 	Exam on Thursday
4 2/12-18	M (3.1a) TA(3.1b) W(3.2a) R(3.2b)	<ul style="list-style-type: none"> Recognize when to use integration by parts Use the integration-by-parts to solve integration problems Solve integration problems involving trigonometric functions Use the reduction formulas to solve trigonometric integrals 	
5 2/19-25	M(3.3a) TA(3.3b) W(3.4a) R(3.4b)	<ul style="list-style-type: none"> Solve Integration problems involving the square root of a sum or difference of two squares Integrate a rational function using partial fraction decomposition with linear factors, repeated linear factors, quadratic factors 	
6 2/26-3/3	M(3.6a) TA(3.6b) W(3.6c) R(3.7a)	<ul style="list-style-type: none"> Use the midpoint and trapezoidal rules to approximate definite integrals Estimate the absolute and relative error Use Simpson's rule to approximate definite integrals Integrate over an infinite interval 	
7 3/4-10	M(3.7b) TA(3.7c) W(Review) R(Exam)	<ul style="list-style-type: none"> Integrate over a discontinuous integrand Use the comparison theorem to determine if a definite integral is convergent 	Exam on Thursday
3/11 - 17	No classes		Spring break
8 3/18-24	M(4.8) TA(5.1a) W(5.1b) R(5.2a)	<ul style="list-style-type: none"> Recognize when to apply the L'Hôpital's rule and apply the rule Find the general term and the limit of a sequence Apply the Squeeze theorem and the monotone convergence theorem Investigate infinite series including harmonic series 	
9 3/25 - 31	M (5.2b) TA (5.3a) W(5.3b) R(5.4a)	<ul style="list-style-type: none"> Calculate the sum of a geometric series and a telescoping series Use the divergence/integral tests for the convergence of a series Estimate the value of a series Use the comparison test for the convergence of a series 	
10 4/1 - 7	M(5.4b) TA(5.5a) W(5.5b) R(5.6a)	<ul style="list-style-type: none"> Use the limit comparison test for the convergence of a series Use the Alternating Series Test for the convergence of a series Estimate the alternating series and the conditional/absolute convergences Use the ratio test for the convergence of a series 	
11 4/8-14	M(5.6b) TA(5.6c) W(Review) R(Exam)	<ul style="list-style-type: none"> Use the root test for the convergence of a series Describe a strategy to determine the convergence of a series 	Exam on Thursday
12 4/15-21	M(6.1a) TA(6.1b) W(6.2a) R(6.2b)	<ul style="list-style-type: none"> Determine the radius and interval of convergence of a power series Use a power series to represent a function Add, subtract, and multiply a constant with power series to create new Multiply, differentiate, and integrate power series together 	
13 4/22-28	M(6.3a) TA(6.3b) W(6.4a)	<ul style="list-style-type: none"> Find the Taylor series for a function and explain Taylor's theorem with remainder Estimate the remainder for a Taylor series to estimate a function Write the terms of a binomial series and recognize Taylor series of common functions 	

	R(6.4b)	<ul style="list-style-type: none"> Use Taylor series of common functions to integrate nonelementary integrals. 	
14 4/29 - 5/5	M(Review) TA(Exam) W(Review) R(Review)		Online Exam on Tuesday
16	Final	<ul style="list-style-type: none"> Final exam is a cumulative exam. The date will be announced later. 	Final Exam

Course Syllabus Language for Faculty

Title IX Reporting Requirements

Shippensburg University of Pennsylvania and its faculty are committed to assuring a safe and productive educational environment for all students. In order to comply with the requirements of Title IX of the Education Amendments of 1972 and the university's commitment to offering supportive measures in accordance with the regulations issued under Title IX, Shippensburg University of Pennsylvania requires faculty members to report incidents of sexual violence shared by students to the university's Title IX Coordinator, Dr. John Burnett [JABurnett@ship.edu] or [Title9@ship.edu]. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a university-approved research project. **Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the university's Protection and Supervision of Minors on Campus Policy.**

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence are available on the Office of Human Resources website:

https://www.ship.edu/about/offices/hr/title_ix_statement/

Reports may be made to the following individuals:

Dr. John Burnett
Title IX Coordinator
Office of Human Resources
Old Main 106-A
Shippensburg, PA 17257
771-477-1323
Cell: 724-317-6415
Email: JABurnett@ship.edu

Nipa Browder
Deputy Title IX Coordinator
Office of Human Resources
Ph: 717-477-1124
Email: Nbrowder@ship.edu

Jennifer Milburn
Deputy Title IX Coordinator
Housing/ResLife/Conferences
Ph: 717-477-1904
Email: JSMilburn@ship.edu

Trejon Dinkins
Deputy Title IX Coordinator
Retention and Student Success
Ph: 717-477-1123 x3027
Email: TADinkins@ship.edu

Alix Rouby
Deputy Title IX Coordinator
Career Center
Ph: 717-477-1595
Email: AJRouby@ship.edu

Mary Burnett
Deputy Title IX Coordinator
International Programs
Ph: 717-477-1279
Email: MEBurnett@ship.edu

Link for the online reporting form: (This is for reporting an issue, not making a formal complaint)

https://cm.maxient.com/reportingform.php?ShippensburgUniv&layout_id=3

Link for the Formal Complaint form:

https://cm.maxient.com/reportingform.php?ShippensburgUniv&layout_id=21

Link for campus resources:

https://www.ship.edu/about/offices/hr/title_ix_statement/resources/