Bronx Community College of the City University of New York Department of Mathematics and Computer Science

SYLLABUS: MTH 32 - Calculus and Analytic Geometry II (4 credits/ 6 hours per week)

PREREQUISITE: MTH 31 - Calculus and Analytic Geometry I or equivalent; and CUNY English Proficiency, or ENG 100 or 110, if required

TEXT: <u>Calculus: Early Transcendentals</u> (Ninth Edition) by Stewart et al., Cengage Learning. ISBN 978-1337613927 Students who do not need Math 33 may use Single Variable Calculus: Early Transcendentals

Students who do not need Math 33 may use <u>Single Variable Calculus: Early Transcendentals</u> (Ninth Edition) by Stewart et al., Cengage Learning. ISBN 978-0357022269

Learning Objectives. On successful completion of this course, students will be able to

- Use integrals to compute lengths of curves, areas of plane regions, and volumes of rotational solids
- Recognize when the use of integration by parts is appropriate and use the technique to compute integrals
- Recognize and apply the specific methods to integrals of different classes of functions: trigonometric, radical, and rational.
- Determine convergence and evaluate improper integrals.
- Determine the limit of an infinite sequence
- State and use different convergence tests (integral, comparison, divergence, alternate series, root, ratio) to determine whether a series diverges, conditionally converges, or absolutely converges.
- Determine the radius and interval of convergence for a power series.
- Compute the Taylor and Maclaurin series of a function.
- Use power, Taylor, and Maclaurin series to evaluate some converging series.
- Approximate a function by its Taylor polynomial.

<u>SECTION</u> <u>TOPIC</u>		SUGGESTED EXERCISES	
	Chapter 5: Integrals		
Week 5.5	1 The Substitution Rule	428/ 1-53 odd, 59-79 odd	
6.1	Chapter 6: Applications of Integrat Areas between Curves	tion 443: 1–37 odd, 41	
Week	2		
6.2 6.3	Volumes Volumes by Cylindrical Shells	456: 1–39 odd, 59-71 odd 465: 1–29 odd	
Week 3			
	Review Exam		
	Chapter 7: Techniques of Integration		
7.1	Integration by Parts	491: 1–47 odd, 53–62	
Week	4		
7.1	Integration by Parts	491: 1–47 odd, 53–62	
1.2	Ingonometric Integrals	499: 1–31 odd	
Week	5		
7.3	Trigonometric Substitution	506: 1–35 odd	
7.4	Integration of Rational Functions by Partial Fractions	515: 1–25 odd, 41-53 odd	
Week	6		
7.5	Strategy for Integration	522: 1–67 odd	
7.8	Improper Integrals	550: 1, 5–39 odd, optional 57– 69 odd, 70,71	

Week 7

	Chapter 8: Further Applications of Integrals		
8.1	Arc Length	566: 1 – 21 odd	
	Review		
	Exam		

Week 8

Chapter 11: Sequences, Series, and Power Series

11.1	Sequences	736/1-61 odd
11.2	Series	748/1-7 odd, 15-31 odd

Week	9
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11.3	The Integral Test	759/1-27 odd
11.4	The Comparison Tests	765/ 1, 2, 3 – 35 odd, 49, 51
Week	10	
11.5	Alternating Series and	
	Conditional Convergence	773/1-33 odd, 45, 49, 51, 52
11.6	The Ratio and Root tests	778/7-33 odd
Week	11	
11.7	Strategy for Testing Series	781/1-47 odd
11.8	Power Series	786/1-39 odd
Week	12	
11.9	Representation of Functions as Power	
	Series	793/ 5 – 21 odd, 27 – 33 odd
11.10	Taylor and Maclaurin Series	809/1-37 odd
Week	13	
11.11	Applications of Taylor Polynomials	818/1-21 odd
	Review	

Week 14

Exam Review for the final exam

Academic Integrity

Academic dishonesty (such as plagiarism and cheating) is prohibited at Bronx Community College and is punishable by penalties, including failing grades, dismissal and expulsion. For additional information and the full policy on Academic Integrity, please consult the BCC College Catalog.

Accommodations/Disabilities

Bronx Community College respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of a disability, please contact the disAbility Services Office as soon as possible this semester. The disAbility Services specialists will meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations for this course. You can reach the disAbility Services Office at: <u>disability.services@bcc.cuny.edu</u>, Loew Hall, Room 211, (718) 289-5874.

10/2014 M.M. & I.P. - 08/2016 A.W. - 08/2022 R.G. - Last updated 08/18/2022

02/23 I.P.