Bronx Community College of the City University of New York

Department of Mathematics and Computer Science

**SYLLABUS: MTH 33** – Analytic Geometry and Calculus III (5 Credits – 5 Hours per week)

**PREREQUISITE: MTH 32** – Calculus and Analytic Geometry II or equivalent; and CUNY English Proficiency, or ENG 100 or 110, if required

**TEXT**: Calculus (Ninth Edition) by Stewart et al., Cengage Learning. ISBN 978-1-337-62418-3

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SECTION TOPIC SUGGESTED EXERCISES**

**Sequences, Series, and Power Series**

11.1 Sequences 773/ 3-55 odd

11.2 Series 785/ 1-12, 15, 23-26, 45-49 odd

11.3 The Integral Test 796/ 1-25 odd

11.4 The Comparison Tests 802/ 1, 2, 7-33 odd, 48, 51

11.5 Alternating Series and Absolute Convergence 810/ 1-33 odd, 49

11.6 The Ratio and Root Tests 816/ 3-33 odd

11.7 Strategy for Testing Series 819/ 1-37 odd

11.8 Power Series 824/ 1-31 odd

11.9 Representation of Functions as Power Series 831/ 3-19 odd, 27-33

11.10 Taylor and Maclaurin Series 846/ 1-33 odd

11.11 Applications of Taylor Polynomials 856/ 1-21 odd

Review Exercises 860/ 1-43 odd

**Vectors and the Geometry of Space**

12.1 Three-Dimensional Coordinate Systems 873/ 1-15 odd, 19, 21, 23, 27-37 odd

12.2 Vectors 881/ 1-25 odd

12.3 The Dot Product 890/ 1-53 odd

12.4 The Cross Product 899/ 1-43 odd

12.5 Equations of Lines and Planes 910/ 1-43 odd

Review Exercises 922/ 1-19 odd

**Vector Functions**

13.1 Vector Functions and Space Curves 933/ 1-19 odd

13.2 Derivatives and Integrals of Vector Functions 940/ 1-27 odd  
13.3 Arc Length and Curvature 951/ 1-33 odd  
 Review Exercises 966/ 1-13 odd

**Partial Derivatives**

14.1 Functions of Several Variables 984/ 3-27 odd

14.2 Limits and Continuity 998/ 1-37 odd

14.3 Partial Derivatives 1008/ 9-35 odd, 41-63 odd

14.4 Tangent Planes and Linear Approximation 1019/ 1-23 odd

14.5 The Chain Rule 1029/ 1-34 odd

14.6 Directional Derivatives and the Gradient Vector 1043/ 9-39 odd

14.7 Maximum and Minimum Values 1054/ 1-19 odd, 29-37 odd

Review Exercises 1070/ 1-49 odd

**Multiple Integrals**

15.1 Double Integrals over Rectangles 1087/ 1-25 odd, 45, 46

15.2 Double Integrals over General Regions 1097/ 1-39 odd, 47, 48

15.3 Double Integrals in Polar Coordinates 1105/ 1-27 odd

15.6 Triple Integrals 1130/ 1-23 odd

Review Exercises 1156/ 3-7 odd, 9, 19, 21-39 odd

**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: [disability.services@bcc.cuny.edu](mailto:disability.services@bcc.cuny.edu), Loew Hall, Room 211, (718) 289-5874.

**If you test positive for COVID while taking an in-person/hybrid course:**

* Using your BCC email account, please email all your **in-person and/or hybrid** professors of your status.
  + Please include your emplid # and current phone number in your email.
  + Please also email us at [healthservices@bcc.cuny.edu](mailto:healthservices@bcc.cuny.edu) .
  + Your professor will work with you to complete class work while you are in quarantine.
* You will be called by a Health Services staffer.  It is critical that you connect in a timely matter with this staff member for contact tracing information.
* You will need to submit a negative COVID test to Health Services ([healthservices@bcc.cuny.edu](mailto:healthservices@bcc.cuny.edu)) before you are allowed access to the campus.
* Your negative test result must come from your doctor or a medical provider (e.g. CityMD, Urgent Care, etc.).  We will **not** accept a negative home test result.

08/ 08/ 16 (JP) - 08/18/22 (RG) – 01/23 (EA) COVID