



MATH

CODE: MTH 119

TITLE: Calculus II and Analytic Geometry

DIVISION: Science Math and Technology

COURSE DESCRIPTION: This course focuses on differentiation of inverse trigonometric functions and applications of implicit and logarithmic differentiation. It also emphasizes the completion of the Basic Integration formulas, techniques of integration, improper integrals, parametric equations, sequences, and series. Applications of integration include area and volumes of solids of revolution. Symbolic calculation software is provided and applied to selected topics.

PREREQUISITES: MTH 118

CREDITS: 4

REQUIRED MATERIALS (CHECK WITH BOOKSTORE FOR LATEST EDITION) :

Click on the bookstore for the campus which you are attending each class.

[Pemberton Campus Bookstore](#)

[Mt Laurel Campus Bookstore](#)

INTENDED COURSE LEARNING OUTCOMES/COURSE GOALS/CORE COMPETENCIES/:

1. Find the derivative of a function using a chain of rules from the 24 Basic Differentiation Rules.
2. Use implicit differentiation to find the derivative of a function.
3. Use logarithmic differentiation to find the derivative of a function.
4. Evaluate an indefinite integral by using strategies and/or techniques of integration to change the form and by choosing the correct integration formula from the 19 Basic Integration Formulas.
5. Apply L'Hopital's Rule to evaluate a limit, when applicable.
6. Determine the convergence or divergence of a series by using an appropriate test.
7. Solve application problems.

GENERAL EDUCATION GOALS INTRODUCED/REINFORCED IN THIS COURSE:

- a. Students will translate quantifiable problems into mathematical terms and solve these problems using mathematical or statistical operations.
- b. Students will construct graphs and charts, interpret them, and draw appropriate conclusions.

TOPICAL OUTLINE FOR THE COURSE:

1. Differentiation: Exponential and logarithmic functions with bases other than e .
2. Inverse Trigonometric Functions: Differentiation
3. Inverse Trigonometric Functions: Integration
4. Area of a Region between Two Curves
5. Volume: The Disk Method
6. Volume: The Shell Method
7. Technique of Integration: Integration by Parts
8. Technique of Integration: Trigonometric Integrals
9. Technique of Integration: Trigonometric Substitution
10. Technique of Integration: Partial Fractions
11. Integration Tables
12. Differentiation: Indeterminate Forms and L'Hopital's Rule
13. Improper Integrals
14. Sequences
15. Convergent & Divergent Series: nth Term Test for divergence and Geometric Series Test
16. Convergent & Divergent Series: Integral Test and p-Series Test
17. Convergent & Divergent Series: Direct Comparison Test and Limit Comparison Test
18. Convergent & Divergent Series: Ratio Test
19. Power Series Polynomials
20. Representations of Functions by Power Series
21. Plane Curves and Parametric Equations
22. Parametric Equations and Calculus

Course Activities:

- ▶ Course activities vary from course to course and instructor to instructor. Below is a listing of some of the activities students can anticipate in this course:
- ▶ Writing assignments: students will analyze current issues in the field using current articles from the popular press as well as library research including electronic resources databases.
- ▶ Speaking assignments: students will present research individually or in groups using current technology to support the presentation (e.g., PowerPoint presentation); students will participate in discussions and debates related to the topics in the lessons. Discussions may also focus on cross-cultural and legal-ethical dilemmas as they relate to the course content.
- ▶ Simulation activities: Trends and issues will analyzed for their ethical as well as social or legal significance. Students might role-play common situations for classmates to analyze. Current news articles may be used to generate discussion.

- ▶ Case Studies: Complex situations and scenarios will be analyzed in cooperative group settings or as homework assignments.
- ▶ Lectures: This format will include question and answer sessions to provide interactivity between students and instructor.
- ▶ Speakers: Representatives from various related fields may be invited to speak.
- ▶ Videos: Related topics will provide impetus for discussion.

Student Evaluation:

The student will be evaluated on the degree to which student learning outcomes are achieved. A variety of methods may be used such as tests, quizzes, class participation, projects, homework assignments, presentations, etc.

See individual instructor's course handouts for grading system and criteria (point value for each assessment component in course, e.g. tests, papers, presentations, attendance etc.), number of papers and examinations required in the course, and testing policy including make ups and/or retests.

GRADING STANDARD:

- A Mastery of essential elements and related concepts, plus demonstrated excellence or originality.
- B+ Mastery of essential elements and related concepts, showing higher level understanding.
- B Mastery of essential elements and related concepts.
- C+ Above average knowledge of essential elements and related concepts.
- C Acceptable knowledge of essential elements and related concepts.
- D Minimal knowledge of related concepts.
- F Unsatisfactory progress. This grade may also be assigned in cases of academic misconduct, such as cheating or plagiarism, and/or excessive absences.

For other grades, see the current BCC catalog.

COLLEGE POLICIES:

The current college catalog and student handbook are important documents for understanding your rights and responsibilities as a student in the BCC classroom. Please read your catalog and handbook as they supplement this syllabus, particularly for information regarding:

- ▶ Academic Integrity Code
- ▶ Student Conduct Code
- ▶ Student Grade Appeal Process

NOTIFICATION FOR STUDENTS WITH DISABILITIES:

Burlington County College offers reasonable accommodations and/or services to persons with disabilities. The Special Populations Department offers comprehensive services to all students with any form of disability (with appropriate documentation) which hinders their academic success. Contact Barbara Ericson on Extension 1208 at (609) 894-9311 or (856) 222-9311 or visit the website at:

<http://www.bcc.edu/pages/182.asp>.

ADDITIONAL SUPPORT/LABS:

BCC provides confidential advising and counseling services free to all students through the Department of Academic Advisement and Transfer. For more information about advising and counseling services, visit at the Parker Center or the Mt. Laurel Center at Laurel Hall, or call extension 7337 at (609) 894-9311 or (856) 222-9311 or visit the website at:

Advising Website <http://staff.bcc.edu/advising/>

Counseling Website <http://staff.bcc.edu/counseling/>

BCC offers a free tutoring for all currently enrolled students. For more information regarding The Tutoring Center call Extension 1495 at (609) 894-9311 or (856) 222-9311 or visit the Tutoring Center Website at <http://staff.bcc.edu/tutoring/>

Annual Review 2006-2007

KC

7/15/08

10/30/08