Math 156 - Calculus II, Fall 2021
Course Syllabus

Instructor: Brian Leary
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Office: Learning Resource Center 323K
Office hours: Mon: 1-2, Tues: 10-11 & 6pm-7pm (online), Wed: 1-2, Thurs: 11-12, Fri: 1-2
The Tuesday evening online office hour will be accessible through Google Meet with the meeting code TechMathLeary. Other office hours will be in person, and I may be available by appointment at additional times.

Class Room/Time: INN-B 314, MTWF 11:00-11:50 am
Course website: community.wvu.edu/∼bal0018/math156F21.html (as a backup website, I will also try to keep the eCampus site updated)
Homework assignments will be posted on the course website. Course announcements may also be posted on the website or sent via email. Please be sure to check the website regularly, and to regularly check the email address you have on record. You are responsible for any information posted on the course website.

Textbook: OpenStax *Calculus Volume 2*, available to download for free at
https://openstax.org/details/books/calculus-volume-2.

Catalog Data: MATH 156 Calculus II (4-0) Credits 4. Techniques of integration, applications of the definite integral, polar coordinates, indeterminate forms, and infinite series. This course satisfies GEF3 Mathematics & Quantitative Skills.
Prerequisite: MATH 155.

Course Objective: This course, which is a continuation of Calculus I, is designed to teach students in mathematics, engineering and the sciences the techniques of integration, parametric curves, polar coordinates, infinite series and power series, and some applications of differential and integral calculus.

Learning Outcomes: Upon completion of this course the student will be able to do the following:

1. Integrate a given function for which an antiderivative can be found using standard integration techniques.

2. Apply l'Hôpital's Rule to evaluate limits involving indeterminate forms, describe given parametric curves, polar curves, and conic sections.

3. Find the length of curves, areas bounded by the curves, and surface area of revolutions for curves given in rectangular equations, parametric equations, or polar equations.

4. Identify the sequences and series that converge, and derive and use power series for analytic functions.

5. Use integral and differential calculus to solve more advanced problems in engineering and other sciences.

Topics:

1. Techniques of Integration (15 days - Chapter 3)
   (a) Integration by Parts
   (b) Trigonometric Substitution
   (c) Partial Fraction Decomposition
   (d) Numerical Integration
2. Further Applications of Integrals (9 days - Sections 2.4, 4.3, & 4.4 OPT)
   (a) Arc Length and Surface Area
   (b) Separable Differential Equations
3. Infinite Sequences and Series (20 days - Chapters 5-6)
   (a) Convergence/Divergence
   (b) Convergence Tests for Series
   (c) Power Series
   (d) Taylor Series
4. Parametric Equations and Polar Coordinates (9 days - Chapter 7)
   (a) Parametric Curves
   (b) Polar Curves
   (c) Area/Arc Length
   (d) Conic Sections

Grading: Your final grade will be based on homework, quizzes, four exams during the semester, and the final exam. Your final course score will be the maximum of the following two grading schemes:

- 10% Homework + 5% Quizzes + 15% Exam 1 + 15% Exam 2 + 15% Exam 3 + 15% Exam 4 + 25% Final Exam
- 10% Homework + 5% Quizzes + 20% (highest grade of the four exams) + 20% (2nd grade of the four exams) + 15% (3rd grade of the four exams) + 30% Final Exam

Letter Grade Cutoffs: A: 90%, B: 80%, C: 70%, D: 60%, F: below 60%

Homework: Homework will be completed online with MyOpenMath.com. When you sign-up, you will use the Course ID and Enrollment Key given in class and posted on the eCampus site. Homework assignments will be due most Fridays.

Exams: There will be four exams, tentatively scheduled for Friday, September 10; Friday, October 1; Friday, October 22, and Friday, November 12. These will be 50 minute exams taken during the regular lecture time. The final exam time has been set by the university, and will be on Friday, December 17 from 10:00 am to 11:50 am. Make-up exams will only be given to students with excused absences, and such make-up exams must be scheduled within 24 hours of the missed exam.

Quizzes: There will be a quiz given most weeks in which there is no exam. This will be a very brief quiz given at the beginning of class, intended to test you with more immediacy than the exams and with less consequence. The problems that appear on the quiz will be taken from the homework problems I assign. Only your best 5 quizzes will count toward your grade, and there will be absolutely NO make-up quizzes.

Getting Help: Always remember: asking for help when you need it is not a sign of weakness, but a sign of strength! Please feel free to attend my office hours or email me if you have questions about the course material. If you are unable to make it to my regularly scheduled office hours, I am willing to make an appointment to meet at another time if possible. Additionally, you can get help in the Math Tutoring Lab in LRC 323 from 8 AM to 4:30 PM. Free tutoring is also available through Student Support Services, located in Benedum 130, and the Student Success Center, located in the library on the second floor of LRC. Finally, I would also encourage the formation of study groups, to learn from each other and help each other learn.

Class policies:

- Graphing calculators will never be allowed during any exams. Scientific calculators will be considered on an exam by exam basis. You may use any calculator to help you do the homework if you wish, but you should keep in mind that you may be required to solve similar problems without a calculator on the quizzes and exams.
- While class attendance does not directly factor into your grade computation, attendance of each lecture is highly recommended. Regular attendance will tend to lead to better understanding of the course material, which tends to lead to better performance on exams.
- If you believe a problem on a homework assignment or midterm exam has been graded incorrectly, you must notify the instructor of your complaint within 7 days of the date the exam is handed back. If you are unable to retrieve your graded material at the time it is handed back, it is your responsibility to make arrangements with the instructor to retrieve the material at another time.

Institutional Policies: Students are responsible for reviewing policies on inclusivity, academic integrity, incompletes, sale of course materials, sexual misconduct, adverse weather, as well as student evaluation of instruction, days of special concern/religious holiday statements, and the updated COVID-19 statement. For these detailed policies of West Virginia University, please review: https://tlcommons.wvu.edu/syllabus-policies-and-statements.