

Syllabus for Calculus 2 Fall 2022

Math 172 section 003 crn 40771

9:40 am - 11:00 am MWF Bonnell Building BR-08

Professor John Jernigan

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Text: Stewart, et al Calculus early transcendentals ed 9

Access code to WebAssign is required.

Your actual syllabus in Canvas will be more detailed, and can be accessed once enrolled in the course. It will include directions on making an account in WebAssign.

All the work for the course is done in WebAssign, communication is through Canvas.

1. Each week there are two homework assignments and one Exam.
2. The first assignment is due by 11:59 p.m. on Tuesday, the second by 11:59 p.m Friday. Week 1 is an exception, there is only one homework due Friday. It longer than usual and is all review.
3. You may spend as much time as you like on the homework, using the hints and the online help.
4. Exams are due Sunday by 11:59 p.m.
5. The weekly exam is approximately 12 questions, timed at 90 minutes, and may not be taken more than once. Please do not open the exam until you are ready to take it.
6. Participation in this course means the completion of assignments. Anyone missing 6 or more assignments will automatically fail the course irrespective of grade. There are no exceptions to this policy.

Your grade will be determined as follows:

Homework is 20%, Weekly exams 60%, Final Exam 20%

Topics include: Fundamental theorem of calculus, integration by substitution, areas and volumes, techniques of integration, arc length, improper integrals, polar coordinates and parametric equations, conic sections, sequences, infinite series, power series, convergence tests, alternating series, Taylor and Maclaurin series.

Prerequisite: MATH 171 with a grade of "C" or better.

Upon successful completion of this course, students will be able to:

1. Evaluate integrals using a variety of techniques.
2. Solve problems involving applications of integrals such as finding areas, volumes, arc length, work, etc.
3. Differentiate and integrate functions defined by parametric equations in polar form.
4. Test infinite series for convergence and represent functions using power series.

It is your responsibility to keep track of how well you are doing in the class. You can access your current grade from WebAssign

Students who believe they may need an accommodation based on the impact of a disability should contact me privately to discuss their accommodation form and specific needs as soon as possible, but preferably within the first week of class. If you need to request reasonable accommodations, but do not have an accommodation form, please contact the [Center on Disability](#) phone number 215-751-8050.

Please be mindful of the [Withdraw & Incomplete Dates](#)

Students must be familiar with and adhere to the college policy on [academic honesty](#)

Finally a word about cheating. You may use any resources you like for this class, online or otherwise. I recommend [wolframalpha](#), but some prefer [mathway](#) or [symbolab](#). [Desmos](#) is good for graphing. The number of web based math applications is almost unlimited. Cheating for this course is defined as having someone else do your class work, either paid or otherwise. Getting the answers from classmates or others and using them as your own is unacceptable.

While I am aware that most students take math courses only when required to do so, I sincerely hope that this course will not only be stress free, but also enjoyable and instructive. Much of this depends on you. Please ask questions, give your opinion, and participate!

Course Schedule

Week 1

- 5.3 The Fundamental Theorem of Calculus
- 5.4 Indefinite Integrals and the Net Change Theorem
- 5.5 The Substitution Rule

Week 2

- 6.1 Area Between Two Curves
- 6.2 Volumes
- 6.5 Average Value of a Function

Week 3

- 7.1 Integration by parts
- 7.2 Trigonometric Integrals
- 7.3 Trigonometric Substitutions

Week 4

- 7.3 More Trig Subs
- 7.4 Rational Functions Partial Fractions
- 7.6 Using Tables or Wolfram

Week 5

- 7.8 Indefinite Integrals
- 8.1 Arc Length

Week 6

- 8.2 Areas of Surface of Revolution
- Spivak On Logarithms
- Spivak On Exponentials

Week 7

- 11.1 Sequences

Week 8

- 11.1 Sequences
- 11.2 Series

Week 9

- 11.3 Integral Test
- 11.4 Comparison Test
- 11.5 Alternating Series

Week 10

- 11.6 Absolute Convergence, Ratio and Root Test
- 11. Power Series

Week 11

- 11.9 Representing Functions as Power Series
- 11.10 Taylor and Maclaurin Series

Week 12

- 10.1 Parametric Curves and Equations
- 10.2 Calculus with Parametric Curves

Week 13

- 10.3 Polar Coordinates
- 10.4 Areas and Lengths in Polar Coordinates

Week 14

- 10.5 Conic Sections
- 10.6 Conic Sections in Polar Coordinates