

MAT 265: Calculus for Engineers I: Calculus with Analytic Geometry for Science and Engineering



Overview

Topics covered in this course include limits (including those involving infinity); derivatives and rates of change; continuity; applications of the derivative; linear approximation; accumulation; antidifferentiation; definite integrals; and more. Content in this course is adaptive, allowing you to achieve mastery in a certain concept before moving on to the next. This course uses Gradarius, a calculus learning platform that personalizes your learning based on the topics you already know and the topics you still need to learn. You will also have access to individualized coaching as you move through each topic in this course.

Course Prerequisites and Requirements

To be successful in this course, we recommend English language fluency and computer literacy. We also encourage you to make sure your laptop or desktop computer meets the technical requirements. MAT 170 is strongly suggested as a prerequisite for success in this course.

What You'll Learn

- The meaning and computation of limits
- The meaning and determination of continuity
- The meaning and computation of average rates of change and applications
- The meaning and computation of instantaneous rates of change and applications
- The meaning and computation of accumulation and applications
- The meaning and computation of Riemann Sums and applications
- Techniques to solve optimization problems and applications

Transcript

This course appears on your transcript identically to how it appears on the transcript of an enrolled ASU student who has taken the course on one of ASU's campuses.

This course satisfies 3 credit hours toward the Mathematics (MA) General Studies requirement at Arizona State University. It is strongly encouraged that you consult with your institution of choice to determine how these credits will be applied to their degree requirements prior to transferring your credit.

Exams and Grading

Instructor led

10% Gradarius Topics (23)	20% Gradarius Quizzes (5)	70% Final Exam
-------------------------------------	-------------------------------------	--------------------------

Self paced

20% Gradarius	80% Final Exam
-------------------------	--------------------------

Creators

Fabio A. Milner

Director & Professor of Mathematics,
Applied Mathematics and Mathematics Education

Fabio Milner studies structured population models, including demography, epidemics, ecology, and tumor growth. Populations are usually structured by age (demographic and/or age-of-disease), and may also be structured by sex, size, or other relevant variables. The team studies theoretical properties of the models, such as existence, uniqueness, preservation of non-negativity, and asymptotic behavior, as well as real-life applications. Professor Milner and his collaborators are also developing a family of epidemiological models structured by immunological variables in order to describe the multi-scale problem of disease propagation at the individual level (“small scale”) and at the population level (“large scale”) in a single model. They are studying the long-term population effect that chickenpox vaccination in childhood may have many decades later in increased incidence of the shingles by a combination of repeated exposure to the Varicella zoster virus and decreased immune response.



Rochus Boerner

Principal Lecturer,
School of Mathematical and Statistical Sciences

Rochus Boerner received a master of natural science (an interdisciplinary degree with major mathematics and minor computer science) from Arizona State University in 1999, and a doctorate in mathematics from Arizona State University in 2004. His doctoral research was in wavelets and harmonic analysis, the branch of mathematics that studies the frequency content of signals. He worked as a software engineer in the development of professional 3D design software from 2004 to 2007. Since 2007, he has been teaching mathematics at ASU and has taught most first and second-year mathematics courses. Lately, he has mostly been teaching the Calculus sequences, Discrete Math and Applied Linear Algebra. He developed and taught the mathematics portion of the engineering Jump Start and BioBridge programs, and MAT 275 and MAT 243 online. He is the 2016 recipient of the School's Award for Outstanding Instruction and Service.

