

TTU Math 1910.9: Calculus I
8AM MTWR in Bruner 124
Instructor: Tom Wigger, Bruner 116, Office Hrs 9-10AM MTW

Course Description:

Limits, continuity, derivatives and integrals of functions of one variable with applications. Lec. 4, Cr. 4.

Prerequisites:

ACT math score of 27 or above and four years of high school mathematics including algebra, geometry, trigonometry and advanced or pre-calculus mathematics; or special permission of the Mathematics Department; or C or better in Math 1730; or C or better in Math 1720 and Math 1710; or equivalent.

Course Objectives:

Build on (not replicate) the competencies gained through the study of two years of high school algebra and one year of high school geometry. Use mathematics to solve problems and determine if the solutions are reasonable. Use mathematics to model real world behaviors and apply mathematical concepts to the solution of real-life problems. Make meaningful connections between mathematics and other disciplines. Use technology for mathematical reasoning and problem solving. Apply mathematical and/or basic statistical reasoning to analyze data and graphs. Study the topics of limits, continuity, derivatives and integrals of functions of one variable and their applications in the physical and life sciences. After finishing the course, students are expected to know the importance of the definitions and to have the ability to use them.

Textbook:

Calculus with Early Transcendentals, 7th edition, by Stewart

Topics to be covered:

- Chapter 1: Functions and Models
review of functions, exponential functions, inverse functions, log functions
- Chapter 2: Limits and Derivatives
tangents, limits, continuity, asymptotes, rates of change
- Chapter 3: Differentiation Rules
polynomials, exponentials, product and quotient rules, trig functions, chain rule, implicit differentiation, related rates and other applications
- Chapter 4: Applications of Differentiation
finding max and min, mean value theorem, shapes of graphs, indeterminate forms and l'Hôpital's rule, curve sketching, optimization, Newton's method, antiderivatives
- Chapter 5: Integrals
areas, definite integrals, fundamental theorem of calculus, indefinite integrals, net change theorem, substitution rule

Exams:

Chapter exams at the ends of Chapters 1-4 and a comprehensive final exam. Grading scale is 90-80-70-60.

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An accommodation request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, room 112; phone 372-6119.