北京交通大學
BEIJING JIAOTONG UNIVERSITY

Beijing Jiaotong University

2019 Summer Session

MATH 122 Calculus 2

Course Outline

Term: July 08-August 09,2019

Class Hours: 08:00-09:50 (Monday through Friday)

Code: MATH 122

Instructor: Ulises Fidalgo

Home Institution: Case Western Reserve University

Office Hours: By Appointment

Email: uxf6@case.edu

Credit: 4

Class Hours: This course will have 72 class hours, including 40 lecture hours, 10 lecturer office hours, 10-hour TA discussion sessions, 2-hour review sessions, 10-hour extra classes.

Course Description: This course covers integration, its applications, sequences, series, and series of powers. These topics can be found in the Chapters 5, 6, 7, 8, and 9. The content includes, but is not limited to, computation of antiderivative for polynomial, trigonometric, exponential, logarithmic, rational, and radical functions using a variety of methods; evaluation of definite integrals that represent plane area, volume, arc length, and surface area. Another part of the course contains sequences, series, power series, and work with power series.

Course Objectives: Enabling students to understand the concepts and rules of integration and applications in real problems, learning different techniques for computing integrals, and develop problem solving skills. We expect students to apply concepts and theories learned in class to solve application problems that include computing of plane area, volume, arc length, and surface area, and also using sequences, series, and power series in math problems.

Required Textbooks: Calculus Early Transcendentals by William Briggs & Lyle Cochran; 2ed; ISBN: 9781323110935

Grading & Evaluation: The cumulative point total for the course is 700 points – tests: 400, quizzes: 100, final exam: 200. The following point scale will be used to determine your final grade:

Grade	Percentage	Grade	Percentage
A	93%	C+	77%
A-	90%	C	70%
B+	87%	D	60%
B	83%	F	below 60%
B-	80%		

Course Schedule:

Week 1 Integration: Antiderivatives, Approximating areas under curve, Definite integrals, Fundamental Theorem of Calculus, Working with integrals, Substitution rule, Test 1.

Week 2 Integration Techniques: Integration by parts, Trigonometric integrals, Partial fractions, Numerical integration, Improper integrals, Test 2.

Week 3 Applications of Integration: Regions between curves, Volume by slicing, Volume by shells, Length of curves, Surface area, Physical applications, Logarithmic and exponential functions revisited, Test 3.

Week 4 Sequences and Infinite Series: Sequences, Infinite series, Divergence and Integral Tests, Ratio, Root, and Comparison Tests, Alternating series, Test 4.

Week 5 Power Series: Approximating functions with polynomials, Properties of Power series, Taylor series, Working with Taylor series.