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Hankuk University of Foreign Studies

2024 Summer Session

MATH 111 Calculus 1

Course Outline

Course Code: MATH 111

Instructor: Professor Vadim Olshevsky

Home Institution: University of Connecticut

Office Hours: By Appointment

Email: olshevsky@gmail.com

Credit: 4

Class Hours:

This course will have 52 class hours, including 32 lecture hours, professor 8 office hours, 8-hour TA discussion sessions, 4-hour review sessions.

Course Description:Calculus 1 is the first of a sequence of three courses in calculus covering basic calculus. Topics to be covered include a review of functions, limits, differentiation, applications of the derivative, and introduction of integration.

Course Objectives: The objective of the course is to build an understanding of the basic principles and applications of differential and integral calculus through lectures, homework, discussion, quizzes, and exams.

Required Textbooks:

Calculus: Early Transcendentals, 8th Edition, by James Stewart with WebAssign Access Code. Can be purchased directly at

https://www.cengage.com/c/calculus-early-transcendentals-8e-stewart/9781337771498#compare-buying-options





It is important that you purchase both the textbook and the WebAssign code, the latter is necessary for the homework assignments.

Grading & Evaluation

Attendance and participation: 10%

Homework: 30%

Midterm: 30%

Final: 30%

Grading System $(1 \sim 100)$

A+: 96 - 100	A: 91 - 95
B+: 86 - 90	B:81 - 85
C+: 76 - 80	C:71 - 75
D+: 66 - 70	D: 60 - 65
F:0-59	
Pa : Pass	Fa : Fail

Course Schedule

Week1 Functions: definition, representation, types, operations, mathematical models. Limits and continuity: limit of a function, the limit law, continuity, definition of a limit. Derivatives: Definition, rates of change

Week2 Derivatives: Differentiation rules: polynomial, trigonometric, inverse, logarithmic, exponential, implicit functions. The product, quotient, and chain rules.

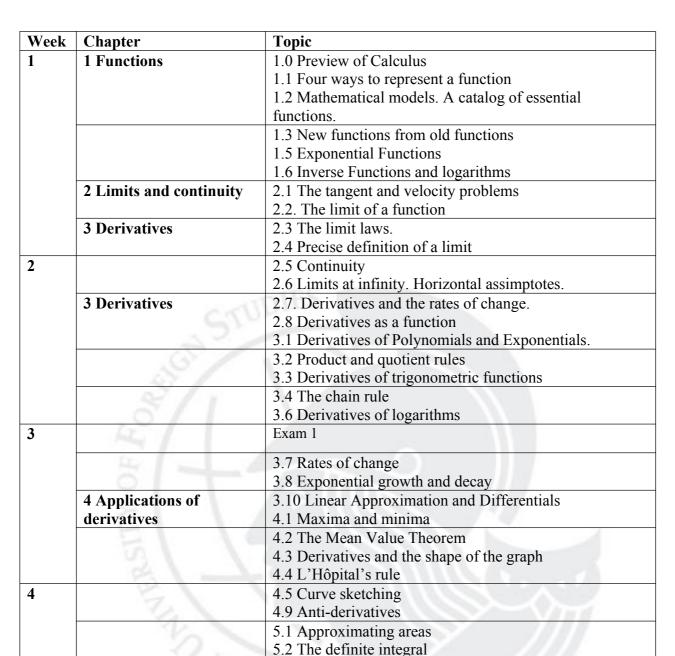
Week3 Applications of differentiation: Higher derivatives, linear approximation and differentials, minima and maxima, the Mean Value Theorem, L'Hôpital's rule, limits at infinity and asymptotes, curve sketching.

Week4 Applications of differentiation: Applied optimization problems Integrals (Antiderivatives, approximating areas, the definite integral).

Integrals: The Fundamental Theorem of Calculus, substitution rule.

Detailed Course Outline





5.5 Substitution Rule

Exam 2

5.3 The Fundamental Theorem of Calculus