

0201E318

Mathematics for Economics II

Time: December 28, 2026 - January 15, 2027; Mon.-Fri., 8:40am-12:00pm

Office Hours: by appointment

Contact Hours: 60 (50 minutes each)

Credits: 4

Location: Online, Zoom

Instructor: TBA

Email: TBA

Course Description

This course builds on foundational economic mathematics, covering optimization, matrix algebra (determinants, inverses), multivariable calculus (partial derivatives, multiple integrals), equality constraints, linear programming, and differential equations.

Required Textbook(s)

Knut Sydsaeter, Peter Hammond, Arne Strom, Andrés Carvajal, *Essential Mathematics for Economic Analysis*, 6ed, Pearson, ISBN-13: 9781292359281.

Prerequisites

0201E317 Mathematics for Economics I

Course Schedule

Please note that the schedule is meant to give an overview of the major concepts in this course. Changes may occur in this calendar as needed to aid in the student's development.

Week 1

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| Mon | Course intro, syllabus, exam logistics; review of single-variable & basic multivariable differentiation, optimization (Ch. 8) |
| Tue | Optimization review (Ch. 8): extreme-value theorem, local vs. global extrema, economic applications |
| Wed | Matrix algebra (Ch. 15): vectors, matrices, operations, linear systems, Gaussian elimination |
| Thur | Determinants & inverses (Ch. 16): order 2, 3, n; Cramer's rule, inverse matrix, rank |
| Fri | Quadratic forms & definiteness (Ch. 16) |

Week 2

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| Mon | Functions of several variables (Ch. 11): domains, level curves, partial derivatives, gradient |
| Tue | Comparative statics (Ch. 12): chain rules, implicit differentiation, homogeneous functions, differentials, elasticities |
| Wed | Multivariable optimization (Ch. 13): unconstrained, 1st & 2nd order conditions, quadratic forms, global extrema |
| Thur | Midterm Exam |
| Fri | Constrained optimization - equality constraints (Ch. 14): Lagrange method, multiplier interpretation, multiple constraints |

Week 3

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| Mon | Nonlinear programming – inequality constraints (Ch. 14): Kuhn – Tucker conditions, economic interpretation |
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Tue	Linear programming (Ch. 17): formulations, graphical solution, simplex overview, duality
Wed	Integration I (Ch. 9): indefinite & definite integrals, Riemann integral, area, FTC
Thur	Integration II (Ch. 9): substitution, integration by parts, improper integrals; separable & linear 1st-order ODEs; Multiple integrals
Fri	Final Exam

Grading Policy

Your semester grade will be based on homework and exams.

Homework: 45%

Midterm Exam: 25%

Final Exam: 30%

TOTAL 100%

Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

Attendance

You are expected to log in to Zoom to attend class and actively participate in discussions. Attendance will be recorded for each session and will contribute to students' participation records. Students should inform the instructor as early as possible if they need to request a leave of absence. All absences may negatively impact students'

final grades. You are expected to actively participate in class discussions. During the session, you may be randomly selected to assist in solving examples to assess your understanding of core concepts. Additionally, you should be prepared to work through assigned examples during practice time.

Academic Integrity

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students' work within these general definitions. Instructors, however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.