



School	Business
Department	Economics, Business & Finance
Module Title	Principles of Mathematical Economics
Module Code	2104183
Module Leader	Huthaifa Alqaralleh huthaifa89@mutah.edu.jo

This course tends to develop student's mathematical ability up to the level required for a general economics degree course and related subjects, such as business studies. Thus, this course has several objectives. First, it provides a revision of arithmetical and algebraic methods that students probably studied at school but have now largely forgotten. Second, introduces mathematical techniques that will be new to most students through examples of their application to economic concepts. It is also allowing the participants to express their ideas using mathematical concepts simply as these allow the economist to express themselves more precisely than with spoken language.

On completion of this module students should be able to:

- Have a strong grasp on tackling problems in economics using these techniques as soon as possible so that they can see how useful they are.
- Be able to apply the formal techniques you learn to real world issues.

Module Outline

- Week 1: mathematical concepts and methods used by professional economists, Chapter 1
- Week 2: Linear equations, Chapter 2
- Week 3: Quadratic functions, Chapter 3
- Week 4: Indices (powers, exponents) and logarithms, the exponential and natural logarithm functions, Chapter 4
- Week 5: Concepts and Problems in Macroeconomics, Chapter 4
- Week 6: First Exam
- Week 7: Differentiation, Chapter 5
- Week 8: Rules of Differentiation, Chapter 6
- Week 9: Further Rules of Differentiation, Chapter 7
- Week 10: Optimization of economic functions, Chapter 7
- Week 11: Second Exam
- Week 12: Optimization of economic functions, Chapter 8
- Week 13: Partial Differentiation, Chapter 9

- Week 14: Matrices, Chapter 9
- Week 15: Revision
- Week 16: Final Exam

Module Materials

- Lecture slides.
- Harrison, M. and Waldron, P., 2011. Mathematics for Economics and Finance. Routledge.
- Hoy, M., Livernois, J., McKenna, C., Rees, R. and Stengos, T., 2011. Mathematics for economics. MIT press.

Module Organization

- **Teaching:** 3-hour lectures per week
- **Student workload:** Approximately 6 hours of study per week
- **Feedbacks** will take the shape of one-to-one.

Assessment method:

- Mid Term Exam 30% (1 hour): week 7.
- Weekly exercises/assignments 20% (1 hour): week 11.
- Final Exam 50% (2 hours): week 16.

Course policies

To be explained to the students at the first meeting:

- ✓ **Class attendance:** Students are expected to attend all lectures of this course due to the nature of the course that adopts a cumulative learning process. A prior approval is required for class absence, except for emergencies.

*Students **absent** from class are responsible for obtaining notes of lectures and project assignments from fellow students and are responsible for turning such assignments when due. Absence is not an excuse for meeting an assignments due date.*

- ✓ **Tardy:** Arriving late are not expected in both on-campus and online lectures (if any), as it would affect the understanding of the student to the new topic, and therefore his performance in the daily exercise.
- ✓ **Class behavior:** A student is expected to pay full attention to the tutor, to respect his colleagues, and to keep the lectures and his table clean and tidy. Additionally, full attention shall be kept during the classes as the peer-to-peer learning is one of the major learning tools in the lecture.
- ✓ **Food and drinks:** Snacks and drinks with lids are allowed in the lectures.
- ✓ **Submissions and exams:** The weekly exercises are expected to be submitted on time. Late submissions are only accepted within a week of the original deadline and with 20% cut of the main grade. Failure to attend any exam or quiz will result to have a mark of zero.
- ✓ **Cheating:** Cheating in all its forms are not accepted and would result in an automatic zero for the submission/exam and would be reported to the dean to investigate the case and decide upon a suitable punishment according to the university regulations.