Syllabus

Course description

Course title: Mathematics for PPE
Course code: 27042
Scientific sector: SECS-S/06
Degree: Bachelor in Economics and Social Sciences
Semester and academic year: 1st (M1) and 2nd (M2) semester 2020-2021
Year: 1
Credits: 12 (6+6)
Modular: Yes

Total lecturing hours: 72 (36+36)
Total lab hours: none
Total exercise hours: 72 (36+36)
Attendance: Suggested, but not required
Prerequisites: none


Specific educational objectives:
The course refers to the basic (M1) and typical (M2) educational activities and belongs to the scientific area of statistics-mathematics (quantitative methods for decision-making).
The course is aimed at creating ability to analyze complex economic phenomena by choosing appropriate analytical methods and retrieving the information necessary for implementing the corresponding decision-making processes.

Module 1
Lecturer: Mathematics A for PPE M1
Yuriy Kaniovskyi
Office E 505
Yuriy.Kaniovskyi@unibz.it
Tel. 0471013150

Scientific sector of the lecturer: SECS-S/06
Teaching language: English
Office hours: 18 hours

Cockpit – students’ zone – individual timetable
Webpage: [https://www.unibz.it/en/timetable/?sourceId=unibz&department=26&degree=13141%2C13182](https://www.unibz.it/en/timetable/?sourceId=unibz&department=26&degree=13141%2C13182)

Lecturing assistant: Paolo Maraner
Office E 523
Paolo.Maraner@unibz.it
Tel. 0471 013288 / 013289
https://www.unibz.it/it/faculties/economics-management/academic-staff/person/12920-paolo-maraner

List of topics covered
Sets and operations with them. Functions of one variable: limits, continuity, derivatives, linear and quadratic approximations, convexity in terms of second derivative, single-variable optimization, integration. Finite and infinite geometric series and their sums. Exponential and logarithmic functions.

Teaching format
Frontal lessons and exercises

Module 2
Mathematics B for PPE M2
Lecturer
Yuriy Kaniovskyi
Office E 505
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Tel. 0471013150
https://www.unibz.it/en/faculties/economics-management/academic-staff/person/86-yuriy-kaniovskyi

Scientific sector of the lecturer
SECS-S/06

Teaching language
English

Office hours
18 hours
Cockpit – students’ zone – individual timetable
Webpage:
https://www.unibz.it/en/timetable/?sourceId=unibz&department=26&degree=13141%2C13182

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Teaching format
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Learning outcomes

Knowledge and understanding
Students acquire knowledge of basic mathematical tools specific to economic analysis. This bulk builds upon their general secondary education. Through considering classical examples (like Cobb – Douglas production function) students learn to understand the interrelations between different topics of the course and their relevance to disciplines in economics and management. More specifically:

M1: Provides the basic mathematical tools concerning functions of one variable and static models. The corresponding skills, allow, on the one hand, to understand and analyze the corresponding economic mechanisms and, on the other hand, they create a base for M2 part.

M2: Comprises intermediate mathematical tools necessary to understand and analyze economic mechanisms through theoretical and empirical models described by functions of several variables. Particular learning outcomes include: understanding of comparative static analysis, use of the Lagrangian method in cost/utility optimization.

Applying knowledge and understanding

M1: Ability to apply calculus in analyzing the behavior of economic agents through both normative and descriptive models.

M2: Mastering intermediate mathematical tools in analyzing behavior of economic agents, from both theoretical and empirical points of view. Ability to formalize simple economic problems through mathematical models, to find solutions and to interpret them.

Making judgments
Within the scope of mathematical modelling, students learn to explain the outcome in terms of the corresponding social, scientific or ethical issues.

Communication skills
The course provides skills necessary for a presentation of ideas, problems and solutions based on the acquired mathematical skills to both specialist and non-specialist audiences.

Learning skills
The course creates a base of knowledge and learning skills (acquired through class work, exercises and individual study supervised by the lecturer and teaching assistant) necessary to continue with a high degree of autonomy a further study in economics and management.
Assessment

A written final exam (questions and problems to solve) covering both M1 and M2 parts (M1 partial exam and M2 partial exam, respectively).

Assessment language

English

Evaluation criteria and criteria for awarding marks

Final grade: 50% grade for M1 partial exam, 50% for M2 partial exam. The grades of partial exams are only valid for the academic year in question. They cannot be carried over beyond that time frame.

Required readings


Supplementary readings

Not needed