



Course and Examination Fact Sheet: Spring Semester 2015

2,202: Mathematics B

ECTS credits: 3.5

Overview examination/s

(binding regulations see below)

Central - Written examination (100%, 120 mins.)

Attached courses

Timetable -- Language -- Lecturer

[2,202,1.00 Mathematics II](#) -- English -- [De Giorgi Enrico](#)

[2,202,2.01 Mathematics II: Exercises, Group 1](#) -- English -- [Baikou Yauhen](#)

[2,202,2.02 Mathematics II: Exercises, Group 2](#) -- English -- [Baikou Yauhen](#)

[2,202,2.03 Mathematics II: Exercises, Group 3](#) -- English -- [Dare Wale](#)

Course information

Course prerequisites

The topics of the assessment lecture Mathematics A.

Course content

Quantitative methods provide the foundation for many of the theoretical advancements of modern economics. Nowadays mathematical tools have become an important prerequisite for all those who want to understand the economic and business literature. Students of economics and business are required to achieve a solid understanding of mathematics. This includes mathematical tools such as infinitesimal calculus for functions of one or several variables, optimization with and without constraints, linear algebra and difference equations. Mathematics is also a way to logically structure arguments in order to obtain new hypotheses or statements to be tested on real data.

The lecture introduces the basic mathematical techniques and intends to help students achieve the level of understanding needed to approach the economic and business literature. The lecture also aims to assist students in further developing their mathematical logic.

Topics:

- Optimization of function of two variables, with and without constraints
- Integration
- Matrices
- Vectors and their properties
- Systems of linear equations
- Eigenvalues and eigenvectors
- Difference equation of order 1
- Least squares method

Course structure

Lecture:

The two-hour lecture takes place every week in one English group. The lecture introduces the topics and discusses the main applications to economics and business.

Exercises:

The two-hour exercises take place every two weeks in three English groups. There are six exercise series. Each series contains different types of exercises (open exercises as well as multiple-choice exercises) with complete solutions. The exercise sessions are



meant to be the occasion to ask questions and compare different ways of solving the exercises. During the exercise sessions the teaching assistants will solve a *selection* of exercises, make suggestions on how to address them and discuss typical mistakes. The exercise sessions will provide the highest benefit to students if they prepare the exercises before attending the sessions.

Course literature

De Giorgi, E. (2014): *Mathematics*.

De Giorgi, E. and R. Schuppli (2015): *Exercises Mathematics II*.

The book and the exercise booklet will be sold during the first week of the term.

Additional course information

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Examination information

Examination sub part/s

1. Examination sub part (1/1)

Examination time and form

Central - Written examination (100%, 120 mins.)

Remark

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Examination-aid rule

Extended Closed Book

The use of aids is limited; any additional aids permitted are **exhaustively** listed under "Supplementary aids". Basically, the following is applicable:

- At such examinations, all the pocket calculators of the Texas Instruments **TI-30** series and bilingual dictionaries without hand-written notes are admissible. Any other pocket calculator models and any electronic dictionaries are inadmissible.
- In addition, any type of communication, as well as any electronic devices that can be programmed and are capable of communication such as notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids

Mathematics formulary will be distributed together with the exam.

Examination languages

Question language: English

Answer language: English

Examination content

Topics:

- Optimization of functions of two variables, with and without constraints (Chapter 12)
- Integration (Chapters 13, 14 and 15)
- Matrices (Chapter 16)
- Vectors and their properties (Chapter 17)
- Systems of linear equations (Chapter 18)
- Eigenvalues and eigenvectors (Chapter 19)
- Difference equations of order 1 (Chapter 20)

Examination relevant literature



- De Giorgi, E. (2014): *Mathematics, Chapters 12-20*.
- De Giorgi, E. and R. Schuppli (2015): *Exercises Mathematics II*.

Please note

We would like to point out to you that this fact sheet has absolute priority over other information such as StudyNet, faculty members' personal databases, information provided in lectures, etc.

When will the fact sheets become binding?

- Information about courses and examination time (central/decentral and grading form): from the start of the bidding process on 22 January 2015
- Information about decentral examinations (examination-aid rule, examination content, examination relevant literature): after the 4th semester week on 16 March 2015
- Information about central examinations (examination-aid rule, examination content, examination relevant literature): from the start of the enrolment period for the examinations on 6 April 2015

Please look at the fact sheet once more after these deadlines have expired.