

Informatics

Department of Biomathematics and Informatics

Year and term: 1st year 1st semester
Lectures: 30 h
Practicals: 30 h
Credits: 4
Examination: Exam

Lecturer

Lecturer: Dr. Janos FODOR, Professor, Head of the Department
Position: Building L, room 304
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Office hours: Friday 9:00 – 11:00

Lecture

Place: Lecture hall of chemistry
Time: Wednesday 11:15 – 13:00

Short description

The aim of this course is to prepare you for an understanding of the basic mathematical models and methods that are useful in your major field. Concepts are introduced in an intuitive way. The relevance of the procedures is proven by examples that have been selected from a wide area of life sciences. The course uses a common-sense approach to explain basic ideas and methods. Real-life examples show how each idea or method is applied in practice

Lectures

- Sets
- Matrices
- Functions
- The Derivative
- The Integral
- Differential Equations
- Population Dynamics
- Linear programming
- Probability and Statistics. Population Distributions.
- Sampling Variability and Sampling Distributions.
- Methods for Describing and Summarizing Data
- Estimation
- Hypothesis Testing
- Linear Regression and Correlation
- The Analysis of Variance

Requirements and grading

Regular attendance (including punctual arrival in time for the scheduled beginning) of practicals, according to the actual group assignment, is an absolute requirement.

There are two midterms, 25 points each. The sum of the two midterm points must be at least 25 in order to be allowed to take the final exam (written).

Midterm tests can be repeated at most once, only if you have not missed more than two practicals. Detailed information is provided by practical teachers in time.

The final exam (written) is held in the examination period, it's value is 50 points. It is based exclusively on the lectures.

Therefore, you can have a maximum of 100 points total at the end. The final grade is computed on the basis of the following table:

Total point	Final grade
0 – 50	1
51 – 63	2
64 – 76	3
77 – 90	4
91 – 100	5

Some Useful Material:

You might find the following freewares very useful from the course' point of view.

- Online Learning Center based on the book Laurence D. Hoffmann and Gerald L. Bradley, Calculus for Business, economics and the social and life sciences. Seventh edition, McGraw-Hill, 2000. This is very useful for the first half of the semester. It contains the text of the book, chapter summary and review problems, etc. Visit it as often as you can. (http://www.mhhe.com/math/finmath/hoffmann/hoffmann07calc_s/)
- Online Learning Center based on the book Allan G. Bluman, Elementary Statistics: A Step By Step Approach, Fourth edition, McGraw-Hill, 2001. This is very useful for the SECOND half of the semester. It contains the text of the book, chapter summary and review problems, etc. Visit it as often as you can. (http://www.mhhe.com/math/stat/bluman4e/student_index.mhtml)
- jkgraph.zip A program for graphing and analyzing 2D functions in rectangular, polar, parametric, or polar-parametrized form. Home Page: http://homepage.smc.edu/kennedy_john
- WINSTATS. Winstats provides access to scatter plots, curve fitting, histograms, statistical data, and standard theoretical probability distributions. It also simulates dealing cards, sampling candy, tossing darts, needles and coins. There are two least-squares demos and a confidence-interval demo. Home Page: <http://math.exeter.edu/rparris/winstats.html>