

Introduction to mathematical biology, fall 2012

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This course is intended as a first introduction to mathematical biology. Subject areas include the dynamics of populations and of interacting species, ecosystem modelling, the dynamics of infectious diseases, natural selection and evolution. The participants will get acquainted with constructing and analysing mathematical models, mostly in form of continuous- and discrete-time dynamical systems. Mathematical biology is an active field of applied mathematics also at our Department, and interested students can continue with a number of advanced courses as well as start active research on undergraduate (BSc, MSc) and graduate level.

Lecturer

[Eva Kisdi](#)

Scope

10 cu.

Type

Intermediate / Advanced studies

Prerequisites

Differential equations, elements of matrix algebra

Lectures

Weeks 36-42 and 44-50, Monday 10-12 in room B322, Friday 10-12 in room C122. Two hours of exercise classes per week.
The last lecture on Friday 14 December is cancelled

Exams

Either traditional exam or project work + min 70% homework completed.

Exam: 18 December (Tuesday) 14.00-17.00 in B322

Projects can be downloaded in [pdf](#). Each student needs to choose a different project: email me your choice and I list here those projects that are already taken. Please note that projects involve also numerical analysis.

Projects already taken: 1,3,4,6,7,10

Exercise groups

Group	Day	Time	Place	Instructor
1.	Tuesday	10-12	B322	Helene Weigang

Exercises

[Exercises 1.1-1.5](#) discussed on 11 September

[Exercises 2.1-2.5](#) discussed on 18 September

[Exercises 3.1-3.5](#) discussed on 25 September

[Exercises 4.1-4.5](#) discussed on 2 October

[Exercises 5.1-5.5](#) discussed on 9 October

[Exercises 6.1-6.5](#) discussed on 30 October

[Exercises 7.1-7.5](#) discussed on 6 November

[Exercises 8.1-8.5](#) discussed on 13 November

[Exercises 9.1-9.5](#) discussed on 20 November

[Exercises 10.1-10.5](#) discussed on 27 November

[Exercises 11.1-11.5](#) discussed on 4 December; [help for 11.1](#)

[Exercises 12.1-12.5](#) discussed on 11 December (the last two exercises are best done after Friday's lecture)

Downloads

[Quadratic map](#) (Excel)

[Limiting similarity](#) (pdf)

[Numerical methods](#) that you may want to use for project work (pdf)

[Biomathematics courses](#) (pdf)

Feedback

You can leave comments to the lecturer anonymously and at any time using this [feedback form](#). These comments will be read only by Eva Kisdi. Feedback is very important for improving courses, and your time giving feedback is much appreciated!