Applied Mathematics, 8.0 credits

Applied Mathematics, 8.0 hp

Third-cycle education course

MAI0135

Department of Mathematics

Valid from: First half-year 2023

Approved by
Head of Department

Approved

Registration number

Entry requirements

Analysis, ODE and PDE are desirable.

Contents

Mathematical biology, Lotka-Volterra systems, persistence, permanence and stability; the Stokes and Navier-Stokes systems, formulation and solvability results; elasticity theory, the Lame system, Korn's inequality, solvability results; asymptotic methods in applied mathematics: dimension reduction and homogenization; inverse problems: a basic theory with examples.

Educational methods

Lectures.

Examination

Solving assigned problems.

Grading

One-grade scale

Course literature

Lecture notes for all lectures will be available.
Supplementary reading:

1. Hofbauer, Josef; Sigmund, Karl Evolutionary games and population dynamics. Cambridge University Press, Cambridge, 1998. xxviii+323 pp.
2. Engl, Heinz W.; Hanke, Martin; Neubauer, Andreas Regularization of inverse problems. Mathematics and its Applications, 375. Kluwer Academic Publishers Group, Dordrecht, 1996. viii+321 pp.
3. Sánchez-Palencia, Enrique Nonhomogeneous media and vibration theory. Lecture Notes in Physics, 127. Springer-Verlag, Berlin-New York, 1980. ix+398 pp.