Computational Economics
(4 SWS, 10 CP)

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Abstract

Computational economics is a research discipline at the interface of computer science, economics, and management science. This subject encompasses computational modeling of economic systems, whether agent-based, general-equilibrium, macroeconomic, computational finance or computational econometrics and statistics. Computational economics uses advanced numerical methods to solve difficult problems in these areas.

Learning goals

- Programming using MATLAB®,
- Introduction to Dynamic Programming,
- Modelling economic problems,
- Using numerical methods to solve these problems.

Curriculum

In this course, the students will study numerical methods and how to implement these in the MATLAB® programming environment. In particular, they will learn techniques in the field of constrained optimization, approximation and dynamic programming to solve problems in economics and finance. Possible applications include asset pricing models, stochastic growth models and resource management problems. At the end of the course, students are expected to solve an economic problem on their own in teams of two. We will provide possible topics, but students are highly encouraged to come up with their own ideas and topics for their final project.

Assessment

- Writing a seminar paper of 10 to 15 pages in groups of 2 containing the main results of the MATLAB® project with source code in the appendix (100% of the grade).
- The submission deadline for the seminar paper is 28 February 2020 which is also the date of the first examination (erste Prüfungsleistung).

Schedule

There will be weekly sessions totalling 4 SWS. These include 2 SWS of hands-on lectures and 2 SWS supervised working on problem sets. The sessions will take place on **Tuesdays from 9:00 am to 12:00 pm** and start on **October 8, 2019**.

Prerequisites

There are no formal prerequisites. Previous knowledge in macroeconomics and in an imperative programming language is beneficial. Students can get a free MATLAB®-license at the software shop of the RWTH.

Contact

Please only apply for this seminar through the centralized system. The assignment will be done *centrally* in late September/ beginning of October, not by the Chair of Computational Economics.
For further organisational questions please contact Mr. Marco Thalhammer: thalhammer@econ.rwth-aachen.de