Syllabus

Advanced Computational Economics

Responsible:

Professor Hans Fehr, Chair of Public Finance

Program:	Type:	Term:	ECTS:
Master	Lecture & Exercise	Block course October (see website of the chair)	5/6 CP

Contents & Objectives:

This course is taught in block consisting of ten lecture classes and fourteen exercise classes within two weeks. It provides students with state of the art techniques for quantitative macroeconomic research. They will learn the most prominent models in this field and familiarize with the relevant literature. Ideally at the end of the course, they will be able to develop their own ideas and conduct their own policy analysis using the techniques acquired. Students should bring along a strong willingness to specialize in programming (which implies that they will program a lot themselves).

During the course, students will review programming in FORTRAN and applying numerical methods. **Note that it is expected here that students have already some programming skills (see below).** They will be introduced to solution techniques of dynamic programming problems and then apply these techniques to the (deterministic and stochastic) Ramsey model and the stochastic life cycle model.

Prerequisites:

Students that attend this course should know about basic macroeconomics. As already said, some programming skills are required for this course. The BA course "Computational Economics" (which is taught one week earlier) would be perfect, but also some background in Matlab or C++ programming is fine. Those without knowledge in Fortran can also consult the first chapter in Fehr and Kindermann (2018).

Course Structure: (Lectures 9:00-10:30, 11:00-12:30; Exercise classes 14:00-17:00)

Week	Content
Monday	Intro to FORTRAN 90 and numerical solutions: Lecture and exercise classes
Tuesday	Numerical solution techniques/Intro dynamic programming: Lectures and exercise classes
Wednesday	Dynamic programming: Value function and policy iteration: Lectures and exercise classes
Thursday	Dynamic Macro I: Infinite horizon growth models: Lectures and exercise classes
Friday	Stochastic life cycle models
Second week	Team assignments, exercise classes and programming exam

Literature: Hans Fehr and Fabian Kindermann (2018): Introduction to Computational Economics using Fortran, Oxford University Press.

Fortran compiler and lecture notes will be provided to students. Consult website www.ce-fortran.com

Grading:

Grading will be based on the team assignment and the programming exam.

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