

GRADUATE – Disciplines Menu
Doctorate and Masters in Economics

DISCIPLINE: Computational Methods for Economists	CODE: MDPMAT025
ACRONYM: MCE	
PROFESSOR: César Augusto Ramos Santos	WORKLOAD: 20h CREDITS: 2
MANDATORY: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	COURSE: <input type="checkbox"/> M <input type="checkbox"/> D <input checked="" type="checkbox"/> MD
PREREQUISITES: 1 st year courses	
CONCENTRATION AREA: Dynamic and Monetary Economics	
<p>STUDY PLAN</p> <p>Making savings at the tip of the pencil has its limits. It is often difficult or impossible to obtain closed formulas for the solution of some economic models. Thus, numerical methods become indispensable. With the computational advancement, economists can deal with increasingly complex models. This is the focus of this course. The methods studied here are widely used in macroeconomics, as well as in structural econometrics, industrial organization, etc.</p> <p>Some of the topics we will cover in this course:</p> <ul style="list-style-type: none"> • Iteration of the value function • Projection methods • Root-finding, interpolation, stochastic process discretization • Computing stationary distributions • Models of heterogeneous agents with idiosyncratic and aggregate shocks • Calibration and methods of estimation with simulation <p>Assessment Exercise lists to be delivered throughout the course.</p>	
GOALS	
<p>BIBLIOGRAPHY</p> <p>We will not follow a particular book, but the following references may be helpful:</p> <ul style="list-style-type: none"> • Adda and Cooper, Dynamic Economics (Amazon). • Judd, Numerical Methods in Economics (Amazon). • Marimon and Scott, Computational Methods for the Study of Dynamic Economies (Amazon). • Sauer, Numerical Analysis (Amazon). <p>Some books on programming and different languages:</p>	

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- Ellis, Philips and Lahey, Fortran 90 ([Amazon](#)).
- Gilat, Matlab: An Introduction ([Amazon](#)).
- McConnell, Code Complete ([Amazon](#)).

Alguns links interessantes com tutoriais ou materiais úteis:

- Grey Gordon: [Link](#)
- Karen Kopecky: [Link](#)
- Makoto Nakajima: [Link](#)
- Tony Smith's tips: [Link](#)
- Alan Miller's Fortran software: [Link](#)
- Fortran Tutorials: [Link](#) or [Slides de Grey Gordon](#)