ECON90055 Computational Economics

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 hours of lectures and seminars per week Total Time Commitment: Not available
Prerequisites:	Approval of Department of Economics Graduate Programs Director.
Corequisites:	None
Recommended Background Knowledge:	Undergraduate preparation in calculus and linear algebra.
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
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Subject Overview:	This course is an advanced introduction to computational methods for economists, methods that increasingly play an essential role in applied economic research. Students will learn to formulate and to solve structural economic models and to apply these methods to substantive issues in econometrics, industrial organisation, labour economics, and macroeconomics. The course emphasises both theoretical knowledge of computational methods and practical skills. Programming will be done in MATLAB.
Learning Outcomes:	**By the end of this course, students will have received a detailed introduction to:** # MATLAB and its Toolboxes; # Algorithmic evaluation; # Computational linear algebra; # Numerical techniques for unconstrained optimisation; # Numerical techniques for solving systems of nonlinear equations; # Approximation methods; # Numerical integration (quadrature and Monte Carlo simulation methods); # Numerical techniques for constrained optimisation; and # Numerical dynamic programming.

Assessment:	Five 600 word assignments (problem sets and computer exercises) totalling 3,000 words, due in Weeks 3, 5, 7, 9 and 11 (35%); 45-minute group presentation (10%), due Week 12 (10%); and Final project of 2,500 words, due at end of exam period (55%).
Prescribed Texts:	Judd, K. Numerical Methods in Economics, MIT Press.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# High level of development: problem solving; collaborative learning; team work; application of theory to practice; use of computer software; interpretation and analysis; critical thinking. # Moderate level of development: written communication; evaluation of data and other information; statistical reasoning; receptiveness to alternative ideas. # Some level of development: oral communication; synthesis of data and other information; accessing data and other information from a range of sources.
Related Course(s):	Doctor of Philosophy - Business and Economics