Huron AT WESTERN

Brief Course Outline

Course Title:	**Introduction to Computational Economics**
Course Number and Section	ECONOMIC 4491G 550
Instructor Name(s):	Karthik Kotikalapudi
Instructor Email(s):	vkotikal@uwo.ca

Disclaimer: Information in the brief course outline is subject to change. The syllabus posted on OWL Brightspace is the official and authoritative source of information for the course.

Course Description:

This course introduces computational methods used in economic analysis. It emphasizes the role of computation as a complement to economic theory. The course develops an understanding of how numerical algorithms are used to analyze equilibrium conditions, optimization problems, and dynamic decision-making under certainty and uncertainty.

Key topics include numerical methods for solving systems of equations, optimization techniques, numerical integration, interpolation, and Monte Carlo simulation. These methods are applied to core economic models such as demand and supply equilibria, life-cycle models, precautionary savings, growth models, and portfolio choice.

Throughout the course, students engage with practical implementation of algorithms in Python while developing intuition about numerical accuracy, convergence, and computational trade-offs.

Learning Outcomes: one outcome per entry

Students will learn the role of computation in economic analysis.
Students will learn how to implement core numerical methods in Python for solving economic models.
Students will learn how to formulate economic models in computational terms.
Students will learn how to interpret and communicate computational results in an economic context.

Textbooks and Course Materials:

This course will use the following books:
1. Judd , K. L. (1998). Numerical Methods in Economics. Cambridge , MA : MIT Press.
Cost: CAD 137
Link: https://www.amazon.ca/Numerical-Methods-Economics-Kenneth-Judd/dp/0262100711

2. Fehr, Hans, and Fabian Kindermann, Introduction to Computational Economics Using Fortran (Oxford, 2018; online edn, Oxford Academic, 12 Nov. 2020)
Cost: CAD 72

Link: https://shorturl.at/LTtcp

3. Ramalho, L. (2015). Fluent python: Clear, concise, and effective programming. Sebastopol, CA: O'Reilly Media Inc.
Cost: CAD 44.68
Link: https://www.amazon.ca/Fluent-Python-Concise-Effective-Programming/dp/1491946008

Students are required to have regular access to a personal computer capable of running Python and associated numerical libraries. The minimum recommended specifications are at least 4 GB of RAM and a modern web browser.

Methods of Evaluation: one assignment per entry

Assignment	Due Date mm/dd/yy	Weight - %
Participation		8
Assignment-1		7
Assignment-2		7
Assignment-3		7
Assignment-4		7
Assignment-5		7
Assignment-6		7
Group Presentation 1		20
Group Presentation 2		30

In solidarity with the Anishinaabe, Haudenosaunee, Lūnaapéewak, and Chonnonton peoples on whose traditional treaty and unceded territories this course is shared.

Friday, December 19, 2025

Huron Brief Course Outline

In-course Costs $072.00

For Textbooks and Course Materials (below), you are required to include the cost of each textbook or other learning material.

Note whether there are any restrictions that would prevent a student from using a second-hand copy. Here is some suggested text:

- Required textbook: [author, title, edition, publisher, date]. Cost: [insert amount].
    - Or include the weblink of the textbook's publisher site that includes the cost information.
- Students need to purchase this edition. Second-hand or older editions will not be sufficient.
- OR Students are welcome to purchase second-hand or earlier editions of this textbook.
- This course has an optional field trip that costs [insert amount].
- This course has a required field component that costs [insert amount].