

ECON 351 A01 Math Econ II – Dynamic Methods

Semester: Spring 2026 CRN 21042
Lectures: Monday, Wednesday and Thursdays 14:30 – 15:20, Cornett B108
Instructor: Dr. Daniel Rondeau
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Office Hours: Wednesdays 10:30 – 12:30 or by appointment
Brightspace: <https://bright.uvic.ca/d2l/home/429422>

SPECIAL SCHEDULING NOTICE:

Because of a planned surgery, I will be away for two weeks starting February 26. To cover this time, the semester's schedule is affected in the following way:

- 1) The two midterms will be held outside of class time (on Thursday evenings). The bright side of this is that it will give you more time to write the tests. If you cannot make these exam times, please email me as soon as possible.
- 2) There will be no in-person lectures on February 26, and March 2, 4, 5, 9 and 11.
- 3) Three 50 minute lectures will be pre-recorded and available on Brightspace during my absence. YOU WILL BE RESPONSIBLE TO COVER THIS MATERIAL

Pre- or co-requisites:

ECON 350 (the pre-requisite will not be waived)

Course Content and Learning Outcomes:

The objective of the course is to prepare students for the study of advanced economics topics in which *time* is an important dimension (e.g. macroeconomic theory, natural resource economics, time series econometrics, learning, evolutionary game theory, etc.). The course is concerned with the fundamental mathematical methods of economic dynamics: Difference Equations, Differential Equations, Complex Numbers, Systems of differential equations, and optimal control theory (if time permits).

By the end of the course, students should be able to solve or qualitatively analyze the behavior of variables that evolve according to linear and non-linear first and second order difference, ordinary differential equations, and systems of difference or differential equations. If time permits, students will acquire a basic understanding of how to optimally choose a variable over time using optimal control theory or dynamic programming.

Lecture Topics

The course will cover chapters 17 to 25 of the Hoy et al. text. The Table of Contents of the textbook constitutes a detailed outline of the topics covered in the course, although some sections of selected chapters will not be covered.

1. Introduction to Economic Dynamics (Ch. 17)
2. Linear First Order difference equations (Ch. 18)
3. Non-linear First Order difference equations (Ch. 19)
4. Key results from Complex Number Theory and trigonometry (Hoy et al. online technical Appendix)
5. Linear Second Order difference equations (Ch. 20)
7. Linear First Order differential equations (Ch. 21)

8. Non-linear First Order differential equations (Ch. 22)
9. Linear Second Order differential equations (Ch. 23)
10. Systems of difference and differential equations (Ch. 24)
11. Dynamic Optimization and Optimal Control Theory (Ch. 25) – if time allows (but time never allows!)

Textbook

The required text for this course is Hoy, Livernois, McKenna, Rees and Stengos. Mathematics for Economics, 4rd Edition, MIT Press, 2022.

Brightspace

The Brightspace page will be populated as the semester proceeds with all lecture notes and hundreds of practice problems drawn from the textbook and past examinations from this course.

Problems and Exercises

Well in excess of 100 problems, along with their solutions, will be posted on Brightspace. IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOU CAN DO THESE PROBLEMS ON YOUR OWN. Start early and keep up! It is impossible to pass this course without becoming an effective problem solver. Doing these problems is the best preparation for exams. Start early and keep looking at problems every week.

Grading

Grading for the course is based on three in class tests, and a final examination.

Best of two midterm exams	35%
Worst of two midterm exams	20%
Final Exam (cumulative)	45%

Exam Schedule:

- Exam 1: Thursday February 12, **7-9 pm**
- Exam 2: March 19, **7-9 pm**
- Final: Scheduled by the Office of the Registrar (announced in February).

Mandatory components of the course: in order to complete the course, a student must write at least two in-class tests and the final exam.

University Grading Scale:

A+	A	A-	B+	B	B-	C+	C	D	F or N
90-100	85-89	80-84	77-79	73-76	70-72	65-69	60-64	50-59	0-49

Applicable Policies

The following policies are explicitly included because of their importance, but ALL relevant University and Faculty policies are in effect for this course. This course also adheres to the [Undergraduate Course Policies](#) of the Department of Economics that deal with the following issues:

Academic concessions; Academic integrity (plagiarism and cheating); Attendance; Grading; Inclusivity and diversity; Late adds; Late assignments; Repeating courses; Review of an assigned grade; Sexualized violence prevention and response; Students with a disability; Term assignments and debarment from examinations; Travel plans; Waitlists.

Examinations

Participation in person for all scheduled examinations is mandatory. Consideration for missed examinations will be given only on the basis of documented illness, accident or family affliction, and for no other reasons. In the event of a missed final examination, students are advised to follow the procedures outlined in the [University Calendar](#). Students are advised not to make work or travel plans until after the examination timetable has been finalized. Students who wish to finalize their travel plans at an earlier date should book flights that depart after the end of the examination period. There will be no special accommodation if travel plans conflict with the examination.

Waitlists

- Instructors have no discretion to admit waitlisted students or raise the cap on the course.
- Students on the waitlist should discuss with the instructor how to ensure they are not behind with coursework in the event they are admitted.
- Registered students who decide not to take the course are responsible for dropping the course, and are urged to do so promptly out of courtesy toward waitlisted students.
- Waitlist offers cease after the last date for adding courses irrespective of published waitlists.

Academic Integrity

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Students are expected to observe the same standards of scholarly integrity as their academic and professional counterparts. A student who is found to have engaged in unethical academic behaviour, including the practices described in the [Policy on Academic Integrity](#) in the University Calendar, is subject to penalty by the University.

Student Code of Conduct

Students are expected to abide by the Humanities, Science, and Social Sciences Faculties' [Student code of conduct](#).

University Policy on Human Rights, Equity and Fairness

The University is committed to promoting, providing and protecting a positive, supportive and safe learning and working environment for all its members. See [General University Policies](#)

Accessibility & Health Resources

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, you are free to approach me; however, you must register with the [Centre for Accessible Learning](#) (CAL) for formal arrangements to be made. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations.

[Health Services](#) - University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.

[Support Connect](#) - a 24/7 mental health support service for students

- Toll-free (calls from North America): 1-844-773-1427
- International collect calls: 1-250-999-7621

[Counselling Services](#) - Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.

[Elders' Voices](#) - The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.

Student Experience of Learning (SEL)

I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (SEL) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation. You will use your UVic NetLink ID to access the survey, which can be completed on your laptop, tablet or mobile device.

E-mail correspondence

Emails should be limited to critical matters, such as inability to attend an exam, or prolonged illness. Please ALWAYS include the course name and number in the subject line. Questions on course material should be asked during office hours or in class whenever possible. The standard format for writing a letter must be used. This means it should begin with a salutation (e.g. Dear....), include full sentences and it must conclude with a signature that includes your full name and V#. Please avoid text message lingo.

Electronic devices

The only electronic device allowed during exams is a basic non-programmable calculator. All other electronics MUST be placed where they cannot be reached during the exam.

Sexualized Violence Prevention & Response

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. Students are encouraged to learn more about how the university defines sexualized violence and its overall approach by visiting www.uvic.ca/svp . If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Contact svpcoordinator@uvic.ca.

UVic Land Acknowledgement

We acknowledge with respect the Lekwungen peoples on whose traditional territory the University of Victoria stands, and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.