

University of Toronto
Department of Economics
ECO422H1S
L0101

Special Topics in Economics: Economics of Innovation, Firm Dynamics, and
Growth
Winter 2025

Professor Murat Alp Celik

<https://muratcelik.faculty.economics.utoronto.ca/>

Lectures: Tuesday, 4:10-6:00pm, OI 8200

Tutorials: Tuesday, 3:10-4:00pm, OI 8200 (not every week)

Instructor: Murat Alp Celik, murat.celik@utoronto.ca

TA: Mehmet Akin Simsek, akin.simsek@mail.utoronto.ca

Office Hours:

Murat Alp Celik: After class (Tuesday 6:00pm)

Mehmet Akin Simsek: Tuesday 12:00-1:00pm, GE 313

Course Description: This course is aimed at advanced undergraduate students with an interest in macroeconomics, particularly in innovation, firm dynamics, and economic growth. We will study the determinants of long-run economic growth through the perspective of endogenous growth theory and examine how firm-level incentives to innovate culminate in productivity growth at the aggregate level. Starting from the basic Solow Growth Model, we will work our way through the Neoclassical Growth Model, Lucas's human capital accumulation model, Romer's expanding varieties model, and Aghion and Howitt's Schumpeterian growth model. The innovation and growth dynamics of individual firms, the interplay between competition and innovation, and their implications at the aggregate level will be studied. The course will emphasize theory and quantification. Multivariate calculus is required. Some continuous time optimization methods will be covered in class.

Prerequisites: Note that I cannot waive the prerequisites, and enrolment is handled by the department. If you need help with enrolment, you can contact the undergraduate administrator at your department (different for commerce students). See the course policy of the economics department at:

<https://www.economics.utoronto.ca/index.php/index/undergraduate/load/prerequisites>

Textbook: We will use "Introduction to Modern Economic Growth" by Daron Acemoglu (2009).

Contact Policy: The preferred method of communication is in-person during the lectures, tutorials, and office hours. **E-mail communication will be reserved only for urgent**

administrative questions. First, please make sure that your question is not already answered on the syllabus or the announcements posted on the course website. In most cases, it is. If you have any course content related questions, they should be asked during the lectures, tutorials, or office hours. If you have any administrative questions that are not urgent, likewise, they should be asked during the lectures, tutorials, or office hours. **If you have urgent administrative questions, you should contact your TA Mehmet Akin Simsek, akin.simsek@mail.utoronto.ca**. In such a case, please make sure to identify yourself (full name) and use your official utoronto.ca e-mail account. **Failure to follow the described contact policy can affect your grade negatively, as explained below.**

Grading and Exam Policy: The course grade will consist of term work (45% of the final grade) and a final exam (55%). Term work will consist of one midterm (40% total), and a communication grade (5%).

The current plan is to have the midterm exam **in class on Tuesday at 3:10-5:00pm**; but this may be subject to change later on. The final will be during the final exam period for the winter semester. Complete details will be announced on the course website as we approach the exam dates.

There will be NO make-up for midterm exam. In case you fail to take it, the weight will be shifted to the final instead. I urge you not to use this option unless necessary.

Make sure you check the important dates at the end of this document to ensure that there are no conflicts with the exam dates. You are responsible for reporting the conflict within the first two weeks of classes so that accommodations can be considered.

The remaining 5% is the “communication grade”. Every student starts out with the full 5%. Individual grades will be lowered if the student fails to follow the course contact policy, asks questions that are already answered in the syllabus, assignment text, online announcements, etc. The aim of this policy is to encourage students to pay attention to the communicated information, and to avoid heavy e-mail traffic when relevant information is already available through other channels.

Verification of Illness or Injury: If you become ill and it affects your ability to do your academic work, you can use Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. For more information on the VOI, please see <http://www.illnessverification.utoronto.ca>. For information on Absence Declaration Tool for A&S students, please see <https://www.artsci.utoronto.ca/absence>. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Re-grading Policy for Term Work: Students who want to have a midterm test re-graded must submit a re-grade form **within two weeks of receiving the grade**. This form will be made available on the course website. The completed form will be submitted to **your TA Mehmet Akin Simsek, akin.simsek@mail.utoronto.ca**

Suggested Problems: Suggested problems may be assigned for the topics covered in class, but they will not be handed in or graded. On most weeks, some of the problems will be covered in the tutorial.

Quercus (course website): This course uses the University's learning management system, Quercus, to post information about the course, including materials required to complete class activities and course assignments, share important announcements and updates, and foster academic discussion between learners. The site is dynamic and new information and resources will be posted regularly as we move through the term. The principal source of information about all course-related work will be the course site in Quercus, so please make it a habit to log in to the site on a regular if not daily basis. Please note that any grades posted within the Quercus Grade Centre are posted for your information only, so you can view and track your progress through the course. No grades are considered official, included any posted in Quercus at any point in the term, until they have been formally approved by the Course Instructor at the end of the course.

Ongoing Learning Disability or Accommodation Requirement: Students with diverse learning styles and needs are welcome in this course. If you have an ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) (<http://www.studentlife.utoronto.ca/as>) at the beginning of the academic year. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will then assess your medical situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your condition with any instructor, and your instructors will not reveal that you are registered with AS.

Academic Integrity: All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, citing and using source material appropriately, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's words as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to me or your TA for advice on anything that you find unclear. Also, see the U of T writing support website at <https://writing.utoronto.ca/>. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations.

English Language Learning: ELL supports all U of T undergraduates enrolled in the Faculty of Arts and Science whose first language is not English (ESL or multilingual students), as well as native speakers seeking to improve their English language skills. Learn more at:

<http://www.artsci.utoronto.ca/current/advising/ell>

Preliminary List of Topics:

This is a preliminary list of topics that I intend to cover; but it may be subject to change as the course progresses:

- 1) Introduction
- 2) Malthusian Growth Model
- 3) Solow Growth Model
- 4) Neoclassical Growth Model (Discrete Time)
- 5) Continuous Time Optimization
- 6) Neoclassical Growth Model (Continuous Time)
- 7) The AK Model
- 8) Human Capital Accumulation
- 9) Expanding Variety Models
- 10) Schumpeterian Growth Models (Quality Ladder Models)
- 11) Economic Growth and Firm Dynamics

Important Dates:

Jan 7, 2025 – Classes begin, first lecture, no tutorial.

Feb 17-21, 2025 – Winter reading week, no lecture, tutorial, or office hours.

February 25, 2025 – Midterm exam.

April 1, 2025 – Last lecture and tutorial.

Winter 2025 Final Exam Period – Final Exam.