

McGill University
Department of Economics
ECON 452- Advanced Economic Theory
Fall 2023

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Objectives: We cover selected topics related to market failures. An important part of the term will be dedicated to topics related to economic theory and climate change and economic theory and the management of resources in general. We first cover an introduction to social choice and welfare, then elements externalities and public good games. We then cover necessary technical tools to handle the case of pollutants with long lasting effects (stock pollutants) and resource regeneration. The applications will include (depending on time) (i) renewable and nonrenewable resource extraction under different market structures (ii) implications of environmental regulation (iii) transboundary pollution games and (iv) international environmental agreements. Depending on time topics, related to market power and network games will also be covered.

Textbook References:

“Fair Division and Collective Welfare” by H. Moulin (2003) HB846 M68 2003

“A course in environmental economics: theory, policy, and practice” by Phaneuf and Requate (2017) HC79 E5 P5125 2017

“Differential Games in Economics and Management” by Dockner, Jorgensen, Long and Sorger (2000) HB144 D53 2000

“Microeconomic Theory” by Mas-Colell, Whinston and Green (1995) MWG, HB172 M6247 1995

“Optimal Control Theory and Static Optimization in Economics” by Daniel Léonard and Ngo Van Long (1992) LL HB143.7 L46 1992

Other related references

“Advanced Microeconomic Theory: an Intuitive Approach with Examples”, by Felix Munoz Garcia (2017) HB172 M86 2017

“Advanced Microeconomic Theory” 3rd edition, by Jehle and Reny (2011) HB172 J44 2011; second edition available as ebook

“A Survey of Dynamic Games in Economics” by Ngo Van Long (2010) Ebook

“Oligopoly, the environment and natural resources” by Lambertini (2013) HD2757.3 L36 2013

“Handbook of Dynamic Game Theory” by Basar and Zaccour (2020)

Course Evaluation:

Presentations 10% Thursday Nov 30 and Monday Dec 4.

2 exams 15% each (tentative dates: Oct 2 and Nov 6)

Final Exam 60% During final exam period

Required official statements:

- McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/integrity for further information).

- According to Senate regulations, instructors are not permitted to make special arrangements for final exams. Please consult the calendar, section 4.7.2.1, General University Information and Regulations, at www.mcgill.ca.

- In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

Tentative outline

1. Introduction to social choice
2. Externalities and public goods
3. Resources and environmental systems
4. Optimal management of environmental and other natural resources
5. Strategic behavior and stock externalities
6. Market power

Tentative list of specific topics to be covered

Voting rules
Social norms and resource management
Some mechanisms for public good games
Taxation in the case of a stock externality
Transboundary pollution game
Nonrenewable resource extraction
Carbon Tax
Environmental regulation and information
International Environmental Agreements (IEAs)