

## University of Manitoba

### ABIZ/ECON 7430: Advanced Theory of Resource Economics

Winter 2024

Class time: MW 10:00-11:15

Class location: Agriculture Building 365

Instructor: Chad Lawley, Professor  
E-mail: chad.lawley@umanitoba.ca  
Office hours: By appointment, Room 377 Agriculture Building

#### Course Information

This course examines (1) the regulation of polluting activities and (2) the use of renewable and exhaustible natural resources. We will cover the basic theory of externalities and will examine the role of economic incentives for environmental protection. We will examine both optimal and equilibrium allocation of natural resources with applications to energy, mining, fisheries, forestry, land, and water resources. We will discuss several empirical analyses of current environmental and resource economics issues.

#### **Calendar Description**

Economic theory of the development and management of natural resources. Application of capital theory, investment theory, the theory of externalities and decision-making theories to resource utilization and management. A strong background in microeconomics is required.

#### Readings and Lecture Notes

##### **Recommended textbooks:**

Phaneuf, Daniel J., and Till Requate. 2016. *A Course in Environmental Economics: Theory, Policy, and Practice*. Cambridge University Press.

Keohane, Nathaniel and Sheila Olmstead. 2007. *Markets and the Environment*, Island Press: Washington, DC.

##### **Supplementary texts:**

The following texts provide mathematical treatments of the material covered in lectures and will serve as good references. Copies are available on reserve in the William R. Newman Library (Agriculture Building).

Baumol, William and Wallace Oates. 1988. *The Theory of Environmental Policy*, Cambridge University Press: Cambridge.

Dasgupta, Partha and Geoffrey Heal. 1979. *Economic Theory and Exhaustible Resources*, Cambridge University Press: Cambridge.

Leonard, Daniel and Ngo Van Long. 1992. *Optimal Control Theory and Static Optimization in Economics*, Cambridge University Press: Cambridge.

### **Course Requirements and Grade Allocation**

Problem sets will be provided to students to help them familiarize themselves with the material covered in lectures. These problem sets will not be graded but will be essential preparation for exams.

#### **1. Examinations:**

There will be two midterm examinations, tentatively scheduled for January 31 (15% of course grade) and March 13 (15% of course grade), and a final examination (30% of course grade).

#### **2. Group Presentation Assignment:**

1. Each student will present two empirical papers in class (20% of course grade). Students will be assigned to groups and will be assigned papers to present.
2. All student audience members are required to read the empirical papers prior to class and to come prepared with substantive questions for the presenters (5% of course grade).

#### **3. Individual Term Assignment:**

Each student will complete a separate individual term assignment examining an academic article dealing with an environmental, resource, or agricultural economics issue (15% of course grade). The paper topic is due to me February 28 and the final paper is due April 10 (firm deadline, no exceptions). Details of the individual term assignment are provided below.

The choice of article is subject to my approval via email or in class, no later than February 28. Failure to obtain my approval will result in a grade of zero on the term assignment. You are not permitted to use an article that appears in this syllabus or in the group presentation assignment.

The written critique will consist of the following components

1. Putting the article in context: Explain in your own words the issues addressed in the article. Explain why this issue is important and interesting from both a policy perspective and in the context of the existing economics literature.
2. Deconstruct the article: Explain the theoretical and/or empirical approach; identify the important assumptions made in the theoretical and/or empirical model; discuss the results in your own words
3. Assess the robustness of the results: Discuss whether the important assumptions are reasonable and how sensitive the results might be to those assumptions; discuss the steps the authors take to assess the robustness of the results; discuss whether or not the robustness checks are adequate
4. Propose alternatives to or extensions of the analysis: This might involve an extension or modification of the empirical analysis; an extension of the theoretical model; incorporating new data or study area that would improve or extend the analysis

The final paper must not exceed 10 pages (double spaced, 1 inch margins, Times New Roman 12 point font) exclusive of figures, tables, and references. You must use a consistent reference style. I suggest following the *American Journal of Agricultural Economics* style:

<https://academic.oup.com/documentlibrary/ajae/guide.pdf>.

## Tentative Course Outline

### **I. Regulation of polluting activities**

#### **a. Review of externalities, public goods, and open access**

Keohane, Nathaniel and Sheila Olmstead. 2007. *Markets and the Environment*, Island Press: Washington, DC, chapters 2, 3, 4, and 5.

#### **b. Policy instrument choice**

Keohane, Nathaniel and Sheila Olmstead. 2007. *Markets and the Environment*, Island Press: Washington, DC, chapter 8.

Phaneuf, Daniel J., and Till Requate. 2016. *A Course in Environmental Economics: Theory, Policy, and Practice*. Cambridge University Press, chapters 3 and 4.

### **II. Use of renewable and exhaustible natural resources**

#### **a. Introduction to optimal control theory**

Phaneuf, Daniel J., and Till Requate. 2016. *A Course in Environmental Economics: Theory, Policy, and Practice*. Cambridge University Press, chapter 13.

#### **b. Exhaustible resources**

Keohane, Nathaniel and Sheila Olmstead. 2007. *Markets and the Environment*, Island Press: Washington, DC, chapter 6.

#### **c. Renewable resources**

Keohane, Nathaniel and Sheila Olmstead. 2007. *Markets and the Environment*, Island Press: Washington, DC, chapter 7.

Hartwick, John, Ngo Van Long, and Huilan Tian. 2001. "Deforestation and development in a small open economy," *Journal of Environmental Economics and Management*, 41: 235-251.

#### **d. Common pool resources**

Rubio, Santiago and Begona Casino. 2001. "Competitive versus efficient extraction of a common property resource: The groundwater case," *Journal of Economic Dynamics and Control*, 25: 1117-1137.

#### **e. Open access and international trade**

Brander, J.A. and M.S. Taylor. 1997. "International trade and open-access renewable resources: the small open economy case," *Canadian Journal of Economics* 30, 526-552.

### **Course Policies**

**1. Evaluative feedback** will be provided by the voluntary withdrawal deadline date, which is March 20, 2024. See the University of Manitoba Important dates and deadlines site to confirm <https://umanitoba.ca/registrar/important-dates-deadlines>

**2. Missed Exams**

There is NO make-up examination for a missed mid-term. If missed and student has a valid medical certificate or compassionate reason (e.g., death of an immediate family member), marks from the mid-term will be added to marks for the final examination. Students who miss the examination without a valid reason will receive a grade of zero for the mid-term examination. In the case of a missed final examination, a student may be granted a deferred examination for medical or compassionate reasons. The decision to grant a deferred exam for this course rests with the Dean's Office. Visit the University of Manitoba Deferred and Missed Exams site for more information <http://umanitoba.ca/student/records/finals/682.html>

**3. Academic Integrity**

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room. Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty. Students should acquaint themselves with the University's policy on plagiarism, cheating, exam impersonation and duplicate submission. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the **Student Academic Misconduct** procedure for more information.

**4. Use of Third Party Detection and Submission Tools**

Electronic detection tools may be used to screen student work in cases of suspected plagiarism.

**5. Students appealing any term work** whether it be an informal or formal appeal must appeal their term work within 10 working days of receiving their mark.

**6. Policy on Unclaimed Term Work**

Unreturned term work will become the property of the Faculty and will be subject to confidential destruction four months after the final examination period.

### **University of Manitoba Services and Information**

#### **Writing and Learning Support**

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor's feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: <http://umanitoba.ca/student/academiclearning/>. You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 201 Tier Building.

### **University of Manitoba Libraries (UML)**

As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by subject: <http://bit.ly/WcEbA1> or name: <http://bit.ly/1tJ0bB4>.

In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: <http://bit.ly/1sXe6RA>. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries' homepage: [www.umanitoba.ca/libraries](http://www.umanitoba.ca/libraries).

**For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.**

### **Student Counselling Centre**

Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre:*

<http://umanitoba.ca/student/counselling/index.html>

474 University Centre or S207 Medical Services

(204) 474-8592

### **Student Support Case Management**

Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.

*Student Support Intake Assistant* <http://umanitoba.ca/student/case-manager/index.html>

520 University Centre

(204) 474-7423

### **University Health Service**

Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.

University Health Service <http://umanitoba.ca/student/health/>  
104 University Centre, Fort Garry Campus  
(204) 474-8411 (Business hours or after hours/urgent calls)

### **Live Well @ UofM**

For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site: <http://umanitoba.ca/student/livewell/index.html>

### **Health and Wellness**

Contact our Health and Wellness Educator if you are interested in information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.

*Health and Wellness* <http://umanitoba.ca/student/health-wellness/>

Email: [hwprogram.assistant@umanitoba.ca](mailto:hwprogram.assistant@umanitoba.ca)

Phone: 204-474-6740

In Person: 474 UMSU University Centre

## **Copyright**

All students are required to respect copyright as per Canada's *Copyright Act*. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba community. Visit <http://umanitoba.ca/copyright> for more information.

## **Rights and Responsibilities**

As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The [Academic Calendar](http://umanitoba.ca/student/records/academiccalendar.html) <http://umanitoba.ca/student/records/academiccalendar.html> is one important source of information. View the sections *University Policies and Procedures* and *General Academic Regulations*.

While all of the information contained in these two sections is important, the following information is highlighted.

- If you have questions about your grades, talk to your instructor. There is a process for term work and final **grade appeals**. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form <http://umanitoba.ca/registrar/>
- You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the **Academic Integrity** regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the **Student**

**Academic Misconduct** procedure for more information.

- The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected to conduct yourself in an appropriate respectful manner. Policies governing behavior include the:

### **Respectful Work and Learning Environment**

[http://umanitoba.ca/admin/governance/governing\\_documents/community/230.html](http://umanitoba.ca/admin/governance/governing_documents/community/230.html)

### **Student Discipline**

[http://umanitoba.ca/admin/governance/governing\\_documents/students/student\\_discipline.html](http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html) and,

### **Violent or Threatening Behaviour**

[http://umanitoba.ca/admin/governance/governing\\_documents/community/669.html](http://umanitoba.ca/admin/governance/governing_documents/community/669.html)

- If you experience **Sexual Assault** or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The **Sexual Assault** policy may be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/community/230.html](http://umanitoba.ca/admin/governance/governing_documents/community/230.html) More information and resources can be found by reviewing the Sexual Assault site <http://umanitoba.ca/student/sexual-assault/>

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site <http://umanitoba.ca/faculties/>

Contact an **Academic Advisor** within our faculty/college or school for questions about your academic program and regulations <http://umanitoba.ca/academic-advisors/>

### **Student Advocacy**

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

<http://umanitoba.ca/student/advocacy/>

520 University Centre

204 474 7423

[student\\_advocacy@umanitoba.ca](mailto:student_advocacy@umanitoba.ca)