**Economics of Environmental Management (605743)**

**Second Semester 2014-2015**

**Time of the lectures: 12:00-14:00 Mon. and Wed.**

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| Credit hours | 3 | Level | MSc. Level, **(605743)** | Pre-requisite |  |
| Coordinator/ Lecturer | **Prof. Dr . Emad Al-Karablieh** | Office number | 285 | Office phone | 22477 |
| Course website |  | E-mail | **karablie@ju.edu.jo** | Place | Seminar Room |

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| **Office hours: or by appointment** |
| **Day/Time** | **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** |
| **Day** |  | **\*\*\*** |  | **\*\*\*** | **JV** |
| **Time** |  | **11:00-12:00** |  | **11:00-12:00** |  |

**Course Description**

The course examines interrelationships of natural resource use and the environment; applied welfare and benefit-cost analysis and microeconomic tools for the analysis of environmental protection and externalities; valuation of the environment using market and non-market prices; productivity and earning changes, preventive expenditure and replacement costs approaches, contingent valuation, productivity of other activities, hedonic pricing, and travel cost model. Issues of property rights; legal and social constraints; policy approaches and sustainable development will be covered

This course will provide an economic perspective on the management of environmental resources. Conceptual topics to be emphasized include environmental externalities, market failure, market based regulation, public goods, sustainability. Applications will focus on the role of price signals in water, energy choices, the management of renewable and non-renewable resources use over time, the use of economic incentives to encourage reductions in air and water pollution, and the political economy of environmental policy formulation. A case study will examine to address climate change in a global environmental management context.

**Learning Objectives**

1. Understand the role of economics in environmental issues and, especially, in the formation of environmental policy
2. Applications to environmental problems in air, water, land use, and natural environments
3. Quantification of mitigate cost or degradation costs against negative environmental impacts and enhance positive environmental impacts
4. To develop a knowledge and understanding of analyzing the economic assessment of the environmental impacts of the project.
5. Some of the research methods economists use to analyze environmental issues.
6. What types of policies economists recommend for addressing environmental problems, and some of the advantages and drawbacks of such policies.

**Intended Learning Outcomes (ILOs):**

Successful completion of the course should lead to the following outcomes:

1. **Knowledge and Understanding:** Student is expected to

**A1**-Be able to discuss/ explain the role of environmental economics in management of environmental resources**.**

**A2-** Be able to use economic analysis as policy tools and instruments.

**A3-** Understand the use of public policies and support programs in influencing environmental actions by stakeholders.

**A4-** Understand the difference between classical economics and environmental economics in term of Dollar based and non- dollar based value of environments.

**A5-** Understand the interrelationships between environment and economics.

1. **Intellectual Analytical and Cognitive Skills:** Student is expected to

**B1**- Employ analytical skills to be used to quantify the environmental values and interpret of quantified results.

**B2**- has the skills to estimate the economic value of environmental resources using different techniques according to type of data available.

**B3**- analyzes and estimates the external cost and benefit of environmental options.

1. **Subject- Specific Skills:** Students is expected to

**C1**- Derive the economic value of environmental activities.

**C2**- Apply different economic methods to quantify the impact of investment policies and activities.

**C3**- Use appropriate total economics values support tools.

C4: Use the environmental economics literature effectively.

1. **Transferable Key Skills:** Students is expected to

**D1**- Gain basic concepts and knowledge of environmental values.

**D2**- Create self-reliance and team work when necessary.

**D3**- Display personal responsibility to the course requirements

# ILOs: Learning and Evaluation Methods

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| **ILO/s** | **Learning Methods** | **Evaluation Methods** |
| A. Knowledge and Understanding (A1-A3) | Lectures and Discussions | Exams.  |
| B. Intellectual Analytical and Cognitive Skills (B1-B3) | Lectures and Discussions | Exams and project. |
| C. Subject Specific Skills (C1-C4) | Lectures and Discussions | Project and presentation. |
| D. Transferable Key Skills (D1-D3) | Lectures and Discussions | Project and presentation. |

**Course Contents**

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| ***WEEK*** | ***SUBJECT*** | **Sources** | **ILOs** |
| ***1***  | **Introduction** | Overview of environmental Economies  | **A-1** |
| ***2*** | **Economic and Environmental Systems** | Nick Hanley, Jason F. Shogren, and Ben White, (2001). Introduction to Environmental Economics, Oxford Press, 2001 (hereafter referred to as “Textbook”), chapter 1.. | **A-2, A-3, A-4****D-1** |
| ***3&4***  | **Markets, Property Rights and Externalities** | Textbook, chapter 2.Don Fullerton, and Thomas C. Kinnaman, (1996).Household Responses to Pricing Garbage by the Bag,”American Economic Review 86 971-84 | **A-1, A-2, A-5****D-1** |
| ***5*** | **Externalities and Market Failure** **Total Economic values** | UNDP-Regional Bureau for Arab States (2013), G. Edwards-Jones, Easter K. and J. Waelti. (1980). | **A-2, A-3****B-1****C-2, C-4****D-1, D-2, D-3** |
| ***6 &7*** | **Environmental Valuation** **Dollar-based Values, Benefit Cost Analysis, productivity methods, benefit transfer, Residual imputation approach** | Textbook, chapter 3 and 4R. B. Palmquist, F.M. Roka, and T. Vukina, “Hog (1997). Operations, Environmental Effects and Residential Property Values, Land Economics, 73 114- 124. | **A-2, A-3, A-3** **B-1, B-2** **C-2 , C-4****D-1, D-2, D-3**  |
| ***8 &9*** | **Non-Dollar based Environmental Valuation Methods, political and social values** | Al-Karablieh et al, 2014, The World Bank | **A-2, A-3, A-5****B-1, B-3****C-2, C-4****D-1, D-2, D-3** |
| ***10-12*** | **Environmental Values as private, public and intermediate goods,****Averting and Mitigating Behavior** | Lienhoop, 2014, Al-Karablieh et al, 2012, Al-Karablieh et al, 2014 | **A-2, A-3, A-5****B-1, B-3****C-2, C-4****D-1, D-2, D-3** |
| ***13*** | **Hedonic Method, Travel Cost Method, Contingent Valuation Method, HEA, LP, Production Function** | UNDP-Regional Bureau for Arab States (2013) | **A-2, A-3, A-5****B-1, B-3****C-2, C-4****D-1, D-2, D-3** |
| ***14*** | **Water, Energy Economics and Policy, The management of renewable and non-renewable resources** | Al-Karablieh et al, 2012, Charles K(2010). | **A-2, A-3****C-1, C-3, C-4****D-1, D-2, D-3** |
| ***15-16*** | **Case studies and deriving the economics values of climate change, Term papers presentations.** | Tabieh M. et al, 2014 | **A-1, A-3****B-1, B-3****C-1, C-2, C-4****D-1, D-2, D-3** |

**Learning Methodology**

The course will be structured in lectures, discussions, working group and exercises. The course comprises overviews, from general understanding to expert knowledge on key topics, and learning is based on lectures as well as independent learning through exercises and examples. Actual participation in class work is a very important part of students learning experience in this course. So students are expected to come and to be prepared to do the work, ask questions and fully engaged with the course.

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| **Evaluation** | **Grade 100%** | **Date** |
| **Midterm Exam**  | 30% | 14/04/2015 |
| **Project and presentation** | 30% |  |
| **Final Exam** | 40% | Will be announcing from JU register. |

**Text Books**

1. Nick Hanley, Jason F. Shogren, and Ben White, (2001). *Introduction to Environmental Economics*, Oxford Press,
2. Techniques to Value Environmental Resources: an Introductory Handbook.  <http://www.erin.gov.au/portfolio/esd/handbook/trct.html>
3. Bindu N. Lohani, J. Warren Evans, Robert R. Everitt, Harvey Ludwig, Richard A. Carpenter Shih-Liang Tu. Environmental Impact Assessment for Developing Countries in Asia: Volume 1 – Overview. Asian Development Bank. 1997
4. katherine Bolt, Giovanni Ruta, Maria Sarraf (2005). Estimating the Cost of Environmental Degradation. a training manual in english, french and Arabic, The World Bank

**References and Other Reading Material**

1. UNDP-Regional Bureau for Arab States (2013): Water Governance in the Arab Region: managing scarcity and securing the future. Core Team [Ahmed Khater](https://www.researchgate.net/researcher/2038197273_Ahmed_Khater/), [*Emad Al-Karablieh*](https://www.researchgate.net/researcher/2038162319_Emad_Al-Karablieh/), [Mohamed Abdrabo](https://www.researchgate.net/researcher/2038168610_Mohamed_Abdrabo/), [Redouane Choukr-Allah](https://www.researchgate.net/researcher/2038185878_Redouane_Choukr-Allah/), [Waleed Zubari](https://www.researchgate.net/researcher/2038196374_Waleed_Zubari/), [Ghaith Fariz](https://www.researchgate.net/researcher/23643119_Ghaith_Fariz/), <http://www2.ju.edu.jo/sites/Academic/karablie/Lists/Published%20Research/DispForm.aspx?ID=50&Source=http%3A%2F%2Fwww2%2Eju%2Eedu%2Ejo%2Fsites%2FAcademic%2Fkarablie%2FLists%2FPublished%2520Research%2FAllItems%2Easpx>
2. International Resources Group (IRG) & Emad Al-Karablieh (2012). Water Valuation Study: Disaggregated Economic Value of Water in Industry and Irrigated Agriculture in Jordan United States Agency for International Development (USAID). <http://www2.ju.edu.jo/sites/Academic/karablie/Lists/Published%20Books/DispForm.aspx?ID=11&Source=http%3A%2F%2Fwww2%2Eju%2Eedu%2Ejo%2Fsites%2FAcademic%2Fkarablie%2FLists%2FPublished%2520Books%2FAllItems%2Easpx>
3. Tabieh M. *Emad Al-Karablieh*, A. Salman, A. Al-Rimawi and H. Al-Qudah,(2014) An Assessment of Climate Change Impacts on the Socioeconomics of Zarqa River Basin. *Jokull Journal*, Vol 64, No. 1; pages 155-170
4. Lienhoop Nele, *Emad K. Al-Karablieh*, Amer Z. Salman and Jaime A. Cardona (2014) Environmental cost-benefit analysis of decentralised wastewater treatment and re-use: a case study of rural Jordan. *Water Policy*. Volume 16, Issue (2), pages 232-339
5. *Al-Karablieh Emad*; Amer Salman, Abbas Al-Omari, Heniz-Peter Wolff, Tamer Al-Assa’d, Doukhi Hunaiti, Ali Subah (2012). Estimation of the Economic Value of Irrigation Water in Jordan*. Journal of Agricultural Science and Technology* .Volume 5, B2. pp. 487-497
6. *Al-Karablieh E. K*., Amer Z. Salman, Mohammad A. Tabieh, Hussian F. Al-Qudah and Ahmad S. Al-Rimawi (2014). Farmers’ Ability to Pay for Irrigation Water in the Jordan Valley. 7th International Conference on Water Resources in the Mediterranean Basin (WATMED 7): 8-11 October 2014, University Cadi Ayyad, Marrakech, Morocco
7. Fullerton D., and R. Stavins. (1998). How do economists really think about the environment?” Published in Nature (1998) 395: 6701. Earlier version is available as RFF Discussion Paper 98-29, 1998. <http://www.rff.org/Documents/RFF-DP-98-29.pdf>.
8. Charles Kolstad (2010). Environmental Economics, 2nd edition, Oxford University Press,
9. Easter K. and J. Waelti. (1980). The Application of Project Analysis to Natural Resource Decisions", Water Resources Research Center, University of Minnesota, Graduate School, Minneapolis, Minnesota.
10. Pearce D. and R. Turner (1991). Economics of Natural Resources and the Environment" The Johns Hopkins University Press, Baltimore, Maryland, USA,
11. Dixon, John A. et al., (1986). Economic Analysis of The Environmental Impacts of Development Projects" The Asian Development Bank, Manila, Philippines.

**Notes:**

* Concerns or complaints should be expressed in the first instance to the module lecturer; if no resolution is forthcoming, then the issue should be brought to the attention of the module coordinator (for multiple sections) who will take the concerns to the module representative meeting. Thereafter, problems are dealt with by the Department Chair and if still unresolved the Dean and then ultimately the Vice President. For final complaints, there will be a committee to review grading the final exam.
* For more details on University regulations please visit:

 <http://www.ju.edu.jo/rules/index.htm>

**Department Policy:**

Students guilty of knowingly using, or attempting to use, another person’s work as though that work were their own, and students guilty of knowingly permitting, or attempting to permit, another student to use their work, will receive a grade of “F” for the course. Such conduct may also constitute grounds for dismissal from the University. Students who are unfamiliar with the University’s policy on plagiarism should consult the most recent edition of laws and regulation of JU. Students who are uncertain regarding what actions constitute plagiarism should consult the instructor.

**METHOD OF EVALUATION:**

1. **HOMEWORK and QUIZZES:**

Homework is essential to this course. Homework will be assigned, collected and reviewed by the instructor. Homework and quizzes constitutes 30% of the final grade. The purposes of the homework assignments are: a.) insure students are exposed to a representative selection of problems that both demonstrate and illustrate the concepts, theories and methodologies presented in class and b.) Insure students understand the material presented in class and are keeping up with the course material. Homework must be both complete and neat – work that is either incomplete or sloppy will not be accepted. LATE WORK WILL NOT BE ACCEPTED.

1. **EXAMINATIONS:**

There will be one midterm exam counting for 30% of the course grade and final exam counting 40% of the course grade. The exam may be an in-class exam, take-home exam or a combination of in-class and take-home examination.

**ATTTENDANCE POLICY:**

Students are expected to attend scheduled classes. If an absence is unavoidable the student should contact the instructor prior to the class. If a student is absent it is their responsibility to make arrangements with another student to get the notes and assignments for the class they miss. If a student misses more than 10% of the course schedule time without prior approval they will be encouraged to drop the course. If a student misses more than six classes they will be dropped from the course automatically.

* Attendance: student is not allowed to be absent from more than (15%) Of credit hours for the course and will deprive students who exceed their absences for no reason and if the student is absent more than (15%) as well as the late attendance are not allowed on the start date of the class in this case he/she is absent. Both absent with an excuse for the announced test date above the result (zero) if there is no proof of excuse within three days from the date of demise of the excuse, if your excuse is accepted, this excuse will be a compensation exam next week.
* Tools: it is necessary to bring a calculator with each student; it is not allowed to use your cell phone during the lecture or during the exam.
* Job is or projects on time agreed, and both failed to apply on time is considered to be a result (zero) in that activity.
* Cheat in exam or participation, initiation or submission of draft of the work of others or copy other people's work or scientific robbery, breach of examination system or calm the student who commits any of the disciplinary measures provided for in the laws and regulations of the University.
* Will display the results of the work of the chapter to students 50% of the final mark on a given period to allow withdrawal of the course in the legal time limit.