МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ
Федеральное государственное автономное образовательное учреждение высшего образования
«Дальневосточный федеральный университет»
(ДВФУ)

ШКОЛА ЭКОНОМИКИ И МЕНЕДЖМЕНТА

СОГЛАСОВАНО	УТВЕРЖДАЮ
Руководитель ОП	Заведующий кафедрой менеджмента
_____ Д.А. Соколова	_____ Е.А. Глотова
«_____» _____ 20___ г.	«_____» _____ 20___ г.

РАБОЧАЯ ПРОГРАММА УЧЕБНОЙ ДИСЦИПЛИНЫ
Environmental Economics (Экономика окружающей среды)
«International Business and Project Management/на английском языке »

Направление подготовки 38.04.02 Менеджмент
Форма подготовки очная

курс 1,2 семестр 2,3
лекции 36 час.
практические занятия 72 час.
лабораторные работы _-_ час.
в том числе с использованием МАО лек. _-_ / пр. 36 час. / лаб. _-_
всего часов аудиторной нагрузки 108 час.
в том числе с использованием МАО 36 час.
самостоятельная работа 45 час.
в том числе на подготовку к экзамену 63 час.
контрольные работы (количество)
курсовая работа / курсовой проект -_
зачет __
экзамен 2,3_ семестр

Рабочая программа составлена в соответствии с требованиями образовательного стандарта, самостоятельно устанавливаемого ДВФУ, утвержденного приказом ректора от 07.07.2015

Рабочая программа обсуждена на заседании кафедры менеджмента, протокол № ____ от _____ 201___ г.

Заведующий кафедрой: Глотова Е.А.
Составители: канд. экон. наук, доцент Дьяченко Ю.К.

I. Рабочая программа пересмотрена на заседании кафедры:

Протокол от «_____» _____ 20___ г. № _____

Заведующий кафедрой _____ _____
(подпись) (И.О. Фамилия)

II. Рабочая программа пересмотрена на заседании кафедры:

Протокол от «_____» _____ 20___ г. № _____

Заведующий кафедрой _____ _____
(подпись) (И.О. Фамилия)

MINISTRY OF EDUCATION AND SCIENCE OF RUSSIAN FEDERATION
Federal state autonomous educational institution of higher professional education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF ECONOMICS AND MANAGEMENT

APPROVED

Head of EP

_____Darya A. Sokolova

«_____» _____ 20___ г.

APPROVED

Head of Management Department

_____ Elena A. Glotova

«_____» _____ 20___ г.

COURSE CYLLABUS

Environmental Economics (Экономика окружающей среды)
«International Business and Project Management»

Field of training 38.04.02 Management
Modeof study full time

year 1,2 term 2,3
lectures 36 час.
practical studies 72 h.
labs _-_ h.
including interactive learning lec. _-_ / pr. 36 h. / lab. _-_
total in-class work 108 h.
including interactive learning 36 h.
self-directed learning 45 h.
including exam preparation 63 h.
tests (quantity)
term papers / term project -_
exam 2,3_ term

The course syllabus has been prepared in accordance with the regulations of the federal state educational standard of higher education, independently fixed by FEFU, signed by Rector

The course syllabus has been discussed at the department of Managment meeting, on record № ____ _____ 2015___

Head of Department: Elena.A. Glotova
Author: Yulia K. Dyachenko, associate professor

I. Course Syllabus has revised at the meeting of Managment Department:

Record «_____» _____ 20___ г. № _____

Head of Department _____ _____
(signature) (Name)

II. Course Syllabus has revised at the meeting of Managment Department:

Record «_____» _____ 20___ г. № _____

Head of Department _____ _____
(signature) (Name)

ABSTRACT

Master's degree in 38.034.02, "Managment"

Course title: "Environmental Economics"

Varaible part of Block 1, 6 credits

Instructor: Yuliya K. Dyachenko, Candidate of Economic Sciences, Associate Professor.

At the beginning of the course a student should be able to:

- get ability to generate ideas in scientific and professional activities;
- to be ready for communication in oral and written forms in Russian and foreign languages for solving problems of professional activity;
- to have skills of quantitative and qualitative analysis making management decisions, designing economic, financial, organizational and managerial models by adapting them to specific management tasks;
- get ability to conduct independent research in accordance with the developed program;
- get ability to formalize and present the results of the study to the scientific community in the form of an article or report, with the possible use of various innovative and interactive forms of presenting information, possession of the necessary skills in the preparation of reviews, annotations, abstracts and bibliography on the subject of scientific interests (in accordance with the profile) graduate programs).

Learning outcomes:

- the ability to summarize and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists (PC-10);
- ability to apply research design methods and research strategies(PC-14);

Course description:

The content of the course "Environmental Economics" consists of five sections and covers the following range of issues:

1. Basic concepts in the field of environmental economics and natural resource use: object, purpose, objectives, methods of environmental economics, fundamental issues of economic approach to environmental issues, indicators of sustainable development, ecological footprint, ecological boundaries of economic activity, environment as a social asset.

2. Economic environmental valuation: biocentric and anthropocentric approaches, natural capital and ecosystem services, methods and problems of economic environmental valuation, cost-benefit analysis, welfare economics and public goods, methods of economic valuation of environmental benefits, market failures, external effects («externalities») and their regulation, Pigou tax, the need for government intervention, property rights, Coase's theorem.

3. Economic tools for environmental policy: regulatory and market-based tools of environmental policy, pollution charges; deposit-refund systems; tradable permits; market barrier reductions and government subsidy reductions, carbon taxes and the cap-and-system trade, a comparative analysis of various tools.

4. International cooperation in the field of environmental economics: international environmental protection system, damage economics, causes of climate change and adaptation, greenhouse effect reducing international agreements, national climate policy instruments, carbon taxes and greenhouse gas emission trading systems, voluntary carbon market.

5. Environmental strategies of the companies: social responsibility and environment, the concept of «shared values», the phenomenon of deinvestment, environmental standards and their role in global competition, green technologies in the global economy and the transition to a low-carbon economy.

Main course literature:

1. Consumption-Based Approaches in International Climate Policy [Electronic resource] / Christian Lininger. – Springer International Publishing, 2015. – 249 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:863237&theme=FEFU

2. Environmental Management [Electronic resource] / Christina W.Y. Wong,

Kee-hung Lai, Y.H. Venus Lun, T.C. Edwin Cheng. – Springer International Publishing, 2015. – 140 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:852625&theme=FEFU

3. Environmental Management and Governance [Electronic resource] / Charles W. Finkl, Christopher Makowski. – Springer International Publishing, 2015. – 472 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:862757&theme=FEFU

4. Environmental Project Management [Electronic resource] / Ebenezer A. Sholarin, Joseph L. Awange. – Springer International Publishing, 2015. – 406 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:862085&theme=FEFU

5. Handbook of Climate Change Adaptation [Electronic resource] / Walter Leal Filho. – Springer Berlin Heidelberg, 2015. – 1047 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:854516&theme=FEFU

Form of final control: exam

Аннотация к рабочей программе дисциплины
«Environmental Economics (Экономика окружающей среды)»

Учебный курс «Environmental Economics (Экономика окружающей среды)» предназначен для студентов направления подготовки 38.04.02 «Менеджмент», «International Business and Project Management/на английском языке».

Дисциплина «Environmental Economics (Экономика окружающей среды)» включена в состав вариативной части блока «Дисциплины (модули)».

Общая трудоемкость дисциплины составляет 6 зачетных единиц, 216 часов. Учебным планом предусмотрены лекционные занятия (36 часов), практические занятия (72 часа, в том числе МАО 36 часов), самостоятельная работа студентов (45 часов, в том числе 63 часа на подготовку к экзамену). Дисциплина реализуется на 1 курсе во 2 семестре и на 2 курсе в 3 семестре (экзамен).

Дисциплина «Environmental Economics (Экономика окружающей среды)» основывается на знаниях, умениях и навыках, полученных в результате изучения дисциплин «Managerial Economics (Управленческая экономика)», «Resources, Environment and Sustainability (Ресурсы, среда и устойчивое развитие)», «Ecological Management (Экологический менеджмент)» и позволяет подготовить студентов к освоению ряда таких дисциплин, как «Ecological Tourism (Экологический туризм)».

Содержание дисциплины состоит из пяти разделов и охватывает следующий круг вопросов:

1. Основные концепции в области экономики окружающей среды и использования природных ресурсов: объект, цель, задачи, методы экономики окружающей среды, фундаментальные вопросы экономического подхода к вопросам окружающей среды, показатели устойчивого развития, «экологический след», экологические границы экономической деятельности, окружающая среда как социальный актив.

2. Экономическая оценка окружающей среды: биоцентрический и антропоцентрический подходы, природный капитал и экосистемные услуги, методы и проблемы экономической оценки окружающей среды, анализ затрат и выгод, экономика благосостояния и общественные блага, методы экономической оценки экологических благ, провалы рынка, внешние эффекты («экстерналии») и их регулирование, налог Пигу, необходимость государственного вмешательства, права собственности, теорема Коуза.

3. Экономические инструменты экологической политики: административные и рыночные инструменты экологической политики, налоги на продукцию, налоги на выбросы, субсидии на сокращение выбросов, технологические стандарты, регулирование цен и количества выбросов: разница с учетом неопределенности, система «cap-and-trade», бесплатное размещение квот и аукцион, сравнительный анализ различных инструментов.

4. Международное сотрудничество в области экономики окружающей среды: международная система охраны окружающей среды, экономика ущерба, причины изменения климата и адаптация, международные соглашения по снижению «парникового эффекта», инструменты национальной климатической политики, углеродные налоги и системы торговли квотами на выбросы парниковых газов, добровольный углеродный рынок.

5. Природоохранные стратегии компаний: окружающая среда в концепции корпоративной социальной ответственности, концепция «общих ценностей», феномен дивестиций, экологические стандарты и их роль в глобальной конкуренции, зеленые технологии в современном мире и переход к низкоуглеродной экономике.

Цель – освоение студентами основных концепций в области экономики окружающей среды: теорий, связанных с использованием природных ресурсов, на основе применения микроэкономического и статистического анализа, что позволит студентам приобрести не только теоретические знания,

но и практические навыки с целью принятия эффективных управленческих решений, повысит их уровень компетенций, как специалистов, способных понимать и применять методы количественной оценки экологических благ.

Задачи:

- сформировать у студентов понимание теоретических концепций в области экономики окружающей среды и использования природных ресурсов;
- создать у студентов представление о международном сотрудничестве в области экономики и охраны окружающей среды;
- ознакомить студентов с основными инструментами экологической политики на международном, региональном и национальном уровнях;
- овладеть навыками использованием базовой статистики в контексте экономики окружающей среды с применением вербального и статистического представления экономических идей и анализа, включая взаимосвязь между ними при проведении учебных занятий;
- сформировать у студентов навыки использования экономических инструментов анализа окружающей среды;
- приобрести знания и навыки в области применения методы экономической оценки экологических благ;
- сформировать у студентов умение работы с научной литературой (в том числе, на иностранном языке), а также со статистическими базами данных по экономике окружающей среды.

Для успешного изучения дисциплины «Environmental Economics (Экономика окружающей среды)» у обучающихся должны быть сформированы следующие предварительные компетенции:

- способность генерировать идеи в научной и профессиональной деятельности;
- готовность к коммуникации в устной и письменной формах на русском и иностранном языках для решения задач профессиональной деятельности;

- владение навыками количественного и качественного анализа информации при принятии управленческих решений, построения экономических, финансовых и организационно-управленческих моделей путем их адаптации к конкретным задачам управления;
- способность проводить самостоятельные исследования в соответствии с разработанной программой;
- способность оформить и представлять результаты проведенного исследования научному сообществу в виде статьи или доклада, с возможным использованием различных инновационных и интерактивных форм представления информации, владение необходимыми навыками в составлении обзоров, аннотаций, рефератов и библиографии по тематике научных интересов (в соответствии с направленностью (профилем) программы магистратуры);

В результате изучения данной дисциплины у обучающихся формируются следующие профессиональные компетенции (элементы компетенций):

Код и формулировка компетенции	**Этапы формирования компетенции**	
ПК-10 способность обобщать и критически оценивать результаты исследований актуальных проблем управления, полученные отечественными и зарубежными исследователями	Знает	основные результаты и возможности новейших исследований по проблемам экономики и менеджмента окружающей среды, полученные отечественными и зарубежными исследователями
	Умеет	обобщать, критически оценивать, находить применение результатов научных исследований в практике экономики и менеджмента окружающей среды, полученные отечественными и зарубежными исследователями
	Владеет	способностью формулировать актуальные научные проблемы в практике экономики и менеджмента окружающей среды с учетом обобщения и критической оценки опыта отечественных и зарубежных исследователей
ПК-14 способность применять методы организации исследований и исследовательские стратегии	Знает	методы организации исследований и исследовательские стратегии по проблемам менеджмента и экономике окружающей среды
	Умеет	применять методы организации

		исследований и исследовательские стратегии по проблемам менеджмента и экономике окружающей среды
	Владеет	современными методами организации исследований и исследовательскими стратегиями по проблемам менеджмента и экономике окружающей среды

Для формирования вышеуказанных компетенций в рамках дисциплины «Environmental Economics (Экономика окружающей среды)» применяются следующие методы активного/интерактивного обучения: круглый стол, кейс-стади, метод составления интеллект-карт, метод проблемного обучения.

Abstract to

«Environmental Economics»

The «Environmental Economics» is the course of the part of Educational Master's Degree Program «International Business and Project Management», 38.04.02 «Management». It is prepared for Master's education of given Program.

The « Environmental Economics» Course is included in the variable part of the block «Disciplines (modules)».

The Course workload is 6 total credits, 216 academic hours, including lectures (36 hours), workshops (72 hours, including active learning methods of 36 hours), self-directed work (45 hours, including 63 exam preparation hours). The final course assessment is the exam in the end of the fall semester of the second year.

The «Environmental Economics» Course is based on the knowledge from other courses, such as «Managerial Economics», «Resources, Environment and Sustainability», «Ecological Management». In turn, it is the basement for other courses preparation of Curriculum, such as «Ecological Tourism».

The course consists of five modules and covers the following issues:

1. Basic concepts in the field of environmental economics and natural resource use: object, purpose, objectives, methods of environmental economics, fundamental issues of economic approach to environmental issues, indicators of sustainable development, ecological footprint, ecological boundaries of economic activity, environment as a social asset.

2. Economic environmental valuation: biocentric and anthropocentric approaches, natural capital and ecosystem services, methods and problems of economic environmental valuation, cost-benefit analysis, welfare economics and public goods, methods of economic valuation of environmental benefits, market failures, external effects («externalities») and their regulation, Pigou tax, the need for government intervention, property rights, Coase's theorem.

3. Economic tools for environmental policy: regulatory and market-based

tools of environmental policy, pollution charges; deposit-refund systems; tradable permits; market barrier reductions and government subsidy reductions, carbon taxes and the cap-and-system trade, a comparative analysis of various tools.

4. International cooperation in the field of environmental economics: international environmental protection system, damage economics, causes of climate change and adaptation, greenhouse effect reducing international agreements, national climate policy instruments, carbon taxes and greenhouse gas emission trading systems, voluntary carbon market.

5. Environmental strategies of the companies: social responsibility and environment, the concept of «shared values», the phenomenon of deinvestment, environmental standards and their role in global competition, green technologies in the global economy and the transition to a low-carbon economy.

The **purpose of the course** is mastering basic concepts in the field of environmental economics, it is designed to help students understand theories related to natural resources and make use of microeconomic and statistical analysis, which will allow students to acquire not only theoretical knowledge, but also practical skills in order to make effective management decisions; as the specialists able to understand and apply methods of quantitative assessment of environmental benefits.

Objectives of the course are:

- to discuss and demonstrate an understanding of key concepts in environmental economics and the economic issues related to a wide range of environmental problems;
- to create students' understanding of international cooperation in the field of economics and environmental protection;
- to familiarize students with the main tools of environmental policy at the international, regional and national levels;
- to demonstrate understanding of verbal and statistical representation of economic ideas and analysis, including the relationship between them;
- to develop students' skills in implementing economic tools for

environmental analysis;

- to acquire knowledge and skills in the application of methods for the economic evaluation of environmental goods;
- to form students' ability to work with scientific literature (including in a foreign language), as well as with statistical databases on the environment economics.

The following preliminary competences should be formed for successful study of «Environmental Economics». At the beginning of the course a student should be able to:

- get ability to generate ideas in scientific and professional activities;
- to be ready for communication in oral and written forms in Russian and foreign languages for solving problems of professional activity;
- to have skills of quantitative and qualitative analysis making management decisions, designing economic, financial, organizational and managerial models by adapting them to specific management tasks;
- get ability to conduct independent research in accordance with the developed program;
- get ability to formalize and present the results of the study to the scientific community in the form of an article or report, with the possible use of various innovative and interactive forms of presenting information, possession of the necessary skills in the preparation of reviews, annotations, abstracts and bibliography on the subject of scientific interests (in accordance with the profile) graduate programs).

The following professional competences (competency elements) are being formed as a result of «Environmental Economics» studying.

Code and the wording of competence	**Stages of competence forming**	
PC-10 the ability to summarize and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists	To know	the breaking research findings on topical environmental management and economics issues being done by our and foreign scientists
	To be able to	summarize, find application and critically apprise the relevant research findings on topical management issues being done by our and

		foreign scientists
	To have skills	in formulating relevant research findings on topical environmental management and economics issues based on summarizing and critically apprising of the results obtained by our and foreign scientists
PC-14 ability to apply research design methods and research strategies	To know	the research design methods and research strategies in environmental management and economics
	To be able to	apply research design methods and research strategies in environmental management and economics issues
	To have skills	in contemporary research design methods and research strategies in environmental management and economics issues

The following methods of active/interactive learning for forming competencies of «Environmental Economics» are: round table method, case-study method, mind mapping method, the method of problem-based learning.

I. THE THEORETICAL PART OF THE COURSE

Part I. Basic concepts in the field of environmental economics and natural resource use (6 h.)

Topic 1. Basic concepts in the field of environmental economics and natural resource use (6 h.)

Object, purpose, objectives, methods of environmental economics, fundamental issues of economic approach to environmental issues, indicators of sustainable development, ecological footprint, ecological boundaries of economic activity, environment as a social asset.

Part II. Economic environmental valuation (8 h.)

Topic 1. Economic environmental valuation (8 h.)

Biocentric and anthropocentric approaches, natural capital and ecosystem services, methods and problems of economic environmental valuation, cost-benefit analysis, welfare economics and public goods, methods of economic valuation of environmental benefits, market failures, external effects («externalities») and their regulation, Pigou tax, the need for government intervention, property rights, Coase's theorem.

Part III. Economic tools for environmental policy (8 h.)

Topic 1. Economic tools for environmental policy (8 h.)

Regulatory and market-based tools of environmental policy, pollution charges; deposit-refund systems; tradable permits; market barrier reductions and government subsidy reductions, carbon taxes and the cap-and-system trade, a comparative analysis of various tools.

Part IV. International cooperation in the field of environmental economics (8 h.)

Topic 1. International cooperation in the field of environmental economics (8 h.)

International environmental protection system, damage economics, causes of climate change and adaptation, greenhouse effect reducing international

agreements, national climate policy instruments, carbon taxes and greenhouse gas emission trading systems, voluntary carbon market.

Part V. Environmental strategies of the companies (6 h.)

Topic 1. Environmental strategies of the companies (6 h.)

Social responsibility and environment, the concept of «shared values», the phenomenon of deinvestment, environmental standards and their role in global competition, green technologies in the global economy and the transition to a low-carbon economy

II. THE STRUCTURE AND CONTENT OF THE PRACTICAL PART OF THE COURSE

Practical Part

(45 h., including 36 h. of interactive learning metods)

Topic 1. Introduction to Environmental Economics (15 h.)

Method of interactive learning – mind mapping method (9 h.)

1. Fundamental issues in the economic approach to environmental issues.
2. Economy-environment interdependency.
3. Drivers of environmental impact.
4. Poverty and inequality.
5. Sustainable development: definition and concept (mind mapping method).

Topic 2. Welfare Economics and Environment (15 h.)

Method of interactive learning – case-study method (9 h.)

1. Efficiency and optimality.
2. Allocation in a market economy
3. Market failure and public policy
4. Environmental pollution and Tourism (case-study method)

Topic 3. Economic Valuation techniques (27 h.)

Method of interactive learning* – the method of problem-based learning *(9 h.)

1. Stated preference techniques

2. Revealed preference techniques

3. Benefit transfers

4. Life satisfaction approach (problem-based learning)

Topic 4. Climate Change and Climate mitigation (15 h.)

Method of interactive learning* – round table method *(9 h.)

1. . Causes of climate change and adaptation.

2. International environmental protection system.

3. Voluntary Carbon Market.

4. Carbon taxes and the cap-and-system trade: comparative analysis (round table method)

III. GUIDELINES AND REQUIRMENTS FOR STUDENT'S SELF-DIRECTED LEARNING

Resources of «Environmental Economics» Course for student's self-directed learning are presented in Appendix 1and includes:

- student's self-directed schedule;
- self-directed assignments and instructions for them;
- general guidelines for Student's self-directed learning;
- marking criteria of self-directed learning.

IV. COURSE ACHIEVMENT CONTROL

№	Controlled areas of disciplines	Codes and stages of competence		Assessment Tools	
				current assessement	final assessement
1.	Part I. Basic concepts in the field of environmental economics and natural resource use Part II. Economic environmental valuation Part III. Economic tools for environmental	PC-10	To know	Tests (WA-1) Discussion (OS-4)	Oral survey (Interview) (OS-1) (questions 1-30)
			To be able to	Essay (WA-3),	Creative assignments (WA-13)
			To have skills	Case study (WA-11)	Creative assignments (WA-13)

	policy Part IV. International cooperation in the field of environmental economics				
2.	Part II. Economic environmental valuation Part III. Economic tools for environmental policy Part IV. International cooperation in the field of environmental economics Part V. Environmental strategies of the companies	PC-14	To know	Discussion (OS-4)	Oral survey (Interview) (OS-1) (questions 1-30)
			To be able to	Essay (WA-3),	Creative assignments (WA-13)
			To have skills	Calculation and graphic assigments (WA-12) Case study (WA-11)	Creative assignments (WA-13)

Typical control tasks, teaching materials, defining the knowledge assessment procedures, skills and (or) experience activities, as well as criteria and indicators needed to assess the knowledge, skills and characterize the stages of formation of competences in the course of development of the educational program are provided in Appendix 2 .

V. READING LIST (COURSEWARE)

Basic literature

(e –and printed books)

6. Consumption-Based Approaches in International Climate Policy [Electronic resource] / Christian Lininger. – Springer International Publishing, 2015. – 249 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:863237&theme=FEFU

7. Environmental Management [Electronic resource] / Christina W.Y. Wong,

Kee-hung Lai, Y.H. Venus Lun, T.C. Edwin Cheng. – Springer International Publishing, 2015. – 140 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:852625&theme=FEFU

8. Environmental Management and Governance [Electronic resource] / Charles W. Finkl, Christopher Makowski. – Springer International Publishing, 2015. – 472 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:862757&theme=FEFU

9. Environmental Project Management [Electronic resource] / Ebenezer A. Sholarin, Joseph L. Awange. – Springer International Publishing, 2015. – 406 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:862085&theme=FEFU

10. Handbook of Climate Change Adaptation [Electronic resource] / Walter Leal Filho. – Springer Berlin Heidelberg, 2015. – 1047 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:854516&theme=FEFU

Additional textbooks

(e –and printed books)

1. Climate Change in the Asia-Pacific Region [Electronic resource] / Walter Leal Filho. – Springer International Publishing, 2015. – 390 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:856782&theme=FEFU

2. Coastal Zones Ecosystem Services [Electronic resource] / R. Kerry Turner, Marije Schaafsma. – Springer International Publishing, 2015. – 240 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:853169&theme=FEFU

3. Comprehensive Evaluation of Effective Biomass Resource Utilization and Optimal Environmental Policies [Electronic resource] / Jingjing Yan. – Springer Berlin Heidelberg, 2015. – 107 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:854568&theme=FEFU

4. Decarbonising Cities [Electronic resource] / Vanessa Rauland, Peter Newman. – Springer International Publishing, 2015. – 266 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:851725&theme=FEFU

5. Economic Evaluation of Climate Change Impacts [Electronic resource] / Karl W. Steininger, Martin König, Birgit Bednar-Friedl, Lukas Kranzl, Wolfgang Loibl, Franz Prettenthaler. – Springer International Publishing, 2015. – 468 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:852680&theme=FEFU

6. Economic History of Energy and Environment [Electronic resource] / S. Sugiyama. – Springer Japan, 2015. – 134 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:860895&theme=FEFU

7. GHG Emissions and Economic Growth [Electronic resource] / Barun Deb Pal, Vijay P. Ojha, Sanjib Pohit, Joyashree Roy. – Springer India, 2015. – 182 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:850320&theme=FEFU

8. Handbook of Bioenergy [Electronic resource] / Sandra D. Eksioglu, Steffen Rebennack, Panos M. Pardalos. – Springer International Publishing, 2015. – 343 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:851204&theme=FEFU

9. Socioeconomic and Environmental Implications of Agricultural Residue Burning [Electronic resource] / Parmod Kumar, Surender Kumar, Laxmi Joshi. – Springer India, 2015. – 144 p. – URL: http://lib.dvfu.ru:8080/lib/item?id=chamo:851577&theme=FEFU

Internet Resourses

1. CIA Factbook: www.cia.gov

2. Executive Summary: The Emissions Gap Report 2017 A UN Environment Synthesis Report. PBL United Nations Environment Programme (UNEP), November 2017. https://unfccc.int/sites/default/files/resource/91_Emissions%20Gap%20Report_Talanoa_WAW.pdf

3. Emissions Trading Worldwide International Carbon Action Partnership (ICAP) Status Report 2017: https://icapcarbonaction.com/en/?option=com_attach&task=download&id=5473a

4. Global Energy and CO2 Status Report – 2017. International Energy Agency (IEA), 2017. https://www.iea.org/publications/freepublications/publication/GECO2017.pdf

5. GRI, 2016: https://www.globalreporting.org/standards

6. Organisation for Economic Cooperation and Development (OECD): www.oecd.org

7. Reporting requirements. United Nations Framework Convention on Climate Change. UNFCCC. 2013: https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-theconvention/greenhouse-gas-inventories-annex-i-parties/reportingrequirements

8. Statistical Guide to Europe: www.europa.eu.int/comm/eurostat

9. The Global Risks Report 2017. World Economic Forum. https://www.weforum.org/reports/the-global-risks-report-2017

10. United Nations Conference on Trade and Development (UNCTAD): www.unctad.org

11. USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA: https://science2017.globalchange.gov/

12. United Nations (UN):www.un.org

13. Voluntary Markets Outlook and Trends: https://www.forest-trends.org

14. World Bank Group: www.worldbank.org

List of information technology and software

1. Consultant Plus: http://www.consultant.ru/

2. Garant: www.garant.ru

3. Codex: http://www.kodeks.ru/

4. Software: Microsoft Word, Microsoft Excel, Microsoft PowerPoint.

VI. GUIDELINES FOR STUDENT'S LEARNING

The implementation of the "Environmental Economics" course provides the following types of academic work: lectures, practical exercises, independent work of students, current control and final control.

Studying the course “Environmental Economics” implies a rating system for assessing students' knowledge and provides for the teacher’s part to monitor student’s attendance of lectures, preparation and implementation of all practical exercises with the mandatory submission of a report on work, performance of all types of independent work.

Final control of the "Environmental Economics " course is an exam, which is conducted in the form of an oral form.

During the academic semester, students need to:

• master the theoretical material (20 points);

• successfully complete classroom and control tasks (50 points);

• timely and successfully perform all types of independent work (30 points).

The student must complete all tasks and all types of current control and independent work provided by the curriculum.

Evaluation criteria for the discipline "Environmental Economics " at the exam are as follows: 86-100 points - "excellent", 76-85 points - "good", 61-75 points - "satisfactory", 60 or less points - "unsatisfactory".

Recalculation of points for current control and independent work is made according to the formula:

$$P(n) = \sum_{i=1}^{m} \left[\frac{O_i}{O_i^{max}} \times \frac{k_i}{W} \right],$$

where: $W = \sum_{i=1}^{n} k_i^n$ for the current rating;

$W = \sum_{i=1}^{m} k_i^n$ for the final rating;

P (n) - student rating;

m is the total number of control measures;

n is the number of control measures taken;

O_i - score obtained by a student at the i-th control event;

O_i^{max} - the maximum student score for the i-th control event;

k_i is the weight coefficient of the i-th control measure;

k_i^n is the weight coefficient of the i-th control measure, if it is the main one, or 0, if it is optional.

Recommendations for planning and organizing time allotted for the study of the course

The best option for planning and organizing the student time needed to study the discipline is the steady distribution of the academic load, i.e. systematic acquaintance with theoretical material at lectures and consolidation of the knowledge gained in the preparation and implementation of practical tasks and tasks provided for independent work of students.

Preparation for the implementation of practical tasks should be carried out in advance to be able to consult with the teacher on emerging issues. In the case of skipping classes, you must provide a written development of the skipped class.

Independent work should be performed according to the schedule and requirements proposed by the teacher.

Algorithm for learning course

Students will find all of the information about the course, the teaching and learning materials and assignments in this Syllabus. The focus of learning within the unit will be upon investigation and analysis, making use of case studies, small group discussion and reporting. The time for lectures is little so the self-directed activity is very important. Practical classes will be held each week to provide a structural framework, however, there will be a strong emphasis placed upon group learning and student participation.

The course will be organized based on a weekly schedule. The material for each week will be released a week prior to its schedule. This will allow students to do advance reading if you have time. Students are expected to read all the materials provided. Information about the assessment can be found in the assessment section

in our Syllabus. We will use the discussion extensively as this is where we will discuss each week's material.

In addition to the second piece of assessment (which will be assessed) students are also required to work on weekly challenges (which are not assessed). So, students should form group early so they can get started.

Nevertheless, participation in class, whether it is listening to a lecture or getting involved in other activities, is an important part of the learning process, therefore it is important that you attend classes. More formally, the University regulations state that ‘to complete a course or unit students shall attend prescribed classes, lectures, seminars and tutorials’.

Tips for active/interactive learning methods

The active engagement of the learner in the learning process. This can mean engagement with others as in interactive activities or engagement with material as in reading, writing, formulating questions and responses to questions. Most educators agree that active learning is key to effective continuing education. Often an assumption is made that active learning therefore necessitates learning in small groups. Actually the key is in the word active; the size of the group is not as crucial as we might suppose for the purpose of knowledge gain and retention. It may have a greater impact on change in skill and attitude.

The following methods of active/interactive learning for forming competencies of «Environmental Economics» are: round table method, case-study method, mind mapping method, the method of problem-based learning (PBL).

Mind mapping is a simple technique for drawing information in diagrams, instead of writing it in sentences. The diagrams always take the same basic format of a tree, with a single starting point in the middle that branches out, and divides again and again. The tree is made up of words or short sentences connected by lines. The lines that connect the words are part of the meaning.

It is often created around a single concept, drawn as an image in the center of a blank page, to which associated representations of ideas such as images, words and parts of words are added. Major ideas are connected directly to the central

concept, and other ideas branch out from those major ideas.

the following guidelines for creating mind maps are:

1. Start in the center with an image of the topic, using at least 3 colors;
2. Use images, symbols, codes, and dimensions throughout your mind map;
3. Select key words and print using upper or lower case letters;
4. Each word/image is best alone and sitting on its own line;
5. The lines should be connected, starting from the central image. The lines become thinner as they radiate out from the center;
6. Make the lines the same length as the word/image they support;
7. Use multiple colors throughout the mind map, for visual stimulation and also for encoding or grouping;
8. Develop your own personal style of mind mapping;
9. Use emphasis and show associations in your mind map;
10. Keep the mind map clear by using radial hierarchy or outlines to embrace your branches.

Coogle, Xmind, Freemind, Mindnote, Mapul, WiseMapping help create mind-map online.

Case studies are used in many professional education programs, primarily in business school, to present real-world situations to students and to assess their ability to parse out the important aspects of a given dilemma. In general, a case study should include, in order: background on the business environment, description of the given business, identification of a key problem or issue, steps taken to address the issue, your assessment of that response, and suggestions for better business strategy.

Case materials are any materials that are used to inform the decisions made by students in the course of a decision-forcing case. Commonly used case materials include articles that were composed for the explicit purpose of informing case discussion, secondary works initially produced for other purposes, historical documents, artifacts, video programs, and audio programs.Case materials are made

available to students at a variety times in the course of a decision-forcing case. Materials that provide background are distributed at, or before, the beginning of the class meeting. Materials that describe the solution arrived at by the protagonist and the results of that solution are passed out at, or after, the end of the class meeting. (these are called "the B-case", "the rest of the story", or "the reveal.") Materials that provide information that became available to the protagonist in the course of solving the problem are given to students in the course of a class meeting. (these are often referred to as "handouts.").

The steps below will guide you through the process of analyzing a business case study in this way.

1. Examine and describe the business environment relevant to the case study. Describe the nature of the organization under consideration and its competitors. Provide general information about the market and customer base. Indicate any significant changes in the business environment or any new endeavors upon which the business is embarking.

2.Describe the structure and size of the main business under consideration. Analyze its management structure, employee base, and financial history. Describe annual revenues and profit. Provide figures on employment. Include details about private ownership, public ownership, and investment holdings. Provide a brief overview of the business's leaders and command chain.

3.Identify the key issue or problem in the case study. In all likelihood, there will be several different factors at play. Decide which is the main concern of the case study by examining what most of the data talks about, the main problems facing the business, and the conclusions at the end of the study.

4.Describe how the business responds to these issues or problems. Draw on the information you gathered and trace a chronological progression of steps taken (or not taken). Cite data included in the case study, such as increased marketing spending, purchasing of new property, changed revenue streams, etc.

5. Identify the successful aspects of this response as well as its failures. Indicate whether or not each aspect of the response met its goal and whether the

response overall was well-crafted. Use numerical benchmarks, like a desired customer share, to show whether goals were met; analyze broader issues, like employee management policies, to talk about the response as a whole.

6.Point to successes, failures, unforeseen results, and inadequate measures. Suggest alternative or improved measures that could have been taken by the business, using specific examples and backing up your suggestions with data and calculations.

7.Describe what changes you would make in the business to arrive at the measures you proposed, including changes to organization, strategy, and management.

8.Conclude your analysis by reviewing your findings and emphasizing what you would do differently in the case. Showcase both your understanding of the case study and your business strategy.

Problem-Based Learning (PBL) is a teaching method in which complex real-world problems are used as the vehicle to promote student learning of concepts and principles as opposed to direct presentation of facts and concepts. In addition to course content, PBL can promote the development of critical thinking skills, problem-solving abilities, and communication skills. It can also provide opportunities for working in groups, finding and evaluating research materials, and life-long learning.

Any subject area can be adapted to PBL with a little creativity. While the core problems will vary among disciplines, there are some characteristics of good PBL problems that transcend fields: the problem must motivate students to seek out a deeper understanding of concepts, the problem should require students to make reasoned decisions and to defend them, the problem should incorporate the content objectives in such a way as to connect it to previous courses/knowledge, if used for a group project, the problem needs a level of complexity to ensure that the students must work together to solve it, if used for a multistage project, the initial steps of the problem should be open-ended and engaging to draw students into the problem.

The following guidelines from The Power of Problem-Based Learning:

1.Choose a central idea, concept, or principle that is always taught in a given course, and then think of a typical end-of-chapter problem, assignment, or homework that is usually assigned to students to help them learn that concept. List the learning objectives that students should meet when they work through the problem.

2.Think of a real-world context for the concept under consideration. Develop a storytelling aspect to an end-of-chapter problem, or research an actual case that can be adapted, adding some motivation for students to solve the problem. More complex problems will challenge students to go beyond simple plug-and-chug to solve it. Look at magazines, newspapers, and articles for ideas on the story line. Some PBL practitioners talk to professionals in the field, searching for ideas of realistic applications of the concept being taught.

3.The problem needs to be introduced in stages so that students will be able to identify learning issues that will lead them to research the targeted concepts. The following are some questions that may help guide this process: What will the first page (or stage) look like? What open-ended questions can be asked? What learning issues will be identified? How will the problem be structured? How long will the problem be? How many class periods will it take to complete? Will students be given information in subsequent pages (or stages) as they work through the problem? What resources will the students need? What end product will the students produce at the completion of the problem?

4. Write a teacher's guide detailing the instructional plans on using the problem in the course. If the course is a medium- to large-size class, a combination of mini-lectures, whole-class discussions, and small group work with regular reporting may be necessary. The teacher's guide can indicate plans or options for cycling through the pages of the problem interspersing the various modes of learning.

5.The final step is to identify key resources for students. Students need to learn to identify and utilize learning resources on their own, but it can be helpful if the instructor indicates a few good sources to get them started. Many students will

want to limit their research to the Internet, so it will be important to guide them toward the library as well.

The Round Table strategy is a brainstorming strategy where students are situated around a table in an academic discussion. Like other brainstorming sessions, students generate ideas on a specific topic or question. However, with this strategy, there is equal participation among students as well as multiple discussions taking place. Follow these steps to effectively use the Round Table Discussion:

1. The best way to implement this strategy into your classroom is to first think of the topic that you want students to discuss.

2. Next, decide on the amount of questions or topics you would like to be discussed so you know how many tables/groups you will need.

3. Arrange the desks or tables so that discussion flows nicely and students can move about easily. Also, consider the placement so that groups won't be distracted by other groups.

4. Give each table one discussion sheet (preferably a different color) along with a variety of different-colored pens (this will help distinguish groups from one another). Assign one person the leader of the group and another the recorder.

5. Set a timer for each group. Also, give groups tokens so when it's each student's turn to talk, they must turn in a token. This helps the groups move along.

6. Once each group has gone (and before they move to the next group), have the leader present their group's ideas.

Follow these tips to ensure that you are implementing an effective brainstorming discussion strategy.

1. Try to make groups as diverse as you can. Do not make them too small or too large. The ideal size is about four students to a group, two boys and two girls.

2. After posing the question or topic idea, make sure that you give students a few minutes to think about it versus having them answer right away. The ideal think time is about one to three minutes.

3. Use the three-step method when implanting this strategy: 1. Pose the question (What are the planets are in our solar system). 2. Have students take turns brainstorming the answers (mars, earth, etc.). 3. Have the recorder write down the answers then the leader read them back to the group.

Study Tips for leterature

1. Read actively! That means you have to keep your brain awake as you read. The best way to do this is to ask yourself certain questions as you go (pausing after every a page or two to check your understanding of the text): What is going on? What is probably going to happen next? Who is speaking, and what do I know about the speaker? How do I know it? What motivates the characters, narrator, and author (especially if it is non-fiction text)?

2. Take notes. Jot down notes in the margin (only if you own the book) or in a notebook while you read to keep track of the plot, the characters, and any other elements you find interesting or confusing. Also, record your feelings and reactions to these elements.

3. Pay attention to problem spots. These are points at which you don't understand the narrative, something surprising happened, or the language confuses you. These are often good sections to analyze in papers, so note down what specifically confuses you (and page numbers).

4. Review your notes periodically and transfer them to Word, Google Docs, Evernote, or OneNote. Create an ongoing outline for each text, organizing your notes as you enter them. Putting these on your computer makes them searchable, and that's going to be key for when you need to study, write a response paper, or clear up some later confusion in the text.

5. In your notes document, list other texts—even music or art—that somehow remind you of this particular text. Consider how they are similar and how they are different.

6. In your notes document, write a description of the text's structure.Does it weave between interconnected stories? Does it flow chronologically, or are there multiple flashbacks or flash-forwards?

7. Discuss what you're reading with classmates and friends,especially those problem spots! Try reading aloud to someone (even to yourself), too, as this can really help clarify what's going on in a story.

8. When you really run into trouble understanding part of a text, don't be afraid to ask your teacher for help.

Tips for successful exam

Analyzing the question. It is important to answer the set question in assignments and exams. While this sounds simple and basic common sense, it is not always as easy as it sounds. Once you have begun to research a topic, your mind is full of thoughts and ideas, some of which may go off on a tangent which is not always directly related to the question asked. One way to ensure your response is on target is to analyze the question carefully.

Rewrite the task

In order to start on track, complete the following steps:

1. Read the question

2. Rewrite it, beginning with the words: 'This task asks me to...'

Use words that you are familiar and comfortable with. Write your version of the question on a piece of paper. Whenever you are working on the assignment, either researching or writing, make sure you have the piece of paper with you. Glance at it regularly to ensure you are staying on task.

Task words. A task word is the directive word/words in your assignment. There are a number of task words that are common to university assignments. They include such words as discuss, identify, explain, evaluate, analyze. These words have defined and recognized meanings when applied to university assignments.

Sometimes courses/faculties will supply a list of task words and their meanings for you, to assist with both consistency of answer on your part and the requirements and expectations of the lecturer.

It is important to search through the information provided for you by your course lecturer and the faculty to see if information like this has been supplied. If it has not, then you will need to rely on generic information.

Assignment structure. Your assignment question may contain instructions about the structure you should use for your assignment. For example your task might be: 'Write an essay on the following statement' or 'Write a report on …'If this is the case, it is important to know what your lecturer's interpretation of an essay or report is. You need to be quite clear on what is involved in meeting the assignment's requirements. So firstly check the material supplied by your lecturer and your faculty. Sometimes lecturers provide detailed guidelines on what they require. Many also provide criteria sheets. If no advice is provided, use generic guidelines and advice on how to develop these assignment structures appropriately.

Academic argument. Sometimes a question or topic will ask you to develop an argument. This is a different task to being asked to argue a ‘for or against' case. An academic argument is the development of a position or stand on an issue. As a student you arrive at this stance after having thoroughly researched the topic and explored a number of researchers' different positions or points of view on the issue. While the position you decide to take is your own and should be expressed in your own words, it is based on research and not personal opinion. This position can also be termed your thesis statement and can be presented using the words: 'This essay will argue that…'

The thesis statement you arrive at is the focal point of your essay. It is produced in the introduction to your essay. The argument you develop throughout the essay expounds and supports the position taken in the thesis statement. Once you have decided on your thesis statement, you can work on developing an academic argument to support it. It is important that your argument develops logically and supports the thesis, while at the same time answering the assignment

question. To do this, you need to select a set of main ideas that substantiate your thesis. These main ideas become the focus of each paragraph with a main idea beginning each paragraph. For further details, see paragraph structure or essay writing.

Task. The task is the academic action you must take to satisfy the requirements of the question. The task is describe. Academic questions usually include at least one task word. Sometimes the tasks are explicit like this one. The task is clearly describe which means. Give a detailed account or recount of facts, features, processes or events or relate in sequence or in story form. Be prepared to give explicit characteristics when you describe.

Other clear task words often used in assignment questions are analyse, arrange, compare, contrast, criticise. describe, discuss, enumerate, examine, evaluate, illustrate, interpret, justify, list, outline, prove, relate, review, state, summarise, trace.

VII. SOFTWARE AND HARDWARE REQUIRMENTS

To ensure discipline has all the necessary material and technical resources for the implementation of the educational process on discipline: the audience, projector, multimedia equipment, software (Microsoft Office, Stata), Access to the Internet, furniture.The recourses of FEFU Scientific Library are available.

Appendix 1

MINISTRY OF EDUCATION AND SCIENCE OF RUSSIAN FEDERATION
Federal state autonomous educational institution of higher professional education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF ECONOMICS AND MANAGEMENT

GUIDELINES AND REQUIRMENTS FOR STUDENT'S SELF-DIRECTED LEARNING

Master's Program
Environmental Economics
«International Business and Project Management»

Field of training 38.04.02 Management
Modeof study full time

Vladivostok
2019

Self-directed learning schedule

№	Dates/Deadlines	The type of self-directed learning	Estimated time	The type of control
1.	Term 2, 3	Writing essay	10	Check preparation and final results for writing essay
2.	Term 2, 3	Stata Exersises	15	Check Stata Exersises
3.	Term 2, 3	Presentation	10	Check preparation and final results for presentation
4.	Term 2, 3	Preparation for final course assessment	10	Check preparation for final course assessment
			45	

Tips for for self-directed learning

Student's self-directed learning is one of the important part of this course because of lectures and practices time limits and the abundance of information. That is why in classes we are going to consider only basic theoretical and practical issues, the amount of material, mostly factual, will be submitted for extracurricular learning.

Student's self-directed learning (45 h.) includes the following activities:

1) Preparation for writing essay
2) Stata Exersises
3) Preparation for presentation
4) Preparation for final course assessment (final exam in 3 term)

1) Preparation for writing essay Potential topics for Environmental Economics papers (students may choose their own topic, but students need to get an ok from the teacher first)

1. How does subsidized water in the arid west (or elsewhere) affect the environment?

2. Will a shift to bio-energy sources (ethanol or bio-diesel) increase welfare?

3. There are economies of scale in food production. Does the "locavore" movement (consumers buy locally grown produce and meat, etc.) pass a cost-benefit test?

4. What are the economic benefits and costs of trash disposal laws such as pay to throw vs. recycling?

5. Mining has a long and rather sordid history in Missouri. Various towns with names related to mining or minerals include Herculaneum, Viburnum, Hematite, Silver Mines, Ironton, Irondale, Bonne Terre, Potosi, Richwoods, Leadwood, Graniteville, and Old Mines, to name a few. What environmental and economic costs linger on even after almost all of the mines have been shut-down?

6. The General Mining Act of 1872 allows claims to minerals under the ground on federal land to be made at $2.50 to $5 per acre. The price was set in 1872 and remains the same today. What are the environmental/economic consequences of this huge subsidy to the mining industry?

7. Nuclear power could substitute for coal fired power plants in producing electricity. While CO2 , NOx and SO2 emissions would fall there would be a tradeoff in terms of storing nuclear waste. Would this tradeoff improve welfare?

8. Dam removal is a viable way of restoring salmon runs and has been used with some success in Northeastern US rivers. However, dam removal reduces a source of electricity that has low levels of air emissions. Does the tradeoff improve welfare?

9. What are the economic values of rainforests and how might economic incentives be used to reduce deforestation?

10. What were (are) the environmental economic impacts of Hurricane Katrina?

11. What were (are) the environmental economic impacts of the Deepwater Horizon oil spill in the Gulf of Mexico?

12. Carbon offsets have been proposed as part of the scheme of a cap and trade policy. How do carbon offsets work, who will monitor the offset program, and will they be a viable part of a cap and trade policy?

13. Are engineering solutions to carbon emissions economically viable? An engineering solution would be things such as pumping sulfur particles into the atmosphere to deflect sunlight, or having a fleet of ships stir water in the ocean increasing water particle that deflect sunlight, or capturing carbon and pumping it down into deep wells etc.

14. Has the Endangered Species Act been an environmental economic success?

15. What environmental economic damages/benefits have exotic species such as Kudzu in the southern US, Asian carp in the Chicago river, rainbow trout in Missouri, or wild horses along the Current river caused?

16. Would user fees for national forests, parks, Army Corps of Engineers lakes, etc. which enhance quality but restrict the quantity of users improve welfare?

17. What are the environmental economic benefits and costs of the current fire policy in national forests?

18. What kinds of policies might be used to help prevent against the tragedy of the commons in fisheries?

19. Costs and benefits of genetically modified food.

20. The consequences of environmental policies like cap and trade or pollution taxes on equity (fairness). Who bears the costs of environmental degradation and who will bear the costs of cleaning up the environment?

Guidelines for Essay Writing

Here there are some recommendations for writing essay. The essay is to be scored out of 100 marks. The assignment specifies 2000, and the usual plus or minus 10% rule applies. As a guide, The Examiner suggests the following (approximate) breakdown of the word allocation. Introduction – 300 words. Body/The arguments – 1500 words. Conclusion – 200 words

Some key questions student need to ask yourself ...

-What are the areas of theory?

-What is the focus of the assignment task? (i.e. which material is central to my response?)

-Which areas/theories/models must I therefore include?

-Which areas/theories/models should I omit and on what basis?

-How can I best demonstrate that I understand the material?

-Allocating your words

Marking Criteria:

Category 1 – Introduction

The main function is to give clear statements of what the assignment intends to show. This means the reader should have no difficulty, after reading the intro., about what the main points of focus will be, how they are integrated into a compelling argument, and what the student's particular orientation will be toward the assignment question.

Category 2 – Structure & readability

Where a student has clearly struggled with writing in well constructed sentences and paragraphs – i.e, the paper is difficult and or time consuming to interpret, then the student should fail in this section. Give them less than 10 marks.

Do not accept Table of Contents, an Executive Summary or other elements that one uses typically when writing a report. These are not consistent with good business essays.

Linking arguments. Many students will present similar content. Students should have a strong theme to their paper and paragraphs should support that theme. Even when asked to merely discuss an issue, students should take a position on the issue, communicate this clearly to the reader throughout the paper and draw some conclusions. One way of providing structure is to ensure that paragraphs are linked. As essay writing is about constructing and developing argument, it is the writer's responsibility to assist the reader to see how points are linked.

In the same way that the student should tell the reader (in the introduction) what he/she intends to argue (in a succinct way), he/she should then present the arguments (in the body of the assignment), and then summarise the main points in the conclusion part, it is good practice in the body of the assignment to remind the reader that the most recent paragraph reinforces or adds to the paragraph before, to illustrate one of the key arguments.

Keep in mind, that many of the arguments presented in the text are precisely that they are arguments and not necessarily facts. The points made are often the outcome of constructed argument, where the conclusions are drawn from a series of observations.

Also keep in mind that the assignment has been designed to test the ability to show understanding and application of course content. Students should read beyond Morris et al and show this in their responses, but while ensuring that they don't overlook the appropriate Morris et al content. It is their responsibility to determine which content is appropriate. The arguments are then rated on their merits.

Category 3- Conclusion

This should be a relatively easy 10% but historically, this proves otherwise. Insufficient care is typically taken here and marks are squandered unnecessarily. No new arguments should be presented here, as you are summarising key points.

The setting up part of the task (the Introduction) requires careful thought. The conclusion may demand a number of words that is disproportionate to the number of marks allocated, but the task (summarising main arguments) is somewhat more straightforward, hence the lesser weighting.

Category 4 - Content and Referencing

Look at how well the student has applied the standards of GOST referencing techniques in-text and within the reference list at the end.

The end product should be a paper that presents course content in a planned and orderly way, which not only provides a clear position on the topic, but which also reflects a sound knowledge and understanding of the subject.

Specific Formatting Requirements for essay

An appropriately chosen topic and its well treatment should result in a paper about 2,500 words. Note that it is the quality of the contents that counts, not the length. If your paper is slightly smaller or larger, it will be OK provided that its contents are acceptable. Please do not take advantage of line spacing, font size and margin size options to force a perceived smaller or larger paper.

Organization. Organize your paper in terms of sequentially numbered sections, subsections, and sub-subsections, each with an appropriate title. The paper organization may be as follows:

• Paper Title

• Your name and contact information

• Paper abstract • Introduction (problem statement)

• Background sections (may include a discussion of existing work, literature survey, justification of your work)

• Sections presenting your work (may include your solution, results, evaluations, validation, observations, case studies, application of concepts, etc.)

• Conclusions

• Bibliography

• Appendices (if necessary, may include items such as a large chunk of code that is necessary to be a part of the paper but is inappropriate to be included in the paper body)

Font Size. Use 14-point font size.

Line Spacing. Students may prepare their paper in single or double space format. If you choose to prepare in double space format, be sure to single space the title, abstract, itemized and enumerated lists, tables, and the bibliography.

Paper Margins. Allow 1-inch margins on all four sides and justify text on both sides.

Tables and Figures. Number all tables, figures, and similar items and use these numbers to explicitly refer to such items. Include a descriptive caption for

each table or figure (or similar items). Be sure to use a uniform/consistent approach for citing such items and for presenting their captions.

Marking Criteria for Essay Writing

Student's paper will be graded according to the following criteria:

1. Content completeness, accuracy, and originality [30%]

2. Paper results and contributions [40%]

3. Organization (proper abstract, good title, appropriately numbered (sub) sections with descriptive titles, good transition between sections, use of diagrams and tables, good English) [20%]

4. Appropriately chosen and annotated bibliography items [10%]

2. *Stata Exersises*

Example of Stata Exersises:

1) Introduce data to STATA.

2) Check the number of observations, average of all variables used below.

3) Estimate the probit model (for this class use the linear probability model):

Pr(Yes) = F(b0 + b1Bid + b2male + b3age + b4age2 + b5income) (Eq. A)

where Yes/No are responses to the CV question, male equals 1 for male and 0 otherwise. Bid is a randomly assigned amount in Euros from 10 to 100 Euros. age is the age of respondent while income stands for the particular income bracket (from 1 to 6).

4) Reestimate Eq.A with the log transformation of Bid:

Pr(Yes) = F(b0 + b1male + b2 ln(Bid))

5) Calculate the median willingness to pay for male, female, and an average individual in your sample for a probit model.

6) Assume that landowners in this region are need to be compensated in total 9 million Euros per year (1000 females and males). What is your conclusion given the median WTP for an average person in question 5.

3. Preparation for presentation

Each student (their choice) has 15-20 minutes to present an environmental economics relating topic (50%). The presentation will be judge on organization,

depth of analysis, breadth of coverage and synthesis of findings as well as delivery. A written report (40%) (4-5 pages: 12 pts 1.5 line-spacing, 1'' margin) is required for each group. In addition to the content, you also need to indicate in the paper which member is responsible for which activity – research, slide making, presenting, or doing write-up.

One page proposal (10%) is due on pointed date in class which provides: (1) title of the project, (2) the scope of the project (research questions, coverage, etc.), (3) a tentative outline of the final report and a tentative bibliography of sources you will be using. This proposal should reflect sufficient knowledge of the literature that student can specify both the subjects to be covered and how they fit together. The teacher will make comments and provide suggestion for improvement.

The presentation should contains:

• Research question

– Why do you decide explore this question?

• Literature Review

– Explain 3 articles in this field (use www.sciencedirect.com)

• Date: Source

• Method: Any analysis/linear regression/Graphical

Analysis

• Summary (2-3 sentences)

• Discussion by other groups: What did/did'not you like

in this presentation?

Possible Final Presentation Topics:

The topics listed here are not designed to limit your possibilities, but rather to indicate the range of possible topics. Student can choose from the list or come up with a topic on your own. Each topic can be chosen by only one student.

1. International Environmental Agreements: What Can Game Theory Model Tell Us?

2. Environmental Capitalism: Can Acting Sustainably be Profitable for Firms?

3. Electricity Deregulation: What have been the Economic and Environmental Impacts?

4. Pricing Traffic Congestion

5. The Economics of Marine Reserves

6. Population as a Source of Environmental Degradation: What is the Evidence?

7. The "Tragedy of the Commons" Revisited: What Have We Learned?

8. The Environmental Kuznets Curve: A Solution to the Poverty/Environment Connection?

9. Renewable Portfolio Standards and Clean Energy Standards

10. Subsidies for Renewable Energies: Is American Really As Apple Pie?

11. The Economics of Sustainable Agriculture

12. Pricing Water: What Have We Learned?

13. Does the Regulation of International Trade to Protect Endangered Species Do More Harm than Good?

14. Strategies for Protecting Endangered Species: Approaches and Results

15. The Future Renewable Energies

16. Decision Making under Uncertainty: Application to Climate Change

17. Climate on cable: The nature and impact of global warming coverage on Fox

18. News, CNN, and MSNBC

19. Climate Change and Adaptation

20. Green GDP

21. Feed-in Tariff in the U.S.

22. How Can Environmental Regulation Enhance Innovation and Competitiveness?

The guidelines for Making Presentation: Public Speaking Tips

When you are presenting in front of an audience, you are performing as an actor is on stage. How you are being perceived is very important. Dress appropriately for the occasion. Be solemn if your topic is serious. Present the

desired image to your audience. Look pleasant, enthusiastic, confident, proud, but not arrogant. Remain calm. Appear relaxed, even if you feel nervous. Speak slowly, enunciate clearly, and show appropriate emotion and feeling relating to your topic. Establish rapport with your audience. Speak to the person farthest away from you to ensure your voice is loud enough to project to the back of the room. Vary the tone of your voice and dramatize if necessary. If a microphone is available, adjust and adapt your voice accordingly.

Body language is important. Standing, walking or moving about with appropriate hand gesture or facial expression is preferred to sitting down or standing still with head down and reading from a prepared speech. Use audio-visual aids or props for enhancement if appropriate and necessary. Master the use of presentation software such as PowerPoint well before your presentation. Do not over-dazzle your audience with excessive use of animation, sound clips, or gaudy colors which are inappropriate for your topic. Do not torture your audience by putting a lengthy document in tiny print on an overhead and reading it out to them.

Speak with conviction as if you really believe in what you are saying. Persuade your audience effectively. The material you present orally should have the same ingredients as that which are required for a written research paper, i.e. a logical progression from *Introduction* (Thesis statement) to *Body* (strong supporting arguments, accurate and up-to-date information) to *Conclusion* (re-state thesis, summary, and logical conclusion).

Do not read from notes for any extended length of time although it is quite acceptable to glance at your notes infrequently. Speak loudly and clearly. Sound confident. Do not mumble. If you made an error, correct it, and continue. No need to make excuses or apologize profusely.

Maintain sincere eye contact with your audience. Use the 3-second method, e.g. look straight into the eyes of a person in the audience for 3 seconds at a time. Have direct eye contact with a number of people in the audience, and every now and then glance at the whole audience while speaking. Use your eye contact to make everyone in your audience feel involved.

Speak to your audience, listen to their questions, respond to their reactions, adjust and adapt. If what you have prepared is obviously not getting across to your audience, change your strategy mid-stream if you are well prepared to do so. Remember that communication is the key to a successful presentation. If you are short of time, know what can be safely left out. If you have extra time, know what could be effectively added. Always be prepared for the unexpected.

Pause. Allow yourself and your audience a little time to reflect and think. Don't race through your presentation and leave your audience, as well as yourself, feeling out of breath.

Add humor whenever appropriate and possible. Keep audience interested throughout your entire presentation. Remember that an interesting speech makes time fly, but a boring speech is always too long to endure even if the presentation time is the same.

When using audio-visual aids to enhance your presentation, be sure all necessary equipment is set up and in good working order prior to the presentation. If possible, have an emergency backup system readily available. Check out the location ahead of time to ensure seating arrangements for audience, whiteboard, blackboard, lighting, location of projection screen, sound system, etc. are suitable for your presentation.

Have handouts ready and give them out at the appropriate time. Tell audience ahead of time that you will be giving out an outline of your presentation so that they will not waste time taking unnecessary notes during your presentation.

Know when to stop talking. Use a timer or the microwave oven clock to time your presentation when preparing it at home. Just as you don't use unnecessary words in your written paper, you don't bore your audience with repetitious or unnecessary words in your oral presentation. To end your presentation, summarize your main points in the same way as you normally do in the Conclusion of a written paper. Remember, however, that there is a difference between spoken words appropriate for the ear and formally written words intended for reading. Terminate your presentation with an interesting remark or an appropriate punch

line. Leave your listeners with a positive impression and a sense of completion. Do not belabor your closing remarks. Thank your audience and sit down.

4.Preparation for final course assessment (final exam in 3 term)

Example

Active Review Questions

Fill in the Blank

1. A negative externality can be incorporated into a supply-and-demand graph as a _____ (upward / downward) shift of the _____ (supply / demand) curve.

2. The common policy recommendation in a market with a positive externality is to implement a _____.

3. The _____ states that something has economic value only according to the maximum amount people are willing to pay for it.

4. Nonmarket valuation techniques that base estimates on the cost of substitutes for ecosystem services are known as _____.

5. Using surveys to elicit respondents' willingness to pay for hypothetical scenarios is known as _____.

True/False

6. A Pigovian tax is shown in the supply-and-demand model as an upward shift of the demand curve.

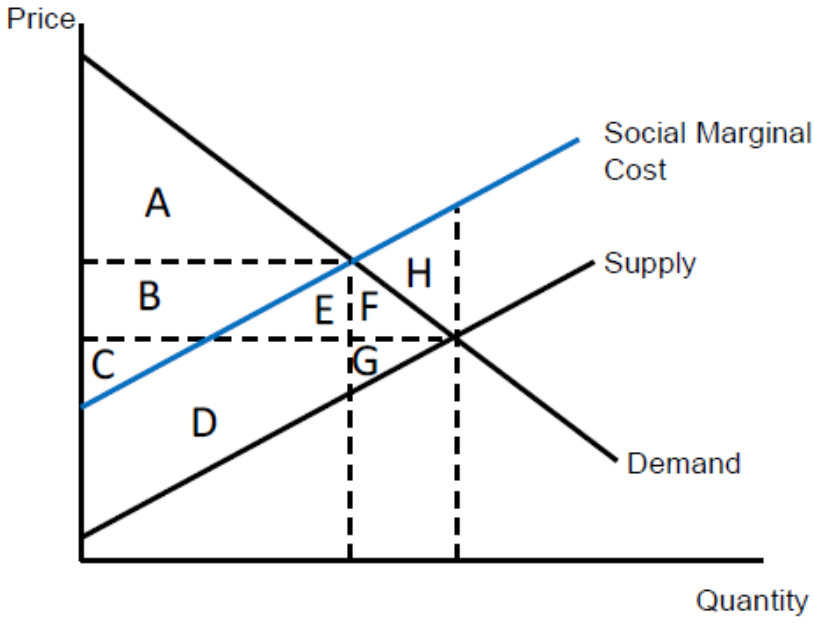
7. Instituting a Pigovian tax will increase the equilibrium price and decrease the equilibrium quantity.

8. A tax on coal extracted from a coal mine is an example of an upstream tax.

Short Answer

Explain in your own words why the unregulated market outcome in a market with a negative externality is economically inefficient.

For Questions 3-4 refer to the following graph.



3. In the graph above, what area(s) represent the negative externality damage in an unregulated market (i.e., with no Pigovian taxes)?

a) D+E

b) D+E+F+G

c) H

d) F+G+H

e) D+E+F+G+H

4. In the graph above, what area(s) represent the tax revenue if a Pigovian tax is implemented which fully internalizes a negative externality?

a) B+E+F

b) C+D+G

c) C+D

d) D+E

e) B+E+F+H

5. How can the social benefits from a positive externality be represented in a supply-and-demand graph?

a) As an upward shift of the supply curve

b) As an upward shift of the demand curve

c) As a downward shift of the supply curve

d) As a downward shift of the demand curve

e) None of the above

6. What is an upstream tax?

a) A tax placed on consumer goods

b) A tax on pollution dumped into rivers

c) A tax placed on raw materials

d) A tax placed primarily on high income households

e) A tax placed primarily on low income households

7. About how much are environmental taxes in the United States, expressed as a percentage of total tax revenue?

a) 3%

b) 7%

c) 12%

d) 18%

e) 25%

8. Total economic value excludes which one of the following components?

a) Profits

b) Nonuse benefits

c) Ecosystem services

d) Recreation benefits

e) Intrinsic value

9. Which one of the following is not a nonmarket valuation technique?

a) Revenue-neutral methods

b) The cost of illness method

c) Replacement cost methods

d) Revealed preference methods

e) Stated preference methods

10. Suppose a household purchases a water purification system to avoid exposure to contaminated drinking water. Estimating the value of safe drinking water by measuring the cost of the purification system is an example of what valuation method?

a) The replacement cost method

b) The travel cost method

c) Contingent valuation

d) The defensive expenditures approach

e) Contingent ranking

11. Using a survey to elicit people's willingness to pay for a hypothetical scenario is known as …

a) contingent ranking.

b) contingent valuation.

c) replacement cost methods.

d) revealed preference methods.

e) the defensive expenditures approach.

12. Which of the following methods would be most likely to produce an accurate estimate of the recreation benefits of a National Park?

a) Replacement cost methods

b) Defensive expenditures approach

c) Travel cost models

d) Contingent valuation

e) Cost of illness method

13. What is considered to be the main advantage of contingent valuation?

a) Responses can be validated by comparison to market behavior

b) Results are unbiased

c) Surveys can be done at low cost

d) Values can be obtained for any type of benefit

e) Results are easily replicated

Quantitative criteria for evaluation for all kinds of study

100-86 marks – Excellent – student has excellent mark if he or she has expressed his/her opinion about the problem, cited arguments for it and identified problem context and components. There also should be used information of Russian and foreign literature, statistical data, legal documents. The student knows and has the skills of independent research on the particular topic, theoretical and applied research methods and techniques. There are no mistakes related with understanding the problem. The work is framed correctly.

85-76 marks – Good – work is characterized by a semantic integrity, cohesion and sequence of information. There are no more than two errors in the explanation of the meaning or content of the problem. Arguments based on Russian and foreign literature. Research skills are showcased. There are no mistakes related with understanding the problem. No more than four errors in the work design.

75-61 marks – Satisfactory – the student made quite independent analysis of the main stages and components of the problem. He or she understands the basic foundation and theoretical basis of the chosen topic. The main sources are used. There are no more than five errors in the sense or content problem and the work design.

Less 60 marks – Failing grade (the work should be remake for better mark) – the work is retold or completely copied the original text without any comments, analysis. The topic was not disclosed. There are five and more errors in the sense or content problem and the work design.

Appendix 2

MINISTRY OF EDUCATION AND SCIENCE OF RUSSIAN FEDERATION
Federal state autonomous educational institution of higher professional education
«Far Eastern Federal University»
(FEFU)

SCHOOL OF ECONOMICS AND MANAGEMENT

ASSESMENT RESOURSES POOL

Master's Program
Environmental Economics
«International Business and Project Management»

Field of training 38.04.02 Management
Modeof study full time

Vladivostok
2019

Passport of assessment resources pool

Code and the wording of competence	Stages of competence forming	
PC-10 the ability to summarize and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists	To know	the breaking research findings on topical environmental management and economics issues being done by our and foreign scientists
	To be able to	summarize, find application and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists
	To have skills	in formulating relevant research findings on topical environmental management and economics issues based on summarizing and critically apprising of the results obtained by our and foreign scientists
PC-14 ability to apply research design methods and research strategies	To know	the research design methods and research strategies in environmental management and economics
	To be able to	apply research design methods and research strategies in environmental management and economics issues
	To have skills	in contemporary research design methods and research strategies in environmental management and economics issues

№	Controlled areas of disciplines	Codes and stages of competence		Assessment Tools	
				current assessement	final assessement
1.	Part I. Basic concepts in the field of environmental economics and natural resource use Part II. Economic environmental valuation Part III. Economic tools for environmental policy Part IV. International cooperation in the field of environmental economics	PC-10	To know	Tests (WA-1) Discussion (OS-4)	Oral survey (Interview) (OS-1) (questions 1-30)
			To be able to	Essay (WA-3),	Creative assignments (WA-13)
			To have skills	Case study (WA-11)	Creative assignments (WA-13)
2.	Part II. Economic	PC-14	To know	Discussion (OS-4)	Oral survey (Interview) (OS-1) (questions 1-30)

	environmental valuation Part III. Economic tools for environmental policy Part IV. International cooperation in the field of environmental economics Part V. Environmental strategies of the companies		To be able to	Essay (WA-3),	Creative assignments (WA-13)
			To have skills	Calculation and graphic assigments (WA-12) Case study (WA-11)	Creative assignments (WA-13)

The scale of assessment the level of competences formation

Code and the wording of competence	Stages of competences formation		Criteria	Indicators
PC-10 the ability to summarize and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists	To know	the breaking research findings on topical environmental management and economics issues being done by our and foreign scientists	knowledge of the breaking research findings on topical environmental management and economics issues being done by our and foreign scientists	ability to determine the breaking research topics on environmental management and economics issues being done by our and foreign scientists
	To be able to	summarize, find application and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists	ability summarize, find application and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists	ability to application of the relevant research findings on topical management issues being done by our and foreign scientists
	To have skills	in formulating relevant research findings on topical environmental management and economics issues based on summarizing and critically	possession of formulating relevant research findings on topical environmental management and economics issues based on summarizing and	ability to implementation relevant research findings on topical environmental management

		apprising of the results obtained by our and foreign scientists	critically apprising of the results obtained by our and foreign scientists	
PC-14 ability to apply research design methods and research strategies	To know	the research design methods and research strategies in environmental management and economics	knowledge of the research design methods and research strategies in environmental management and economics	ability to determine proper research design methods and research strategies in environmental management and economics
	To be able to	apply research design methods and research strategies in environmental management and economics issues	ability apply research design methods and research strategies in environmental management and economics issues	ability to use research design methods and research strategies in environmental management and economics issues
	To have skills	in contemporary research design methods and research strategies in environmental management and economics issues	possession of formulating contemporary research design methods and research strategies in environmental management and economics issues	ability to implement research design methods and research strategies in environmental management and economics issues

Final Assessment
Tools for final assessment
Exam Questions

1. Basic concepts in the field of environmental economics and natural resource use.
2. Object, purpose, objectives, methods of environmental economics.
3. Fundamental issues of economic approach to environmental issues.
4. Indicators of sustainable development, ecological footprint, ecological boundaries of economic activity, environment as a social asset.
5. Biocentric and anthropocentric approaches in economic environmental valuation.
6. Natural capital and ecosystem services, methods and problems of

economic environmental valuation.

7. Cost-benefit analysis. Methods of economic valuation of environmental benefits

8. Welfare economics and public goods

9. Market failures, external effects («externalities») and their regulation,

10. Pigou tax, the need for government intervention.

11. Property rights, Coase's theorem.

12. Regulatory and market-based tools of environmental policy, pollution charges.

13. Deposit-refund systems; tradable permits.

14. Market barrier reductions and government subsidy reductions

15. Carbon taxes and the cap-and-system trade, a comparative analysis of various tools.

16. International environmental protection system.

17. Damage economics.

18. Causes of climate change and adaptation.

19. Greenhouse effect reducing international agreements.

20. National climate policy instruments

21. Carbon taxes and greenhouse gas emission trading systems

22. Voluntary carbon market.

23. Social responsibility and environment, the concept of «shared values».

24. The phenomenon of deinvestment.

25. Environmental standards and their role in global competition

26. Green technologies in the global economy and the transition to a low-carbon economy.

27. Stated preference techniques.

28. Revealed preference techniques.

29. Benefit transfers.

30. Life satisfaction approach (problem-based learning).

Marking Criteria for Exam

Points (Rating Score)	Credit/Exam Mark (Standard)	Formed Competencies Requirements To Evaluate According to the Competencies. Bound to the Course
86-100	«excellent»	student has excellent mark if he or she has expressed his/her opinion about the problem, cited arguments for it and identified problem context and components. There also should be used information of Russian and foreign literature, statistical data, legal documents. The student knows and has the skills of independent research on the particular topic, theoretical and applied research methods and techniques. There are no mistakes related with understanding the problem. The work is framed correctly.
85-76	«good»	work is characterized by a semantic integrity, cohesion and sequence of information. There are no more than two errors in the explanation of the meaning or content of the problem. Arguments based on Russian and foreign literature. Research skills are showcased. There are no mistakes related with understanding the problem. No more than four errors in the work design
75-61	«satisfactory»	the student made quite independent analysis of the main stages and components of the problem. He or she understands the basic foundation and theoretical basis of the chosen topic. The main sources are used. There are no more than five errors in the sense or content problem and the work design.
60-0	«failing grade»	the work is retold or completely copied the original text without any comments, analysis. The topic was not disclosed. There are five and more errors in the sense or content problem and the work design

Current Assessment

Tools for final assessment of the level of competences formation

1) PC-10 the ability to summarize and critically apprise the relevant research findings on topical management issues being done by our and foreign scientists

1) Tools for final assessment *PC-10*

1.Give three economic reasons why we should not have a cap-and-trade program imposed on automobile drivers for pollution from their cars.

2. Instead of command and control, the regulator can also use a cap-and-trade program. Here, the total level of emissions by the two firms combined will equal the socially-optimal total level of emissions, but the regulator is letting firms trade emissions allowances to achieve that abatement at minimum cost (quantative question)

a) What are total emissions?

b) Assuming that neither firm has market power in the allowance market, what will be he equilibrium allowance price?

Read the Case "Damages from the Exxon Valdez Oil Spill". Answer the following questions:

1) What is a major topic of debate for the environmental economics community after Exxon Valdez Oil Spill?
2) Why these study results are so important for a benefit-cost assessment?

Case "Damages from the Exxon Valdez Oil Spill": The Exxon Valdez oil spill occurred in Prince William Sound, Alaska, March 24, 1989, when Exxon Valdez, an oil tanker owned by Exxon Shipping Company, bound for Long Beach, California, struck Prince William Sound's Bligh Reef, 1.5 mi (2.4 km) west of Tatitlek, Alaska, at 12:04 a.m. local time and spilled 10.8 million US gallons (260,000 bbl) (or 37,000 metric tonnes) of crude oil over the next few days. It is considered to be one of the worst human-caused environmental disasters.

The Valdez spill is the second largest in US waters, after the 2010 Deepwater Horizon oil spill, in terms of volume released. Prince William Sound's remote location, accessible only by helicopter, plane, or boat, made government and industry response efforts difficult and severely taxed existing response plans. The region is a habitat for salmon, sea otters, seals and seabirds. The oil, originally extracted at the Prudhoe Bay Oil Field, eventually impacted 1,300 miles (2,100 km) of coastline, of which 200 miles (320 km) were heavily or moderately oiled with an obvious impact.

The State of Alaska and the U.S. Government settled their lawsuits against Exxon for 1 billion dollars in natural resource damages and restitution for injuries.41 In addition, Exxon spent over 2 billion dollars on oil spill response and restoration. This compares to the 2.8 billion dollars to prevent an Exxon Valdez type oil spill put forth in the original study report. In thinking about the settlement, it may be useful to keep in mind that guidelines on natural resource damage

assessment require that any money collected by the government be spent on restoration and/or the acquisition of like resources where restoration is not feasible.

It is clearly possible to argue about which Exxon expenditures represented response (not to be counted toward compensable damages) and which represented restoration (counted toward compensable damages). It is also possible to be critical of the restoration effort. Much, however, has been learned since the Exxon Valdez oil spill about the effects of oil spills, how to prevent them, how to respond to them.42 Indeed, instances where a spill is averted receive little attention.

After the Exxon Valdez oil spill, the U.S. Coast Guard put into effect an oil spill prevention and response program that strongly resembled the program described to respondents in this study. Their regulatory impact assessment for this plan was based on preventing damages of the magnitude indicated by Exxon's settlement with the government. The costs of this program have subsequently been passed on to consumers throughout the United States in the form of higher oil prices. After the plan was put into effect, a tanker had problems with its steering system after leaving Valdez and was about 100 feet from hitting the rocks when its escort ship succeeded in pushing it away.

This use of the study results for a benefit-cost assessment of a program to protect ex ante the natural resources of Prince William Sound complete the circle between the usual policy analysis and natural resource damage assessment. The debate over CV measures of passive use and their role in the assessment of natural resource damages and public decision-making has become a major topic of debate for the economics community. The Exxon Valdez represented the quintessential case in which, to ignore passive use values, was to effectively say that resources that the public had chosen to set aside and not develop could be harmed at little or no cost to the responsible party. It is possible to belief that lost passive use values should be compensated but not believe in using direct monetary valuation via CV.

Requiring restoration of an injured resource as many critics of using monetary valuation had argued should be the remedy has been shown to be a vacuous concept when large numbers of animals are killed and ecosystems disrupted for

years. While it is clearly possible to compensate the public by providing additional natural resources to compensate for the lost service flows until the resource recovers, determining the level of compensatory resources that would make the public whole effectively requires knowledge of how much monetary value the public placed on the resource.

At the time of the Exxon Valdez oil spill it was not clear whether Admiralty law which limits damages to the value of the ship and its cargo would take precedent in determining liability over federal/state pollution statues. The passage of the U.S. Oil Pollution Control Act of 1990 removed that ambiguity and came down clearly on the side of including passive use in assessing damages. That policy decision has not been decisively made elsewhere in the world. As such, perceived liability for a major oil spill in the United States is very high and, perhaps as a consequence, there have been no extremely large spills in the United States since the Exxon Valdez oil spill. There have been spills that might have become very large and caused widespread injuries if it had not been for the preplanned aggressive response effort undertaken. This lack of extremely large oil spills in the United States for over a decade has had an interesting effect; it implies that while CV has not been used much for assessing natural resource damage of large oil spills, its potential use may be playing an important role in preventing such spills. Elsewhere, the pattern of big oil spills has been largely unchanged.

4)PC-14 ability to apply research design methods and research strategies

4) Tools for final assessment *PC-14*

Suppose that under the terms of an international agreement, U.S. CO2 emissions are to be reduced by 200 million tons and those of Brazil by 50 million tons. Here are the policy options that the United States and Brazil have to reduce
their emissions:

United States:

Policy Options	Total emissions reduction (million tons carbon)	Cost ($ billion)
A: Efficient machinery	60	12
B: Reforestation	40	20
C: Replace coal-fueled power plants	120	30

Brazil:

Policy Options	Total emissions reduction (million tons carbon)	Cost ($ billion)
A: Efficient machinery	50	20
B: Protection of Amazon forest	30	3
C: Replace coal-fueled power plants	40	8

a. Which policies are most efficient for each country in meeting their reduction targets? How much will be reduced using each option, at what cost, if the two countries must operate independently? Assume that any of the policy options can be partially implemented at a constant marginal cost. For example, the United States could choose to reduce carbon emissions with efficient machinery by 10 million tons at a cost of $2 billion. (Hint: start by calculating the average cost of carbon reduction in dollars per ton for each of the six policies).

b. Suppose a market of transferable permits allows the United States and Brazil to trade permits to emit CO2. Who has an interest in buying permits? Who has an interest in selling permits? What agreement can be reached between the United States and Brazil so that they can meet the overall emissions reduction target of 250 million tons at the least cost? Can you estimate a range for the price of a permit to emit one ton of carbon? (Hint: use your average cost calculations from the first part of the question.)

Read the Case "Contingent Valuation (CV) and Lost Passive Use: Damages from the Exxon Valdez Oil Spill". Answer the following questions:

1) What has been changed in research design methods after Exxon Valdez Oil Spill?
2) What methods do the scientists apply for WTP calculation?

On the night of 24 March 1989, the Exxon Valdez left the port of Valdez, Alaska and was steaming through the Valdez Narrows on its way to the open waters of Prince William Sound. The tanker left the normal shipping lanes to avoid icebergs from the nearby Columbia Glacier and ran into the submerged rocks of Bligh Reef; its crew failed to realize how far off the shipping lanes the tanker had strayed. Oil compartments ruptured, releasing 11 million gallons of Prudhoe Bay crude oil into the Prince William Sound. It was the largest tanker spill in U.S. waters and to the public it was one of the major environmental disasters in U.S. history.

Prior to the Exxon Valdez oil spill, the estimation of passive use value (Carson, Flores and Mitchell 1999) or as it has often been previously termed, nonuse or existence value, was an area of economic research not well known to many economists working outside the area of benefit cost analysis of projects involving environmental amenities and health risks.

However, based on a belief that the State of Alaska and the Federal Government intended to litigate a natural resource damage claim for lost passive use value, the attention paid to the conceptual. underpinnings and estimation techniques for passive use value changed rather abruptly. Further sparking the rapidly growing interest in passive use values was an important 1989 court opinion, Ohio v. U.S. Department of the Interior, 2 which remanded back to the Department of the Interior (DOI) various components of its regulations for conducting natural resource damage assessments under the Clean Water Act and the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA), commonly known as Superfund.

Two particularly important aspects of the court’s ruling for passive use value were its findings that: (1) passive use losses were compensable under those Acts and (2) the DOI hierarchy of damage assessment techniques, which placed contingent valuation at the bottom, was unjustified. Interest in passive use values was also heightening at the time of the study by the passage of the Oil Pollution Act of 1990 (OPA) and the regulations that National Oceanic and Atmospheric

Administration (NOAA) enacted under it for natural resource damage assessments. The regulations stated: "NOAA believes that the trustee(s) should have the discretion to include passive use values as a component within the natural resource damage assessment determination of compensable values.

This brings us to the current debate over contingent valuation. It is generally recognized that only stated preference methods are applicable to the estimation of passive use value. Unlike direct use of resources, where for example, one can potentially observe individuals boating and fishing and use these observations to build economic models permitting inference about the value individuals place on such activities, passive use entails no direct involvement with natural resources.

As a result, economists are fond of saying passive use leaves no behavioral trace. Contingent valuation is a survey approach designed to create the missing market for public goods by determining what people would be willing to pay (WTP) for specified changes in the quantity or quality of such goods or, more rarely, what they would be willing to accept (WTA) in compensation for well-specified degradations in the provision of these goods.

Contingent valuation (CV) circumvents the absence of markets for natural resource services by presenting consumers with a choice situation in which they have the opportunity to buy or sell the services in question. A CV scenario may be modeled after either a private market or a political referendum. The popular name for this form of non-market valuation arose because the elicited values are contingent upon the particular scenario described to survey respondents.

It is fair to say that the debate within the economics community, instigated by the Exxon Valdez spill and the natural resource damage provisions of various laws, includes discussions of both the conceptual underpinnings of passive use and the technique for its measurement.

However, it is the measurement technique itself, which has been the target of the sharpest criticism. Much of the recent criticism of CV is contained in the Exxon-sponsored conference volume, Hausman (1993), and written submissions

directed to writers of natural resource damage assessment regulations in DOI and NOAA.

To help assess these comments, the NOAA General Counsel, Thomas Campbell, formed a panel of social scientists to explicitly consider the criticisms of contingent valuation and make recommendations to NOAA. The panel was co-chaired by Kenneth Arrow and Robert Solow and was comprised of three additional economists: Edward Leamer of the University of California, Los Angeles, Paul Portney of Resources for the Future and Roy Radner of Bell Laboratories, as well as Howard Schuman, former Director of the Survey Research Center at the University of Michigan. The panel concluded that CV studies convey "useful information" for damage assessment including lost passive use values, provided they follow a number of "stringent guidelines" (Arrow et al. 1993). The recommendations of this panel have influenced the form of both the NOAA and DOI regulations and the wider academic debate.

Content guidelines for determining "Environmental Economics" results of the estimation procedure of course development

Current assessment of the course. The current assessment of "Environmental Economics" Course is compulsory and it is carried out in accordance with the local regulations of the Far Eastern Federal University. The current assessment of the Course is held in the form of the following activities (self-directed assignments (writing essay, presentation, Stata exercises, preparation for final course assessment), quizzes, case-studies, discussions). These activities are marked by the Examiner of the Course.

The assessment objects are:

– "Environmental Economics" Course (student participation in class activities, class attendance, submission of assignments);

– The level of theoretical knowledge (oral interview);

– The level of practical skills and abilities (practice);

– The results of self-directed learning (writing essay, presentation, Stata exercises, preparation for final course assessment).

Final assessment of the course. The final assessment of "Environmental Economics" Course is compulsory and it is carried out in accordance with the local regulations of the Far Eastern Federal University. The final assessment of the Course is Exam. Exam consists of an oral survey in the form of the interview and an individual creative task. At the exam, the student can get the following points, which are set according to certain criteria.

Brief description of the procedure for applying the estimated means used. As a result of attending lectures, workshops, seminars and round tables, the student consistently masters the materials of the discipline and examines the answers to the exam questions presented in the structural element of FES IV.1. During the final control, the student prepares exam answers and creative assigments (the creative assigments is located in the structural element of FES IV.2). The student's assessment criteria for the exam are presented in the structural element of FES IV.3. Criteria for assessing the current control - a control of knowledge (self-directed assignments (writing essay, presentation, Stata exercises, preparation for final course assessment), quizzes, case-studies, discussions) are presented in the structural element of FES V.

Marking Criteria for Exam

Points (Rating Score)	**Credit/Exam Mark (Standard)**	**Formed Competencies Requirements To Evaluate According to the Competencies. Bound to the Course**
86-100	«excellent»	student has excellent mark if he or she has expressed his/her opinion about the problem, cited arguments for it and identified problem context and components. There also should be used information of Russian and foreign literature, statistical data, legal documents. The student knows and has the skills of independent research on the particular topic, theoretical and applied research methods and techniques. There are no mistakes related with understanding the problem. The work is framed correctly.

85-76	«good»	work is characterized by a semantic integrity, cohesion and sequence of information. There are no more than two errors in the explanation of the meaning or content of the problem. Arguments based on Russian and foreign literature. Research skills are showcased. There are no mistakes related with understanding the problem. No more than four errors in the work design
75-61	«satisfactory»	the student made quite independent analysis of the main stages and components of the problem. He or she understands the basic foundation and theoretical basis of the chosen topic. The main sources are used. There are no more than five errors in the sense or content problem and the work design.
60-0	«failing grade»	the work is retold or completely copied the original text without any comments, analysis. The topic was not disclosed. There are five and more errors in the sense or content problem and the work design