



JSC «Kazakh-British Technical University»
 Business School
 Department of “Management and Social Sciences”

APPROVED

Dean of Business
 School

_____ Loktionov Y.V.

« ____ » _____ 2013.

SYLLABUS

ENVIRONMENTAL & NATURAL RESOURCE ECONOMICS

Discipline: **ENVIRONMENTAL & NATURAL RESOURCE ECONOMICS**
 Number of credits: **3**
 Term: **FALL 2013**
 Instructor’s full name: **DR. ALEX MOSESOV**

| Information on the Instructor | Time and Place | | Contact Information | |
|-------------------------------|---------------------------|---------------------------|---------------------|--------|
| | Room | Office Hours (TSIS) | Tel.: | E-mail |
| Ph.D | According to the schedule | According to the schedule | | |

Almaty, 2013

COURSE DESCRIPTION

This course examines how market economies allocate natural resources, and the appropriate role of government when markets allocate them inefficiently. It actually consists of two courses - Natural Resource Economics and Environmental Economics - compressed into one. Natural Resource Economics studies the flow of natural resources into the economy. Environmental Economics examines how the natural environment is affected by the residuals that we generate through the production and consumption of goods and services.

COURSE OBJECTIVE

In this course we explore how to apply principles of economics to identify the causes, consequences, and ways of dealing with environmental and natural resource challenges. The primary objective is to develop students' skills in using economic concepts to analyze contemporary issues associated natural resource uses and policies. By the conclusion of this course, the student should be able to recognize the separate and complementary roles of markets and governments in allocating the use of environmental and natural resources and perform independent analyses of public policies related to contemporary environmental issues.

COURSE OUTCOMES

Upon graduating this course, the students will be able to:

- ✓ Use economics' tools in analyzing the environmental and natural resource problems
- ✓ State the key provisions of major environmental and natural resource policies
- ✓ Explain the historical development of these policies
- ✓ Explain the dynamics of environmental and natural resource policy development, and identify factors that influence the success of resource policy implementation
- ✓ Critically evaluate environmental and natural resource policies using basic economic tools (e.g., graphical welfare analysis), and by applying ecological, social, and political criteria
- ✓ Attain a common level of understanding of the basic underlying principles of economics that are being applied to problems in environmental and natural-resource economics
- ✓ Explain the steps required to successfully develop a professional paper that applies the above to a specific natural resource policy

KNOWLEDGE

Students will:

- ✓ Demonstrate an understanding of basic concepts of environmental and natural resource economics,
- ✓ Have a basic knowledge of environmental and natural resource challenges and ways to address them,
- ✓ Recognize various methods to place a dollar value on the environmental issues,
- ✓ Understand how these methods are used to analyze various aspects of environmental and natural resource problems,
- ✓ Be able to conduct benefit-cost analysis,
- ✓ Learn economic approaches to handle various natural resources, such as storable, renewable, common-pool resources,
- ✓ Use the concepts of common-pool resources and externalities to explain why the market will produce too much pollution,
- ✓ Identify cost-effective pollution control.

SKILLS

On completion of this course the students will be able to:

- ✓ Examine externalities which lead to market failure and an inefficient allocation of resources,
- ✓ Place a dollar value on the environment and understand the general difficulties associated with coming up with,
- ✓ Skillfully and confidently conduct benefit-cost analysis,
- ✓ Apply various techniques to analyze government environmental and natural resource policies,
- ✓ Analyze situations of companies with negative externalities and pollution,
- ✓ Think critically addressing environmental and natural resource challenges of Kazakh economy.

LITERATURE

Core Text:

- ✓ Tietenberg Tom, Lewis Lynne, Environmental and Natural Resource Economics, 8th Ed., Prentice Hall, 2009 – p.688 - ISBN-10: 0321485718, ISBN-13: 9780321485717 (<http://www.pearsonhighered.com/educator/product/Environmental-Natural-Resources-Economics/9780131392571.page>)

Supplementary

- ✓ Anderson David A., Environmental Economics and Natural Resource Management. – 4th Ed. - Taylor & Francis, 2013 – p.448 - ISBN-13: 9780415640961
- ✓ О.С. Шимова, Н.К. Соколовский. Основы экологии и экономика природопользования. 3-е изд., перераб. и доп. - издательство: Мн.: БГЭУ Год: 2010 - 454 с. ISBN: 978-985-484-711-5

COURSE OUTLINE

| Week | Class work | | | SIS (Students Independent Study) | TSIS (Teachers Supervised Independent Study) | |
|----------|---|----------|----------|---|--|--|
| | Topic | Lectures | Practice | | | Core Text (CT) Chapters |
| 1 | Introduction. Visions of the Future | 2 | 1 | CT1 | Distribution of individual tasks for SIS. | Distribution of individual tasks for TSIS. |
| 2 | The Economic Approach: Property Rights, Externalities, and Environmental Problems <i>Practice work 1</i> | 2 | 1 | CT2 | SIS 1 | TSIS 1 |
| 3 | Valuing the Environment: Methods <i>Practice work 2</i> | 2 | 1 | CT4 | SIS 2 | TSIS 2 |
| 4 | Dynamic Efficiency and Sustainable Development <i>Practice work 3</i> | 2 | 1 | CT5 | SIS 3 | TSIS 3 |
| 5 | Evaluating Trade-Offs: Benefit–Cost Analysis and Other Decision-Making Metrics <i>Practice work 4</i> | 2 | 1 | CT3 | SIS 4 | TSIS 4 |
| 6 | Storable, Renewable Resources: Forests <i>Practice work 5</i> | 2 | 1 | CT12 | SIS 5 | TSIS 5 |
| 7 | Common-Pool Resources: Fisheries and Other Commercially Valuable Species <i>Practice work 6</i> | 2 | 1 | CT13 | SIS 6 | TSIS 6 |
| 8 | Revision, Practice MID-TERM EXAM | 2 | 1 | Covered CT1-13 | - | - |
| 9 | Economics of Pollution Control: An Overview <i>Practice work 7</i> | 2 | 1 | CT14 | SIS 7 | TSIS 7 |
| 10 | Stationary-Source Local and Regional Air Pollution <i>Practice work 8</i> | 2 | 1 | CT15 | SIS 8 | TSIS 8 |
| 11 | Climate Change <i>Practice work 9</i> | 2 | 1 | CT16 | SIS 9 | TSIS 9 |
| 12 | Mobile-Source Air Pollution <i>Practice work 10</i> | 2 | 1 | CT17 | SIS 10 | TSIS 10 |
| 13 | Group projects and presentations <i>Practice work 11</i> | 2 | 1 | - | SIS 11 | TSIS 11 |
| 14 | Group projects and presentations <i>Practice work 12</i> | 2 | 1 | - | SIS 12 | TSIS 12 |
| 15 | Group projects and presentations END-TERM EXAM | 2 | 1 | Covered CT14-17 | - | - |
| 16 17 | FINAL EXAM | | 2 | In written | | |

COURSE POLICY AND GRADING CRITERIA

PRACTICE

| Week | Practice (Analytical Questions, MCQ's, Discussion) | Grade Points |
|-------------|---|---------------------|
| 1 | Introduction. Visions of the Future | - |
| 2 | The Economic Approach: Property Rights, Externalities, and Environmental Problems | 1.25 |
| 3 | Valuing the Environment: Methods | 1.25 |
| 4 | Dynamic Efficiency and Sustainable Development | 1.25 |
| 5 | Evaluating Trade-Offs: Benefit–Cost Analysis and Other Decision-Making Metrics | 1.25 |
| 6 | Storable, Renewable Resources: Forests | 1.25 |
| 7 | Common-Pool Resources: Fisheries and Other Commercially Valuable Species | 1.25 |
| 8 | MID-TERM EXAM | |
| 9 | Economics of Pollution Control: An Overview | 1.25 |
| 10 | Stationary-Source Local and Regional Air Pollution | 1.25 |
| 11 | Climate Change | 1.25 |
| 12 | Mobile-Source Air Pollution | 1.25 |
| 13 | Group projects and presentations | 1.25 |
| 14 | Group projects and presentations | 1.25 |
| 15 | Group projects and presentations | - |
| | Total | 15 |

STUDENTS SELF-STUDY WITH INSTRUCTOR (TSIS)

| Week | TSIS (Teachers Supervised Independent Study) | Grade(in points) |
|-------------|--|-------------------------|
| 1 | Consultancy on group projects | |
| 2 | Supervising on group projects: The Economic Approach: Property Rights, Externalities, and Environmental Problems | |
| 3 | Supervising on group projects: Valuing the Environment: Methods | |
| 4 | Supervising on group projects: Dynamic Efficiency and Sustainable Development | |
| 5 | Supervising on group projects: Evaluating Trade-Offs: Benefit–Cost Analysis and Other Decision-Making Metrics | 3.0 |
| 6 | Supervising on group projects: Storable, Renewable Resources: Forests | |
| 7 | Supervising on group projects: Common-Pool Resources: Fisheries and Other Commercially Valuable Species | 3.0 |
| 8 | MID-TERM EXAM | |
| 9 | Supervising on group projects: Economics of Pollution Control: An Overview | 3.0 |
| 10 | Supervising on group projects: Stationary-Source Local and Regional Air Pollution | |
| 11 | Supervising on group projects: Climate Change | 3.0 |
| 12 | Supervising on group projects: Mobile-Source Air Pollution | |
| 13 | Presentations and defense of group projects | 3.0 |
| 14 | Presentations and defense of group projects | |
| 15 | Presentations and defense of group projects | |
| | TOTAL | 15 |

STUDENTS INDEPENDENT STUDY (SIS)

| Week | SIS (Students Independent Study) | Grade(in points) |
|--------------|--|------------------|
| 1 | Preparation of group projects | - |
| 2 | Preparation of group projects | 1.25 |
| 3 | Preparation of group projects | 1.25 |
| 4 | Preparation of group projects | 1.25 |
| 5 | Preparation of group projects - Homework: | 1.25 |
| 6 | Preparation of group projects | 1.25 |
| 7 | Delivery of written project | 1.25 |
| 8 | Preparation for presentation and defense | 1.25 |
| 9 | Preparation for presentation and defense | 1.25 |
| 10 | Preparation for presentation and defense | 1.25 |
| 11 | Preparation for presentation and defense - Homework: | 1.25 |
| 12 | Preparation for presentation and defense | 1.25 |
| 13 | Preparation for presentation and defense | 1.25 |
| 14 | Preparation for presentation and defense | - |
| 15 | Preparation for presentation and defense | - |
| TOTAL | | 15.0 |

GRADING CRITERIA

| № | Assessment criteria | Weeks | | | | | | | | | | | | | | | | Final scores |
|---|----------------------------|-------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----------|--------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 17 | |
| 1 | Attendance / Participation | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 15% |
| 2 | SIS | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 15% |
| 3 | TSIS | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 15% |
| 4 | Mid-Term | | | | | | | | ✓ | | | | | | | | | 15% |
| 6 | Final Exam | | | | | | | | | | | | | | | | ✓ | 40% |
| | Total: | | | | | | | | | | | | | | | | | 100% |

LECTURES

Class sessions involve a variety of teaching techniques. Much of the time will be dedicated to lecture and class discussion of materials related to assigned reading. Topics will be delivered in an illustrative interactive manner with PowerPoint slides to help better understand the textbook. These presentations will be integrated with classroom discussions encouraging active learning. All the students are expected to read and understand the chapters ahead of lectures; so that everyone can participate during interactive discussions. Readings consist of relevant chapters in the text books, assigned articles, PowerPoint lecture slides, and further articles on the L-Drive. Case analysis, problem solving, real case applications will be offered to improve learning process.

PRACTICE WORK

Practical exercises aim to develop firm understanding of tools and practices of environmental and natural resource economics. Based on the use of active teaching methods like case studies, problem solving and business cases through interactive discussions, MCQ's and analytic problem solving students are urged to properly prepare and actively participate.

GROUP PROJECT

Teams of 2-3 students will work together to prepare group project and write comprehensive written report on that project (15-20 pages; 1.5 space, Times New Roman) with a cover page according to provided standards. The project report should be submitted (handed over or e-mailed) according to class schedule, but no later than a week before the presentation date.

Reports will be evaluated along the following criteria:

- ✓ Quality of the writing - clear, straight, and correct style and grammar;
- ✓ Quality of the structure and organization; smooth, logical flow of content;
- ✓ Quality and amount of reflection, analysis, comparison, and evaluation;
- ✓ Proper use of literature.

Projects will wrap up with the oral presentation and defense lasting twenty minutes. Use of PowerPoint along with any other appropriate technology is expected. Be creative when preparing and making your presentation. Avoid reading your paper in class. Concentrate on the main points. Defense of group project determines the level of theoretical knowledge and practical skills of the group members. Student must summarize the contents of the paper, give satisfactory answers to questions. Once the teams are formed, each team will receive a number. While submitting teamwork reports for checking and grading, please include the following information on the cover page (see a template below) to assure proper credit:

- ✓ Team number
- ✓ ID of all students in the team with their last and first names, and mail addresses
- ✓ Title of the study
- ✓ Course name (Strategic Management)

The dates of defense are 13th, 14th and 15th weeks. Assessment of group projects will be counted instead of the end of term examination.

HOME-WORKS

Several home-works will be assigned to enhance students' comprehension of lectured concepts and techniques. You may discuss assignments with others, but you must write up by yourself with the full understanding of what you write. Students handing in identical assignments will be violating university regulations and will not receive credit! Late home-works are not allowed unless you negotiate with the instructor at least one day in advance.

MID-TERM AND END-TERM EXAMS

Mid-term appraisal is evaluation of the students' academic achievements over first seven weeks of the semester. Exams are based on topics of all accumulated lectures, practice works, SIS, TSIS and materials for reading discussed up to the time of assessment. Assessment of group projects will be counted instead of the End-Term examination. Maximum number of points with attendance, activity, SIS, TSIS and practice for each attestation is 35 points.

ATTENDANCE/PARTICIPATION

The class participation grade is earned via unfailing presence in class and consistent contribution to class discussions. You should, therefore, make conscientious efforts to be sufficiently prepared to the class discussions. The responsibility for making the learning process succeed is yours. The faculty requires students to attend at minimum 80% of the scheduled class sessions. Attendance that is less than this requirement will make you not eligible for obtaining the grade.

FINAL EXAM

Final examination is evaluation of the students' academic achievements, conducted after the completion of the course. It covers all delivered course materials and it is conducted in the form of MCQ's and/or problems. Duration of the final exam is 100 min. Maximum number of points is 35. At the end of semester students receive overall total grade (accumulated points for accomplishments during semester) according to conventional KBTU grade scale.

GRADING SCALE

Letter grades for the course follow the same standards as specified in the Catalog. See the following table for grading scale:

| Grading Letters | System Numerical Equivalent | Percentage |
|-----------------|-----------------------------|------------|
| A | 4.00 | 96 – 100 |
| A- | 3.67 | 91 – 95 |
| B+ | 3.33 | 86 – 90 |
| B | 3.00 | 81 – 85 |
| B- | 2.67 | 76 – 80 |
| C+ | 2.33 | 71 – 75 |
| C | 2.00 | 66 – 70 |
| C- | 1.67 | 61 – 65 |
| D+ | 1.33 | 56 – 60 |
| D | 1.00 | 51 – 55 |
| F | 0 | 0 - 50 |

ACADEMIC POLICY

STUDENTS ARE REQUIRED:

- ✓ to be respectful to the teacher and other students;
- ✓ to switch off mobile phones during classes;
- ✓ not to cheat. Plagiarized papers shall not be graded;
- ✓ to meet the deadlines;
- ✓ to come to classes prepared and actively participate in classroom work;
- ✓ to enter the room before the teacher starts the lesson;
- ✓ to attend all classes. No make-up tests are allowed unless there is a valid reason for missing them;
- ✓ to follow KBTU academic policy regarding W, AW, I, F grades.

STUDENTS ARE ENCOURAGED TO:

- ✓ consult the teacher on any issues related to the course;
- ✓ make up within a week's time for the works undone for a valid reason without any grade deductions;
- ✓ make any proposals on improvement of the academic process;
- ✓ track down their continuous rating throughout the semester.

Associate Professor of Economics

Alex Mosesov

Chair of the Department of Economics & Management

Leila N. Salykova

Approved by the Meeting of the Economic and Management Department

Minutes # 1 August 26, 2013