

MODUL ENVIRONMENTAL ECONOMICS AND NATURAL RESOURCES




MASTER PROGRAM OF ENVIRONMENTAL SCIENCE
SCHOOL OF POSTGRADUATE STUDIES
DIPONEGORO UNIVERSITY

Module Description:

Module Name	Environmental Economics and Natural Resources
Module level, if applicable	
Code, if applicable	P-CIL-8-102
Subtitles, if any	
Course, if applicable	
Semester(s) in which the module is taught	Semester 1
Module Responsible	Prof. Dra.Indah Susilowati, MSc., Ph.D
Teaching Lecturer	1. Prof. Dra.Indah Susilowati, MSc., Ph.D 2. Prof. Dr. Ir. Aziz Nur Bambang, MS
Language	<i>Indonesian and English</i>
Relationship with curriculum	
Type of teaching, hours of contact	<i>Lectures: 1 x 180 minutes x 16 meetings = 48 hours/week Q&A: 1 x 30 minutes x 16 meetings = 8 hours/week Discussion: 1 x 30 minutes x 16 meetings = 8 hours/week Presentation: 1 x 30 minutes x 16 meetings = 8 hours/week Individual assignment: 60 minutes/day = 5 hours/week Total work for 1 semester = 150 hours = 6 ECTS</i>
Workload	<i>(Estimated) workload, divided into contact hours (lectures, exercises, laboratory sessions, etc.) and personal study, including test preparation, specified in hours,¹ and overall.</i>
credit points	<i>3Credits / 6 ECTS</i>
Requirements according to the exam regulations	<i>Lecture attendance of at least 75%</i>
Recommended prerequisites	<i>For example, competence in...</i>

<p>Modulethe desired learning objectives/outcomes</p>	<ul style="list-style-type: none"> • Students can explain and describe the concept of environmental economics; • Capable to operate skill in That field from environmental economics in solving environmental management problems and linking them economically; and • Able to combine oneself with the situation encountered in solving dynamic environmental problems.
<p>Fill</p>	<p>This course is a compulsory subject in the Environmental Science master's program. This course discusses the concepts and understanding of the management and utilization of natural resources. Discusses the principles of optimizing the use and management of natural resources as well as regulatory policies and some static techniques of natural resource analysis. The concept and understanding of economic value and the influence of natural resource management on welfare.</p>
<p>Study and exam requirements and forms</p>	<ul style="list-style-type: none"> • <i>Open the book and close the book</i> • <i>Multiple choice, case studies, interviews, practicals</i>
<p>Media used</p>	<p><i>Powerpoint, youtube, website</i></p>
<p>Read reference</p>	<ol style="list-style-type: none"> 1. EIK's daughter, Nuva. 2014. Environmental Economics. IPB Press. Bogor 2. Fauzi A. (2005). Historical Perspectives in Economic Valuation. Economic Valuation Training Materials. 3. Fauzi, Akhmad 2010. Natural Resource Economics. and Environment. Gramedia Main Library. 4. Forestman and Company, Boston. 5. Grafton, RQ; etc. 2004. Environmental Economics and Natural Resources. Blackwell Publishing.UK 6. Hanley, N., J. F, Shogren, and B. White. 2002. Environmental Economics in Theory and Practice. Palgrave MacMillan, New York. 7. Hawkins, Paul. 2010. Revised Edition of Trade Ecology: The Declaration of Sustainability (Collins Business Essentials). Harper's Business. 8. Kolstad, CD 2012. Environmental Economics. University of Oxford Press; 2nd edition.

	<p>9. Smith, Stephen. 2011. Environmental Economics: A Very Brief Introduction. University of Oxford Press; first edition</p> <p>10. Tietenberg, T. and Lewis, Lynne. 2019. Environmental Economics: What Matters. Routledge.</p>
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SEMESTER STUDY PLAN							
		Study program: Master of Environmental Science			Faculty: School of Postgraduate		
		Subject: Economy and Natural Resources		Code: CIL-8-102	Credit:3 (6 ECTS)	smt:1	
Supporting lecturer:		1. Prof.Dra. Indah Susilowati, MSc., Ph.D 2. Prof. Dr. Ir. Aziz Nur Bambang, MS.					
Learning Outcomes Subject:		<ul style="list-style-type: none"> Students can explain and describe the concept of environmental economics; Able to operate expertise in the field of environmental economics in completing environmental management issues and linking them economically; and Able to combine themselves to the situation at hand in solving problems dynamic environment. 					
Short Description of Courses:		Economics and Natural Resources courses are compulsory subjects in the Environmental Science Masters study program. This course discusses the concept and understanding of the management and use of natural resources. Discussed the principles of optimizing the use and management of natural resources as well as regulatory policies as well as some static techniques of natural resource analysis. Concept and understanding of economic value and the influence of natural resource management on welfare.					
1	2	3	4	5	6	7	
Week	Final Ability of each learning stage	Study Materials/ Subjects	Learning methods	Workload	Student Learning Experience	Evaluation	
						Criteria & Indicators	Weight (%)
1.	Introduction/ Lecture contract	Understand the preparation before face-to-face lectures and the obligation to report face-to-face lectures	Lectures, questions and answers, and discussions	330 min (0.375 ECTS) Consist of: <ul style="list-style-type: none"> Lecture:180 minutes Q&A: 30 minutes Discussion : 30 minutes Presentation : 30 minutes Individual tasks: 60 minutes/day (16 weeks) 	Understand preparation and lecture obligations	The level of students' understanding of thecourse contract	5

2.	Students can explain the concept economic thinking and its relation to natural resources.	<p><i>Overview</i>Economy Natural Resources and Environment :</p> <ul style="list-style-type: none"> 1. Driving Force, Impact and Problems in Natural Resources Management 2. Classical and neo-classical economic thought in its view of natural resources 3. The scarcity debate in the perspective of natural resources economics 	Lectures, questions and answers, and discussions	<p>330min (0.375 ECTS) Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i> 	Read suggested modules and libraries, discuss learning outcomes; Presentation of the results of the discussion	Completeness and truth explanation as well accuracy understanding	5
3.	Students can explain the concept sustainable development	<p>Development concept sustainable:</p> <ul style="list-style-type: none"> 1. Weak sustainability 2. Strong sustainability 3. Ecological sustainability 	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS) Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i> 	<ul style="list-style-type: none"> 1. Discussion of the previous week's homework 2. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss 	Accuracy and Completeness and truth explanation as well accuracy understanding	5
4.	Students can explain the conceptthe economy of change climate	<p>Economic concept of change climate :</p> <ul style="list-style-type: none"> 1. The threat of climate change 2. The impact of climate change on Indonesia 	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS) Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60</i> 	<ul style="list-style-type: none"> 1. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss 2. Discussion of the results of the 	Completeness and truth explanation as well accuracy understanding	5

				minutes/day (16 weeks)	previous week's group assignments		
5.	Students can explain the concept <i>Limit to Growth</i>	<p>The concept of growth and development in the economy</p> <p>Neoclassical and Natural Resource and Environmental Economics (SDAL)</p> <p>:</p> <ul style="list-style-type: none"> . A view of natural resources in classical economic concepts and natural resources economic concepts . The basic concept of SDAL . Scarcity thinking SDAL of the future . The importance of studying <p>Natural Resources Economics and understanding the Kuznets Curve</p>	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i> 	<ul style="list-style-type: none"> a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss b. Discussion of the results of the previous week's group assignments 	Completeness and truth explanation as well accuracy understanding	5
6.	Students can explain the concept ethics in utilization natural resources	<p>Ethical and economic principles natural resources and environment :</p> <ul style="list-style-type: none"> . Naturalist Principles . Libertarian Principles 3. Rawlsian Principles 4. Utilitarian Principles 	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i> 	<ul style="list-style-type: none"> a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss b. Discussion of the results of the previous week's group assignments 	Completeness and truth explanation as well accuracy understanding	5

		5. Welfare		weeks)	(system characterization)		
7.	Capable explain <i>Willingness To Pay</i> (WTP), offers, and the principle of marginal equality in Economics and Natural Resources	Supply and demand: 1. Definition and Concept of PAP 2. Total WTP and Marginal WTP 3. Demand curve 4. Environmental asset application 5. Cost concept 6. Equimarginal Principle & Marginal Cost	Lectures, questions and answers, and discussions	330 min (0.375 ECTS) Consist of: • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i>	a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss b. Discussion of the results of the previous week's group assignments (influence diagram)	Completeness and truth explanation as well accuracy understanding	5
10	Mid Term Examination	Meeting Material 1-7	Independent Written Test	330 minutes of processing time or the equivalent of 0.25 ECTS	Students working on UTS questions	Quality of answers and timeliness of UTS collection	10
9.	Capable explain efficiency concept economy and market in management environment	Environmental Economic Analysis Tool : Efficiency economy and market 1. Definition of economic efficiency 2. External costs, private costs and social costs 3. Public Goods 4. External benefits	Lectures, questions and answers, and discussions	330 min (0.375 ECTS) Consist of: • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i>	a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss b. Discussion of the results of the previous week's group assignments	Completeness and truth explanation as well accuracy understanding	5
10.	Capable explain a number of tool analysis that can used for analyze	Economic Analysis Tool: Economics Environmental Quality 1. Positive economy and normative <i>economy</i>	Lectures, questions and answers, and discussions	330 min (0.375 ECTS) Consist of: • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30</i>	a. Students listento the lecturer's explanation and answer the lecturer's questions, as well as discuss	Completeness and truth explanation as well accuracy understanding	5

	environmental quality	<ul style="list-style-type: none"> 1. Damage function, emission damage function, ambient damage function 2. Abatement cost, marginal abatement cost 4. Enforcement costs 		<p>minutes</p> <ul style="list-style-type: none"> • Individual tasks: 60 minutes/day (16 weeks) 	b. Discussion of the results of the previous week's group assignments		
11.	Capable explain various frameworks analysis that can built in economy environment	<p>Environmental Analysis Base:</p> <ul style="list-style-type: none"> 1. AMDAL (impact analysis environment) 2. AMDEK (impact analysis economy) 3. Cost effective analysis and benefits Cost Analysis 4. Discounting 5. Uncertainty 	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • Lecture:180 minutes • Q&A: 30 minutes • Discussion : 30 minutes • Presentation : 30 minutes • Individual tasks: 60 minutes/day (16 weeks) 	<ul style="list-style-type: none"> a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss b. Discussion of the results of the previous week's group assignments 	Completeness and truth explanation as well accuracy understanding	5
12.	Capable explain environmental analysis in terms of cost and benefit	<p>Benefit Cost Analysis (BCA) for the Environment</p> <ul style="list-style-type: none"> 1. Benefit size; WTP & Consumer Surplus (SK) 2. Net Social Benefit (NSB) concept 3. Cost concept 4. BCA steps 	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • Lecture:180 minutes • Q&A: 30 minutes • Discussion : 30 minutes • Presentation : 30 minutes • Individual tasks: 60 minutes/day (16 weeks) 	<ul style="list-style-type: none"> a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss b. Discussion of the results of the previous week's group assignments 	Completeness and truth explanation as well accuracy understanding	5
13.	Students can explain value principles in resource utilization nature and environment	The concept of value and utilization natural resources:	Lectures, questions and answers, and discussions	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • Lecture:180 minutes • Q&A: 30 minutes • Discussion : 30 	a. Students listen to the lecturer's explanation and answer the lecturer's	Completeness and truth explanation as well accuracy understanding	5

		<p>1. The concept of value and utilization</p> <p>SDAL</p> <p>2. SDAL Classification</p> <p>3. SDAL distribution</p>		<p>minutes</p> <ul style="list-style-type: none"> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i> 	<p>questions, as well as discuss</p> <p>b. Discussion of the results of the previous week's group assignments (model verification and validation)</p>		
14.	<p>Students can explain the concept of resource rent, as well as some surplus concepts other</p>	<p>Definition of rent natural resources, producer surplus and consumers as well the app for natural resources :</p> <p>1. Understanding rent natural resources and the application in natural resources and environment</p> <p>2. Definition of surplus manufacturer and consumers as well the app for analysis natural resources and environment</p>	<p>Lectures, questions and answers, and discussions</p>	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60 minutes/day (16 weeks)</i> 	<p>a. Students listen to the lecturer's explanation and answer the lecturer's questions, as well as discuss</p> <p>b. Discussion of the results of the previous week's group assignments (model analysis)</p>	<p>Completeness and truth explanation as well accuracy understanding</p>	5
15.	<p>Students can explain basic concepts and understanding regarding Natural Resources (SDA) and SDA ownership</p>	<p>Draft Natural resources, kinds of natural resources, renewable and non-renewable natural resources, natural resources ownership:</p> <p>1. Private property</p> <p>2. Common property</p>	<p>Student presentations, discussions, and questions and answers</p>	<p>330 min (0.375 ECTS)</p> <p>Consist of:</p> <ul style="list-style-type: none"> • <i>Lecture:180 minutes</i> • <i>Q&A: 30 minutes</i> • <i>Discussion : 30 minutes</i> • <i>Presentation : 30 minutes</i> • <i>Individual tasks: 60</i> 	<p>Final presentation of group assignments. Each group presents the results of their assignments for 1 semester followed by discussion and question and answer with other</p>	<p>Completeness and truth explanation as well accuracy understanding</p>	5

		3. Open Access 4. State properties 5. Public goods		minutes/day (16 weeks)	groups of students. Lecturer guides the discussion		
16	Final Examination	Meeting Materials 1-15 (resume material)	Written test	330 minutes of processing time or the equivalent of 0.25 ECTS	Students working on UAS questions	Quality of answers and timeliness of collection	20
8. Reference List:		<ol style="list-style-type: none"> 1. Fauzi, Akhmad 2010. Economics of Natural Resources. And Environment. Main Library Gramedia. 2. Fauzi A. (2005). Historical Perspectives in Economic Valuation. Economic Valuation Training Material. 3. Perman and Ma (1996) Natural Resource Economics and Environment. Addison-Wesley 4. Anderson, F (1991) Natural Resources in Canada. Economic Theory and Policy. 5. Hartwick, J., and N. Olewiler. 1998. The Economics of Natural Resources Uses. Second Edition. New York : Addison-Wesley 6. Field, Barry C. 1994. Environmental Economics: An Introduction. McGraw-Hill. Inc. 7. Folmer, Henk and Landis Gabel. 2000. Principle of Environment and Resource Economics: A Guide for Students and Decision Makers. Edward Elgar, UK. 8. Grafton, RQ; et all. 2004. The Economics of the Environment and Natural Resources. Blackwell Publishing. UK 9. Hanley, N., J. F. Shogren, and B. White. 2002. Environmental Economics in Theory and Practice. Palgrave MacMillan, New York. 10. Munasinghe, M., W. Cruz and J. Warford. 1993. Are Economy wide Policies Good for the Environment? Finance and Development Journal. September 1993.h 11. Tietenberg, T. 1998. Environmental and Natural Resource Economics, 2nd Edition. Scott, Forestman and Company, Boston. 12. EIK's daughter, Nuva. 2014. Environmental Economics. IPB Press. Bogor 					

