



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2016/2017
MASTER'S DEGREE (MSC)	ENVIRONMENT ENGINEERING
SUBJECT	ENVIRONMENTAL ECONOMICS
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	20937-Attività formative affini o integrative
CODE	02720
SCIENTIFIC SECTOR(S)	ICAR/02
HEAD PROFESSOR(S)	MAZZOLA MARIO      Cultore della Materia      Univ. di PALERMO ROSARIO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	96
COURSE ACTIVITY (Hrs)	54
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<b>MAZZOLA MARIO</b> <b>ROSARIO</b> Monday    12:00    13:00    Stanza del docente 1° Piano DICAM sezione Idraulica Tuesday    12:00    13:00    Stanza del docente 1° Piano DICAM sezione Idraulica

DOCENTE: Prof. MARIO ROSARIO MAZZOLA

<b>PREREQUISITES</b>	Nessuno.
<b>LEARNING OUTCOMES</b>	<p>Knowledge and capacities of understanding: The student at the end of the course will have knowledge of the issues concerning the economic impact of the use of natural resources and environment. The student will acquire the knowledge of evaluation principles of the environmental benefits and costs connected to the use of the resources.</p> <p>Capacity to apply knowledge and understanding: The student will be able to apply the methodologies of the evaluation of environmental benefits and costs and to set up a cost-benefits analysis.</p> <p>Judgment evaluation: The student will acquire the procedures in order to develop the analyses of the environmental problems and to estimate the environmental benefits and damages connected to the measures.</p> <p>Communication skills: the student will acquire the ability to draft a report and a communication about the iter followed for the application of methodologies of assesment and evaluation acquired, with graphics, figures and charts.</p> <p>Learning skills: The student will be able to identify the best design alternative considering all the positive and negative environmental impacts.</p>
<b>ASSESSMENT METHODS</b>	Oral test and presentation of an exercise.
<b>EDUCATIONAL OBJECTIVES</b>	The course has the purpose to provide the knowledge of the issues connected to the environmental degrade and to the use of natural resources. For this purpose the base concepts of economic engineering and cost-benefits analysis are also necessary. The applications will focus on the evaluation methods of environmental benefits and damages.
<b>TEACHING METHODS</b>	Lectures and classroom exercises.
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>Libri di testo consigliati</p> <p>1)Tom Tietenberg; Economia dell'ambiente, McGraw-Hill</p> <p>2)R.K.Turner, D. W. Pearce, I. Bateman ; Economia dell'Ambiente, Il mulino.</p> <p>3)Gerard J. Thuesen e Wolter J Fabrycky, Economia per Ingegneri, Il Mulino,</p> <p>Lecture consigliate da:</p> <p>a)A.E. Boaedam, D.H.Greenberg, A.R.Vining, D.L.Weimer; Cost Benefit Analysis. Concepts and Pratictice, Pearson Prentice Hall.(*)</p> <p>b)Ronald C. Griffin; Water resources economics, The MIT Press</p> <p>c)D.E.Pearce, R.K. Turner; Economics of Natural Resources and the Environment, Harvester Wheatsheaf.</p> <p>d)William J. Baumol and Wallace E. Oates; The theory of environmental policy; Cambridge University Press.</p> <p>e)Leonard Ortolano: Environmental Regulation and Imapct Assessment; John Wiley and Sons</p>

## SYLLABUS

Hrs	Frontal teaching
5	Principles of economic engineering. Investments evaluation methods. Depreciation, taxes and cost of the capital. Comparison among design alternatives. Renovations analysis. Risks analysis models. Capital rationing. Costs - benefits financial analysis.
5	Choice of design alternatives. Public projects evaluation. Accounting and amortization. Assesments, evaluations of the risk and uncertainty. Economic analysis of the operational management.
5	Economy and environment. Sustainable development and future scenerios. Evaluation of the environment: concepts. Evaluation of the environment: methods.
5	Causes of the environmental degrade. The functioning of markets and the causes of their failure. Ownership rights, environmental externalities and problems. The failure of public intervention. Economic cost-benefits analysis and the evaluation of interest for the nature.
5	Natural resources economy. Renewable resources. Non-Renewable resources. Energy. Water. Biodiversity economic analysis.
10	Enviromental economy. Atmospheric pollution by local pollutant. Atmospheric pollution by acid rain and environmental changes. Hydric pollution. Solid waste and recycling.
5	Economic development, poverty and environment. Environmental economic control: environmental charges, environmental permits and definition environmental standard. Environmental risk evaluation.
Hrs	Practice
5	Examples and applications of economic engineering.
10	Examples and applications of environmental evaluation methods and cost-benefits analysis related to environmental issues.
5	Examples and applications of environmental damages evaluation.