



UNIVERSITÀ DI PISA

ECOSYSTEM SERVICES IN RURAL AREAS

MICHELE MORETTI

Anno accademico 2023/24
CdS SISTEMI AGRICOLI SOSTENIBILI
Codice 625GG
CFU 3

Moduli	Settore/i	Tipo	Ore	Docente/i
ECOSYSTEM SERVICES IN RURAL AREAS	AGR/01	LEZIONI	32	MICHELE MORETTI

Obiettivi di apprendimento

Conoscenze

Students who successfully complete the course will be able to demonstrate substantial knowledge on how the ecosystem services framework could be used to promote sustainable socio-ecological systems underpinning human well-being. They will acquire knowledge on status and trends of ecosystem services (provisioning, support, regulating, social and cultural) and ecosystems, direct and indirect drivers of ecosystem services change at different scales and in different ecosystems, the methods for evaluation of ecosystem services and how governance, institutional arrangements and decision making could contribute to sustainable development of ecosystem services.

Modalità di verifica delle conoscenze

Students will be assessed on their demonstrated ability to define and explain the concept of ecosystem services, understand the role of ecosystem services in supporting agriculture and food systems, and propose sustainable agricultural strategies to enhance ecosystem services.

Capacità

Students will be aware of the broad range of trends, drivers, approaches, methods, and techniques needed for assessing and evaluating how ecosystem services affect agri-food systems and human well-being at global, regional and local scales.

Modalità di verifica delle capacità

Students will be assessed on their knowledge and ability to comprehend the role of ecosystem services in promoting a sustainable transition in agri-food systems and communicate the importance of ecosystem services in agriculture to diverse stakeholders.

Comportamenti

Students will acquire skills to understand central theories and reflect independently around the importance of ecosystem services management in agricultural systems.

Modalità di verifica dei comportamenti

Behaviors will be tested promoting a continuous debate between teacher and students, and through critical synthesis during the group project works.

Prerequisiti (conoscenze iniziali)

There are not formal requirements to access the course. However, before attending the course, it is suggested to acquire basic knowledge on agronomy and microeconomics.

Indicazioni metodologiche

Teaching methods Delivery: face-to-face

Learning activities:

- attending lectures
- preparation of oral/written report
- individual study
- Project work

Attendance: Advised Teaching methods:



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- Lectures
- Seminar discussions
- Research Papers discussion
- Task-based learning/problem-based learning/inquiry-based learning
- Group Projects and Presentations

The teaching is based on lectures given by the teacher and invited guest lecturers, as well as home-readings provided by the teacher where it is emphasized that the students will actively attend in discussions. In the project work, the students will work in groups on a topic closely related to sustainable management of ecosystem services. The student groups will present their projects.

Programma (contenuti dell'insegnamento)

Objectives:

The course aims to integrate natural and social sciences including economy, ethics and technological perspectives and show how the ecosystem services framework is relevant for science, policy and practices towards more sustainable agricultural systems. The course will introduce the ecosystem services concept and framework. Status and trends of ecosystem services (provisioning, support, regulating, social and cultural) nature goods and direct and indirect drivers of ecosystem services change will be reviewed at a global, regional and local scale. The connections between agriculture and ecosystem services will be investigated emphasizing the importance of sustainable farming practices for both environmental conservation and human well-being. Students will explore the concepts and methodologies for ecosystem services evaluation and the importance of valuing ecosystem services in private and public decision making for sustainable agriculture transitions.

Module 1: Introduction to Ecosystem Services and Agriculture

Understanding Ecosystem Services

The Role of Agriculture in Ecosystem Services

Module 2: Types of Ecosystem Services in Agriculture

Provisioning Services (e.g., food, fiber, fuel)

Regulating Services (e.g., pest control, water purification)

Supporting Services (e.g., nutrient cycling, soil formation)

Cultural Services (e.g., recreation, cultural heritage)

Module 3: Ecosystem Services Evaluation

Methods for evaluating Ecosystem Services

Case Studies in examples

Module 4: Ecosystem services enhancement in agriculture

Agroecology Principles

Organic Farming and Biodiversity

Agroforestry and Sustainable Livestock Farming

Climate-Smart Agriculture

Module 6: Policy and Management for Ecosystem Services in Agriculture

Policies and Incentives

Market-Based Approaches (e.g., certification schemes)

Bibliografia e materiale didattico

Teaching materials and scientific articles and case study reports provided by the teacher.

Indicazioni per non frequentanti

Students who won't attend the course should prepare the exam by using the same program and they are advised to solve exercitaions (published one-learning website)

Modalità d'esame

Written and oral examination

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