UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Management of Aquatic Resources: Fisheries

2425-2-F7502Q018

Aims

The course examines key aspects and critical issues of aquatic resources management. Specifically, the course examines fishery and aquaculture productive systems focusing on ecosystem-based management approaches and innovative solutions to make both sectors more sustainable in a context of anthropogenic driven changes.

Contents

The course will facilitate the understanding of the broad biological, social and economic aspects of fisheries science and the interplay between them with an overall ecological emphasis, by applying lessons learned and incorporation of emerging methods and data sources.

Detailed program

The course will specifically provide specific knowledge on:

Marine fisheries ecology: production processes – An introduction on how physical and biological processes drive the production of fishes; how species abundance changes in space and time.

Fishing gears and farming techniques - The scale, social and economic significance of global fishery and aquaculture; the species that are caught and farmed; fishing and farming strategies.

Stock assessment, ecosystem modelling, spatial planning - How make basic quantitative assessment of single and multispecies fisheries; estimate of needed parameters for assessment; the effects of uncertainty on the outputs.

Fish life histories and distribution - Functional and life-history traits of both fished and farmed species that make them vulnerable to fishing mortality and anthropogenic driven changes (e.g. climate change).

Fishing and farming effects on ecosystems - The impacts of fishing and farming on ecosystems; non-target species and habitats; mitigation measures and innovative solutions.

Evidence-based management and conservation options - The objectives of fishery and aquaculture management; factors that motivate and limit the fishing and farming activities, fishers/farmers behaviours; economic, social and biological reasons of overexploitation and extensive farming; how scientific advices can support the decision-making process and policy.

Prerequisites

None

Teaching form

21 two-hour e-learning lectures, Delivered Didactics

Textbook and teaching resource

Lesson slides (power point presentations)

Textbooks:

Jennings, S., Kaiser, M., & Reynolds, J. D. (2009). Marine fisheries ecology. John Wiley & Sons.

Kaiser, Michel J., et al. “Marine ecology: processes, systems, and impacts”. Oxford University Press, 2020 (3th Edition).

Andersen, K. H. (2019). Fish ecology, evolution, and exploitation: a new theoretical synthesis. Princeton University Press.

Suggested readings from:

Levin, Simon A., et al., eds. The Princeton guide to ecology. Princeton University Press, 2012.

Semester

First semester

Assessment method

INTERVIEW ON THE TOPICS DEVELOPED IN LESSONS AND ON THE EXAM TEXTBOOKS

Office hours

On appointment, by e-mail request.

Sustainable Development Goals

CLIMATE ACTION | LIFE BELOW WATER