UNIVERSIDADE FEDERAL DE SANTA CATARINA
PÓS-GRADUAÇÃO EM ECOLOGIA

SYLLABUS

SEMESTER 01 / 2024

1. COURSE IDENTIFICATION – Classroom and fieldwork in person **(Arraial do Cabo, RJ)**

CODE	COURSE	WEEKLY HOUR/CLASSES		TOTAL HOURS SEMESTER
ECO3201000	**ECOLOGY, EVOLUTION AND CONSERVATION OF REEF FISHES**			45
	Number of students: 6			Credits: 3

2. TIMETABLE

22 to 28 Jan 2024. Mornings (08:30–12:00h) Afternoons (14:00–19:00h) – Classroom and fieldwork course in person

3. INSTRUCTORS

Prof. Sergio R. Floeter and Prof. Carlos E.L. Ferreira

4. COURSE OFFER

Graduate Program in Ecology at UFSC, USP, UFF and UFRJ

5. SYLLABUS

Reef systems: definition and characterization; Reef fish: characteristics, adaptations and specializations, most representative families; Life cycle characteristics: pelagic, juvenile and adult larval stage, reproduction; Diversity: gradients of diversity, abundance and distribution; Biogeography: main biogeographic regions, barriers and dispersion pathways; Evolution of reef fish; Trophic ecology: main trophic categories and guilds, food; Interactions: predation, herbivory and symbiosis; Management and Conservation: exploration, extinction and research.

6. GOALS

Present and discuss concepts and the theoretical framework related to the ecology, evolution and conservation of reef fish from the global to the local scale.

7. PROGRAM CONTENT

- Reef systems: definition and characterization;
- Reef fish: characteristics, adaptations and specializations, most representative families;
- Life cycle characteristics: pelagic, juvenile and adult larval stage, reproduction;
- Diversity: gradients of diversity, abundance and distribution;
- Biogeography: main biogeographic regions, barriers and dispersion routes;
- Evolution of reef fish;
- Trophic ecology: main trophic categories and guilds, food; Interactions: predation, herbivory and symbiosis;
- Management and Conservation: exploration, extinction and research.

8. TEACHING METHOD / PROGRAM DEVELOPMENT

Four mornings will be devoted to field sampling and data analysis. Three mornings and seven afternoons will be devoted to theoretical classroom activities, which will include thematic exhibitions and lectures with special guests on the topics covered on the day. The periods between 5:30 pm and 7:00 pm will be devoted to activities for reading articles, preparing projects and materials for field work, in addition to critical summaries of the articles read.

9. EVALUATION METHOD

Group exercises, participation in theoretical and practical classes, and critical summaries prepared from the articles read. The final grade will be composed of the average of the critical summaries (30%), participation in classes (20%) and the written test (50%).

10. SCHEDULE

	Morning (08:30–12:00h)	Afternoon (14:00–19:00h)
Mon 22 Jan	Presentation and Introduction, Characterization and history of reef fish + life cycle	Biogeography: patterns of richness, barriers and patterns of endemism. Fish ID
Tue 23	General trophic ecology / fish/benthos interactions + cleaning behavior	Preparation of projects + Biogeography: evolution and phylogenies / Global reef fish macroecology
Wed 24	Fieldwork	Community structure + Macroecology + Trophic ecology + Herbivory
Thu 25	Fieldwork	Evolution, phylogeography, phylogenies and taxonomy of reef fish
Fri 26	Fieldwork	Reproduction, growth, productivity
Sat 27	Data analyses	Conservation, connectivity, MPAs
Sun 28 Jan	Conservation, climate change	Presentation of the projects results

11. BASIC LITERATURE

Deloach, N. 1999. Reef Fish Behavior: Florida, Caribbean and Bahamas. New World Publications, Jacksonville, FL, 360 pp.

Floeter, S.R. et al. 2008. Atlantic reef fish biogeography and evolution. J. Biogeogr. 35: 22–47.

Floeter, S.R. et al. 2023. Peixes Recifais Brasileiros. Editora CRV, Curitiba, PR, 320 pp.

Mora, C. 2015. Ecology of Fishes on Coral Reefs. Cambridge University Press, Cambridge, UK, 374 pp.

Rocha L.A. & Bowen B.W. 2008. Speciation in coral reef fishes. J. Fish Biol. 72: 1101–1121

Pinheiro, H.T. et al. 2018. Southwestern Atlantic reef fishes: Zoogeographic patterns and ecological drivers reveal a secondary biodiversity center in the Atlantic Ocean. Diversity and Distributions. 24: 951–965.

Rocha L.A., Bowen B.W. 2008. Speciation in coral reef fishes. J Fish Biol 72: 1101-1121

Sale P.F. 1991.The Ecology of Fishes on Coral Reefs. Academic Press, San Diego, CA, 754 pp.

Sale P.F. 2002. Coral Reef Fishes: Dynamics and Diversity in a Complex Ecosystem. Academic Press, San Diego, CA, 549 pp.

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