
Ano Letivo 2021-22

Unidade Curricular REPRODUÇÃO EM AQUACULTURA

Cursos AQUACULTURA E PESCAS (2.º Ciclo)
RAMO: AQUACULTURA
RAMO AQUACULTURA
BIOLOGIA MARINHA (2.º ciclo) (*)

(*) Curso onde a unidade curricular é opcional

Unidade Orgânica Faculdade de Ciências e Tecnologia

Código da Unidade Curricular 14301047

Área Científica CIÊNCIAS BIOLÓGICAS, AQUICULTURA

Sigla CB

Código CNAEF (3 dígitos) 420

**Contributo para os Objetivos de
Desenvolvimento Sustentável - 4, 14
ODS (Indicar até 3 objetivos)**

Línguas de Aprendizagem

Português ou Inglês (se estiverem presentes estudantes internacionais)

Modalidade de ensino

Presencial

Docente Responsável

Adelino Vicente Mendonça Canário

DOCENTE	TIPO DE AULA	TURMAS	TOTAL HORAS DE CONTACTO (*)
Adelino Vicente Mendonça Canário	PL; T; TP	T1; TP1; PL1	4T; 5TP; 5PL

* Para turmas lecionadas conjuntamente, apenas é contabilizada a carga horária de uma delas.

ANO	PERÍODO DE FUNCIONAMENTO*	HORAS DE CONTACTO	HORAS TOTAIS DE TRABALHO	ECTS
1º	S2	7.5T; 5TP; 10PL	78	3

* A-Anual;S-Semestral;Q-Quadrimestral;T-Trimestral

Precedências

Sem precedências

Conhecimentos Prévios recomendados

Biologia Geral

Objetivos de aprendizagem (conhecimentos, aptidões e competências)

1) Provide basic concepts of reproductive biology 2) Provide the scientific and reasoning for the application of reproductive biology to aquaculture 3) Provide the tools for the students to explore recent advances in reproductive biology and related subjects both for basic science and applications of science.

Conteúdos programáticos

- 1) Introduction: Variability of reproductive strategies in teleost fishes
 - 2) Origin and morphology of gonads and ducts
 - 3) Sex determination and differentiation in fish
 - 4) Gametogenesis
 - 5) Neuroendocrine control of gametogenesis
 - 6) The cycle of gametogenesis and endocrine cycle in salmonids and non-salmonids
 - 7) Hormonal pheromones
 - 8) The endocrine regulation of puberty in male fish: implications for ongoing problems in aquaculture
 - 9) Hormonal spawning induction in fish farming
 - 10) Environmental control of fish reproduction
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Metodologias de ensino (avaliação incluída)

Topics will be presented in lectures which the students explore further in bibliography provided from books and scientific papers, generally reviews. A few practical hands on or demonstration classes will deal with basic topics such as gametogenesis. Students are encouraged to further explore particular topics by writing a review in the style of a scientific paper, which will be subject to peer review and will be presented orally. Students will be examined by 1) Extended abstract of article and oral presentation(25%) 2) 4) written exam(75%).

Bibliografia principal

- Babin, Patrick J.; Cerdà, Joan; Lubzens, Esther (Eds.) *The Fish Oocyte, From Basic Studies to Biotechnological Applications*, 2007, XIV, 510 p. Springer
- Billard, R. (Ed.), 1990. *Spermatogenesis in teleost fish. Marshall's physiology of reproduction*. Churchill Livingstone, New York, 183-212 pp.
- Bromage, N., M. Porter & C. Randall (2001) The environmental regulation of maturation in farmed finfish with special reference to the role of photoperiod and melatonin. *Aquaculture*, 197, 63-98.
- Devlin, R. H. & Y. Nagahama (2002) Sex determination and sex differentiation in fish: an overview of genetic, physiological, and environmental influences. *Aquaculture*, 208, 191-364.
- Hofman, M. A. (2004) The brains calendar: neural mechanisms of seasonal timing. *Biological Reviews*, 79, 61-77.
- Peter, R. E. & K. L. Yu (1997) Neuroendocrine regulation of ovulation in fishes: Basic and applied aspects. *Reviews in Fish Biology and Fisheries*, 7, 173-197.

Academic Year 2021-22

Course unit REPRODUCTION IN AQUACULTURE

Courses AQUACULTURE AND FISHERIES
BRANCH AQUACULTURE
MARINE BIOLOGY (*)

(*) Optional course unit for this course

Faculty / School FACULTY OF SCIENCES AND TECHNOLOGY

Main Scientific Area

Acronym BC GB

CNAEF code (3 digits) 420

Contribution to Sustainable Development Goals - SGD (Designate up to 3 objectives) 4, 14

Language of instruction Portuguese or English (if international students are present)

Teaching/Learning modality

direct contact with students

Coordinating teacher

Adelino Vicente Mendonça Canário

Teaching staff	Type	Classes	Hours (*)
Adelino Vicente Mendonça Canário	PL; T; TP	T1; TP1; PL1	4T; 5TP; 5PL

* For classes taught jointly, it is only accounted the workload of one.

Contact hours

T	TP	PL	TC	S	E	OT	O	Total
7.5	5	10	0	0	0	0	0	78

T - Theoretical; TP - Theoretical and practical ; PL - Practical and laboratorial; TC - Field Work; S - Seminar; E - Training; OT - Tutorial; O - Other

Pre-requisites

no pre-requisites

Prior knowledge and skills

General Biology

The students intended learning outcomes (knowledge, skills and competences)

1) Provide basic concepts of reproductive biology 2) Provide the scientific and reasoning for the application of reproductive biology to aquaculture 3) Provide the tools for the students to explore recent advances in reproductive biology and related subjects both for basic science and applications of science.

Syllabus

- 1) Introduction: Variability of reproductive strategies in teleost fishes
 - 2) Origin and morphology of gonads and ducts
 - 3) Sex determination and differentiation in fish
 - 4) Gametogenesis
 - 5) Neuroendocrine control of gametogenesis
 - 6) The cycle of gametogenesis and endocrine cycle in salmonids and non-salmonids
 - 7) Hormonal pheromones
 - 8) The endocrine regulation of puberty in male fish: implications for ongoing problems in aquaculture
 - 9) Hormonal spawning induction in fish farming
 - 10) Environmental control of fish reproduction
-

Teaching methodologies (including evaluation)

Topics will be presented in lectures which the students explore further in bibliography provided from books and scientific papers, generally reviews. A few practical hands on or demonstration classes will deal with basic topics such as gametogenesis. Students are encouraged to further explore particular topics by writing a review in the style of a scientific paper, which will be subject to peer review and will be presented orally. Students will be examined by 1) Extended abstract of article and oral presentation(25%) 2) 4) written exam(75%).

Main Bibliography

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