



MINISTRY OF EDUCATION
FEDERAL RURAL UNIVERSITY OF PERNAMBUCO
PROVOST OF RESEARCH

I – IDENTIFICATION		
COURSE: Macroalgae bioprocess and valorization		CODE: XXXXX
DEPARTMENT/ACADEMIC UNIT: DEPAq/UFRPE Headquarters		
GRADUATE COURSE: Fisheries and Aquaculture Resources	CLASS: XXXXX	SHIFT: MORNING
NATURE: () MANDATORY (X) ELECTIVE		
ACADEMIC PERIOD OF THE COURSE: 2024.1		
TOTAL WORKLOAD: 15 hours	THEORETICAL: 15 hours	PRACTICAL: 0 hours
FORMAT: (X) IN-PERSON () IN-PERSON/REMOTE () REMOTE		
PROFESSORS		WORKLOAD
Prof. Dr. Alberto Peña Rodríguez		15

II – SYLLABUS (Content Synopsis)

Investigate sustainable practices for water bioremediation using macroalgae. Dive into bioprocessing techniques, including enzymatic and chemical digestion, as well as fermentation, for macroalgae valorization. Uncover the potential use of valorized seaweed in aquaculture feed.

III – OBJETCTIVES

- Provide valuable insights into the potential use seaweed culture integrated to aquaculture systems.
- Offer comprehensive knowledge on the utilization of bioprocesses to enhance the utilization and nutrient bioavailability of seaweed for the aquaculture industry.

IV – PROGRAM CONTENT

(Indicate the subjects to be covered in the course)

- Ecological and economic importance of macroalgae
- Water bioremediation with macroalgae (Integrated multi-trophic aquaculture)
- Macroalgae valorization through enzymatic and chemical digestion
- Macroalgae valorization through fermentation
- Extraction of useful compounds from macroalgae
- Applications of valorized macroalgae in Aquafeed
- In vivo evaluation and genomic analysis.

V – TEACHING METHODS

- () Video lecture (Google Meet)
- (X) Directed reading
- () Directed study
- (X) Seminar
- (X) Handouts
- (X) Exercises

VI – REMOTE TEACHING PLATFORM

- () Virtual Learning Environment (AVA Moodle / UFRPE)
- (x) Google Classroom
- () Professor's website
- () Dropbox
- () Others: _____

VII – EVALUATION CRITERIA

Evaluation of seminars and participation in the classroom. The evaluation procedures adopted will be continuous assessment through the presentation of reports and seminars on specific topics.

VIII – SCHEDULE	
DAYS	DETAILS
1 DATE: 12/05/24 (M.)	CONTENT COVERED: - Ecological and economic importance of macroalgae, - Water bioremediation with macroalgae (IMTA). METHODOLOGY: Audiovisual material LOCATION: Classroom of PPG-RPAq (DEPAq) EVALUATIVE PRACTICES: In-class discussion
1 DATE: 12/05/24 (T.)	CONTENT COVERED: - Macroalgae valorization through enzymatic and chemical digestion; - Macroalgae valorization through fermentation METHODOLOGY: Audiovisual material LOCATION: Classroom of PPG-RPAq (DEPAq) EVALUATIVE PRACTICES: In-class discussion
2 DATE: 13/05/24 (M.)	CONTENT COVERED: - Extraction of useful compounds from macroalgae; - Applications of valorized macroalgae in Aquafeed METHODOLOGY: Audiovisual material LOCATION: Classroom of PPG-RPAq (DEPAq) EVALUATIVE PRACTICES: In-class discussion
3 DATE: 13/05/24 (T.)	CONTENT COVERED: - In vivo evaluation and genomic analysis. METHODOLOGY: Audiovisual material LOCATION: Classroom of PPG-RPAq (DEPAq) EVALUATIVE PRACTICES: In-class discussion

IX – BIBLIOGRAPHY
<p>BASIC: Sangeetha, J., Thangadurai, D., & Ahmad, I. Z. (2023). <i>Seaweed Biotechnology: biodiversity and biotechnology of seaweeds and their applications</i>. Academic Press.</p> <p>Sangeetha, J., Thangadurai, D., Elumalai, S., & Thimmappa, S. C. (Eds.). (2021). <i>Phycobiotechnology: Biodiversity and Biotechnology of Algae and Algal Products for Food, Feed, and Fuel</i>. CRC Press.</p> <p>Torres Pérez, M. D., & Domínguez González, H. (2019). Valorising seaweed by-products. <i>EBSCO eBooks</i>.</p>

I AM AWARE that recorded synchronous interactions constitute strictly educational material and are not allowed to be used (in full or in part) for purposes other than this. I commit to respecting the image rights of the students in recordings of synchronous activities, questioning them about the authorization for recording, and advising those who object to keep their cameras and microphones turned off during the recording.

Recife, February 01, 2024.

Professor