

TEACHING MODULES INFORMATION

EMJMD WACOMA (academic year 2018/19)

1.	Module Title: Biological tools for coastal management										
2.	Module Code: (not necessary yet)										
3.	Maximum Number of Students: 20										
4.	Total ECTS Credits: 2 ECTS										
5.	Month: First year, second semester										
6.	<p>Notional Learning Hours (Please fill a number in box): (a) Contact Time - e.g in the classroom, or fieldwork (b) Private Study - reading time, preparing and taking assessments</p> <p>Format of Teaching:</p> <table style="width: 100%; border: none;"> <tr> <td>Lectures</td> <td style="text-align: right;">6 Hours (a)</td> </tr> <tr> <td>Laboratories or Practicals</td> <td style="text-align: right;">8 Hours (a)</td> </tr> <tr> <td>Other (computer workshops)</td> <td style="text-align: right;">Hours</td> </tr> <tr> <td>Other (tutorials)</td> <td style="text-align: right;">Hours</td> </tr> <tr> <td>Other (private study)</td> <td style="text-align: right;">36 Hours (b)</td> </tr> </table> <p>Teaching Strategy:</p> <p>Lectures – Workshops – Tutorials –</p>	Lectures	6 Hours (a)	Laboratories or Practicals	8 Hours (a)	Other (computer workshops)	Hours	Other (tutorials)	Hours	Other (private study)	36 Hours (b)
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Laboratories or Practicals	8 Hours (a)										
Other (computer workshops)	Hours										
Other (tutorials)	Hours										
Other (private study)	36 Hours (b)										
7.	Convener: Ignacio Hernández, Emilio García, Carmen Morales (external), Gonzalo Muñoz, Daniel González (external)										
8.	Institution: University of Cádiz										
9.	Level (Please tick Y): Master Degree										
10.	Language(s) of Tuition: English										
11.	Pre-requisites: It is unlikely that there will be prerequisites beyond the entrance qualifications for a science-based Masters programme.										
12.	Co-requisites: None										
13.	Programme(s) for which module is core: European Joint Masters in Water and Coastal Zone Management										

14.	<p>Module Description - The Purpose or Aims: To understand how the study of organisms from different trophic levels and their interactions can be used as management tools in coastal ecosystems. Special focus will be given to the processes underlying the ecosystem services provided by the coastal areas and how they can be integrated into decision-making. The module also will provide guidelines about how the biological tools are essential under an ecosystem-based management approach in coastal areas and beyond.</p>
15.	<p>Learning Outcomes: -To understand the biological information provided by ecosystems and how this can be used as tools in for the coastal management. -To recognize how to use biological information as a basis for the development of indicators. -To gain the theoretical and methodological knowledge on biological tools to be used in ecosystem-based management of coastal areas.</p>
16.	<p>Summary of Course Content:</p> <ul style="list-style-type: none"> I. Biological tools in environmental regulatory frameworks: monitoring and assessment elements. II. Organisms and biological processes as indicators of the status of the coastal ecosystem. <ul style="list-style-type: none"> a. Algae and microbes as biological indicators of eutrophication processes. b. Marine organisms as indicators of environmental health: ecotoxicology and food web assessments as management tools III. - Ecosystem services and biodiversity: practical applications for the coastal management.
17.	<p>Key Skills Taught: -Understanding the biological and ecological information provided by the coastal ecosystem.</p>
18.	<p>Assessment Methods:</p> <ul style="list-style-type: none"> 1. Class attendance, participation in class discussion 2. The students will have to choose a technical report or scientific paper and prepare a summary and critical review 3. Case of study and oral presentation. 4. Multiple choice questions.

19.	<p>Assessment Criteria: A successful candidate should have or be able to do the following:</p> <p>Threshold A basic understanding of the appropriate science and modelling approach and a reasonable understanding of the model results and their implications.</p> <p>Good A good understanding of the science and correct model results which are presented and interpreted to a good standard, with some reference to independent literature data and results.</p> <p>Excellent A good to excellent understanding of the science and correct model results which are presented and interpreted to a high standard, with plenty of references used for comparisons and to critically evaluate the results.</p>
20.	<p>Resource Implications of Proposal and Proposed Solutions: <i>(Recommended Bibliography: compulsory, optional, other sources of information)</i></p> <ul style="list-style-type: none"> • Barbier et al. 2011. The value of estuarine and coastal ecosystem services. Ecological Monographs, 81: 169–193. • De Groot, R.S., Stuip, M.A.M., Finlayson, C.M. & Davidson, N. 2006. Valuing wetlands: guidance for valuing the benefits derived from wetland ecosystem services, Ramsar Technical Report No. 3/CBD Technical Series No. 27. [https://www.ramsar.org/sites/default/files/documents/pdf/lib/lib_rtr03.pdf] • EC 2000. European Commission, 2000. Directive 2000/60/EC of the European Parliament and of the council of 23 October 2000 establishing a framework for Community action in the field of water policy. • EC 2008. European Commission, 2008. Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008, establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive). • EU 2014. Mapping and Assessment of Ecosystems and their Services. Indicators for ecosystem assessments under Action 5 of the EU Biodiversity Strategy to 2020. 2nd Report.[http://ec.europa.eu/environment/nature/knowledge/ecosystem_assessment/pdf/2ndMAESWorkingPaper.pdf]. • Green and Elberg 2014 Ecosystem services by waterbirds. Biological Reviews 89: 105–122. • United Nations, 2016. A Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects (Regular Process) http://www.un.org/depts/los/global_reporting/WOA_RegProcess.htm <p>Specific Resource Implications for Students: None</p>
21.	<p>Does this module replace existing provision? If so, please indicate modules to be replaced:</p> <p>The module fits in the area of “Biology of aquatic organisms”</p>

22.	Start Date: First year, second semester
23.	Is it intended that the module be available every year? Yes