



## Teaching Guide

| Teaching Guide           |                                                                                                                                                                                                                                                                                                                                                          |        |            |           |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------|-----------|
| Identifying Data         |                                                                                                                                                                                                                                                                                                                                                          |        |            | 2020/21   |
| Subject (*)              | Water quality and facilities                                                                                                                                                                                                                                                                                                                             |        | Code       | 610489107 |
| Study programme          | Mestrado Universitario en Acuicultura (Plan 2018)                                                                                                                                                                                                                                                                                                        |        |            |           |
| Descriptors              |                                                                                                                                                                                                                                                                                                                                                          |        |            |           |
| Cycle                    | Period                                                                                                                                                                                                                                                                                                                                                   | Year   | Type       | Credits   |
| Official Master's Degree | 1st four-month period                                                                                                                                                                                                                                                                                                                                    | First  | Obligatory | 3         |
| Language                 |                                                                                                                                                                                                                                                                                                                                                          |        |            |           |
| Teaching method          | Face-to-face                                                                                                                                                                                                                                                                                                                                             |        |            |           |
| Prerequisites            |                                                                                                                                                                                                                                                                                                                                                          |        |            |           |
| Department               | BiologíaDepartamento profesorado másterQuímica                                                                                                                                                                                                                                                                                                           |        |            |           |
| Coordinador              |                                                                                                                                                                                                                                                                                                                                                          | E-mail |            |           |
| Lecturers                |                                                                                                                                                                                                                                                                                                                                                          | E-mail |            |           |
| Web                      | http://www.usc.es/posgrao/macuicg/2011_act/es/intro.php                                                                                                                                                                                                                                                                                                  |        |            |           |
| General description      |                                                                                                                                                                                                                                                                                                                                                          |        |            |           |
| Contingency plan         | 1. Modifications to the contents<br><br>2. Methodologies<br>*Teaching methodologies that are maintained<br><br>*Teaching methodologies that are modified<br><br>3. Mechanisms for personalized attention to students<br><br>4. Modifications in the evaluation<br><br>*Evaluation observations:<br><br>5. Modifications to the bibliography or webgraphy |        |            |           |

## Study programme competences

| Code | Study programme competences |
|------|-----------------------------|
|------|-----------------------------|

## Learning outcomes

| Learning outcomes | Study programme competences |
|-------------------|-----------------------------|
|-------------------|-----------------------------|

## Contents

| Topic                                             | Sub-topic                                   |
|---------------------------------------------------|---------------------------------------------|
| Indicadores de calidade.                          |                                             |
| Biofiltración                                     | Nitrificación, desnitrificación.            |
| Desinfección                                      | Conceptos básicos. Métodos de desinfección. |
| Instalacións e Enxeñería en Acuicultura.          |                                             |
| Tipos de Instalacións ou Sistemas de Cultivo.     |                                             |
| Compoñentes técnicos dunha planta acuícola.       |                                             |
| Unidades de produción pechadas e Gaiolas mariñas. |                                             |

## Planning



| Methodologies / tests                                                                                                           | Competencies | Ordinary class hours | Student's personal work hours | Total hours |
|---------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------|-------------------------------|-------------|
| Guest lecture / keynote speech                                                                                                  |              | 12                   | 36                            | 48          |
| Seminar                                                                                                                         |              | 5                    | 11                            | 16          |
| Laboratory practice                                                                                                             |              | 4                    | 2                             | 6           |
| Mixed objective/subjective test                                                                                                 |              | 1.5                  | 0.5                           | 2           |
| Personalized attention                                                                                                          |              | 3                    | 0                             | 3           |
| (*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students. |              |                      |                               |             |

| Methodologies                   |                                                                                                                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                   | Description                                                                                                                                                                                                                                                        |
| Guest lecture / keynote speech  | Nas clases presenciais expóranse os fundamentos teóricos da materia e estableceranse os criterios para que o alumno desenvolva os conceptos básicos mediante lecturas e traballos. Nas devanditas clases buscarase a interacción entre os profesores e os alumnos. |
| Seminar                         | Nos seminarios preténdese incidir na aplicación dos conceptos teóricos.                                                                                                                                                                                            |
| Laboratory practice             | Nas prácticas realizarase unha visita técnica a unha instalación de produción acuícola ou de tratamento de auga, e caso de ser posible veránse as metodoloxías de control da calidade da auga.                                                                     |
| Mixed objective/subjective test | Ao final do curso, nas datas previstas para iso, realizarase unha proba escrita para valorar os coñecementos adquiridos polo alumno.                                                                                                                               |

| Personalized attention         |                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                  | Description                                                                                                                                     |
| Guest lecture / keynote speech | O profesor atenderá ao alumno na resolución das dúbidas que lle poidan xurdir. Levarase a cabo no horario de tutorías do que dispón o profesor. |

| Assessment    |              |             |               |
|---------------|--------------|-------------|---------------|
| Methodologies | Competencies | Description | Qualification |

| Assessment comments |
|---------------------|
|                     |

| Sources of information |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Basic</b>           | <ul style="list-style-type: none"> <li>- Alley (2007). Water Quality Control Handbook. McGraw-Hill Professional</li> <li>- Barnabe, G. et al. (2000). Ecology and Management of Coastal Waters: The Aquatic Environment. Springer Praxis Books</li> <li>- Beaz Paleo, J.M. (2007). Ingeniería de la Acuicultura Marina. Instalaciones en tierra. . Observatorio Español de Acuicultura, CSIC</li> <li>- Beaz Paleo, J.M. (2008). Ingeniería de la Acuicultura Marina. Instalaciones de peces en el mar. Observatorio Español de Acuicultura, CSIC</li> <li>- Metcalf-Eddy (1995). Ingeniería de aguas residuales. Tratamiento, vertido y reutilización. McGraw-Hill</li> <li>- Murdock (1993). Fundamental Fluid Mechanics for the Practicing Engineer. CRC</li> <li>- O.-I. Lekang (2007). Aquaculture Engineering. Blackwell</li> <li>- Sánchez-Juny, M. E. Bladé, J. Puertas (2007). Hidráulica. Universidade de A Coruña</li> <li>- Yoo and Boyd (1994). Hydrology and Water Supply for Pond Aquaculture. Springer</li> </ul> |
| <b>Complementary</b>   | <ul style="list-style-type: none"> <li>- American Water Works Association (2003). Calidad y tratamiento del agua. Mac Graw Hill, Madrid.</li> <li>- AENOR (1999). Calidad del agua. AENOR. Madrid.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



| Recommendations                                          |
|----------------------------------------------------------|
| Subjects that it is recommended to have taken before     |
| Subjects that are recommended to be taken simultaneously |
| Subjects that continue the syllabus                      |
| Other comments                                           |

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.