



Asignatura: Water Pollution and Environmental Effects
Código: 32763
Centro: Fac. Ciencias /Sciences Faculty
Titulación: Inland Water Quality Assessment
Nivel: Master
Tipo: Obligatoria /Mandatory
Nº de créditos: 4

ASIGNATURA / **COURSE TITLE**

Contaminación acuática y sus efectos /**Water pollution and environmental effects**

1.1. Código / **Course number**

32763

1.2. Materia / **Content area**

Water pollution and environmental effects

1.3. Tipo / **Course type**

Obligatoria/ **Compulsory- Mandatory**

1.4. Nivel / **Course level**

Máster/ **Master**

1.5. Curso / **Year**

1º/1st

1.6. Semestre / **Semester**

1º/ 1st (fall Semester)

1.7. Idioma / **Language**

English

1.8. Requisitos previos / **Prerequisites**

None

1.9. Requisitos mínimos de asistencia a las sesiones presenciales / **Minimum attendance requirement**

A significant part of this course will be taught by mean of specialists talks and in some cases by e-learning methodologies. The attendance to 80% the talks is mandatory.



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1.10. Datos del equipo docente / Faculty data

Coordinador / [Coordinator](#): Antonio Quesada
Departamento de / [Department of Biología](#)
Facultad / [Faculty Ciencias](#)
Despacho - Módulo / [Office - Module - B-010a](#)
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Página web/[Website](#):
Horario de atención al alumnado/[Office hours](#): 9-18

1.11. Objetivos del curso / Course objectives

This is an advanced course on the main pollutants present in European freshwater ecosystems and their effects both in the ecosystem itself as in the ecosystem services. This course is particularly devoted to emerging contaminants, the new risk situations for ecosystems and human health as well as the advanced detection methods and reduction or elimination of their effects.

In particular students will acquire next competences:

- Understand the contents in the course providing an opportunity of being original in the development and/or application of ideas
- Know how to apply the knowledge acquired and the capability of problem resolution in environments not completely known within a wider context but in the study area
- To know how to communicate the conclusions and knowledge and ultimate reasons supporting them to specialized and non-specialized audiences and a clear fashion
- They will acquire the learning skills allowing them to proceed in the learning pathway in an autonomous fashion

1.12. Contenidos del programa / Course contents

1. New scenarios on the waterbodies pollution, detection and treatment
2. Modifications of ecosystems by physical changes: ecosystem fragmentation and biological relevance of light and temperature
3. Ecological effects produced by chemical pollutants: new advances on organic and inorganic pollution; detection and treatment of new pollution sources (POPs, Emerging pollutants and nanoparticles)



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4. Hazards derived from biological processes: invasive species, secondary metabolites, antibiotic resistance

5. New generation of water treatment and depuration: membranes, biodepuration, photocatalytic systems.

1.13. Referencias de consulta / Course bibliography

- Agarwal SK. Water Pollution. 2005. APH editors
- Ahuja S. and Hrivtovski K 2013. Novel solutions for water pollution Oxford University Press
- Goel PK. Water pollution: Causes, effects and control. 2006. New Age International
- Viessman W. et al 2008. Water supply and pollution Control. Ed. Pearson
- Westcoat JK and White GF 2003. Water for life, Cambridge University Press

As most of this course is on new aspects of water pollution, most of the bibliographic material will be based on scientific journals, as: Water Research, Environmental Science and Technology, Science of Total Environment, Water, Air and Soil Pollution, etc.

2. Métodos docentes / Teaching methodology

This course will be taught in a series of seminars given by specialist of different fields within the topic, by conferences or seminars. Then, students will chose a topic and prepare an assay that will be corrected by the specialist.

Next teaching methodologies will be used:

- Theoretical lessons supported with multimedia materials
- Seminars and expert talks
- Debate of presented materials

Teaching dynamics: the course will be developed along the first semester as a series of different talks that will take place at the classroom. The students will be offered a series of recent scientific papers on a related topic and will prepare an assay.



3. Tiempo de trabajo del estudiante / **Student workload**

		No. hours	% working load
Presential	Theoretical and practical lectures	30	45%
	Seminars	15	
No presencial	Reading paper	20	55%
	Oral seminar	10	
	Seminar preparation	25	
Total		100	

4. Métodos de evaluación y porcentaje en la calificación final / **Evaluation procedures and weight of components in the final grade**

The written reports delivered and presented to the course represent between 40 and 60% of the total evaluation. Written Exercises will represent between 20 and 30% of the total evaluation. The participation in the course and in the open forum will represent between 20-30% of the total evaluation

In any case both parts of the course need to be passed to pass the course, no average will be made with marks below 50% in each part.

The student not passing the exam in the first call will need to repeat the failed (below 50%) parts in the second call



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5. Cronograma* / Course calendar

Semana aprox. Week	Contenido Contents	Horas presenciales Contact hours	Horas no presenciales Independent study time
26 Nov-11 Dec	Concept sessions	30	20
15-19 Dec	E-learning classes	5	10
9- 12 Jan	Discussion/ seminars	10	25

*Este cronograma tiene carácter orientativo.