



Asignatura: Integrated Monitoring and Field Studies
Código: 72767
Centro: Facultad de Ciencias
Titulación: Master of Inland Water Quality Assessment
Nivel: Master
Tipo: Obligatoria- Mandatory
Nº de créditos: 6 ECTS

ASIGNATURA / COURSE TITLE

MONITORIZACIÓN INTEGRADA Y ESTUDIOS DE CAMPO /INTEGRATED MONITORING AND FIELD STUDIES

1.1. Código / Course number

72767

1.2. Materia / Content area

This course is mandatory and is not included in any higher rank area within the master

1.3. Tipo / Course type

Compulsory subject

1.4. Nivel / Course level

Master

1.5. Curso / Year

1st

1.6. Semestre / Semester

FIRST SEMESTER

1.7. Número de créditos / Credit allotment

6 ECTS

1.8. Requisitos previos / Prerequisites

A Bachelor degree with a major in Biology, Environmental sciences or Environmental Engineering for doing the master. In this course it is extremely important to have an updated expertise in laboratory disciplines.

Within this course the knowledge about European Aquatic Ecology, Biological and Chemical Monitoring and Aquatic Bioindicators are highly recommended.



Asignatura: Integrated Monitoring and Field Studies
Código: 72767
Centro: Facultad de Ciencias
Titulación: Master of Inland Water Quality Assessment
Nivel: Master
Tipo: Obligatoria- Mandatory
Nº de créditos: 6 ECTS

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

Attendance is mandatory. A minimum of 80 % of in-class and laboratory sessions is mandatory. Attendance to field work is mandatory.

1.10. Datos del equipo docente / **Faculty data**

COORDINADOR/COORDINATOR: Dr. Elvira Perona (Dpt. Biology)

Docente(s) / Lecturer(s): Dr. Elvira Perona (Dpt. Biology)

Dr. Eugenio Rico (Dpt. Ecology)

Dr. Pablo Acebes (Dpt. Ecology)

Dr. Antonio Quesada (Dpt. Biology)

Dr. Javier González Yélamos (Dpt. Geology and Geochemistry)

Facultad / Faculty of Sciences (UAM)

Despacho - Módulo / Office - Module Coordinator of the course Elvira Perona B-002

Teléfono / Phone: +34 91 4978175

Correo electrónico/Email: elvira.perona@uam.es

Página web/Website: www.uam.es/iwqa

Horario de atención al alumnado/Office hours: L-V 9-17

1.11. Objetivos del curso / **Course objectives**

The students should have the knowledge and skills to apply the Water Framework Directive.

1. *Content knowledge:*

The students will learn about differences between aquatic systems and to develop chemical, biological and ecosystem analyses using different monitoring strategies. Students will learn how the water responsibilities are organized in Spain

2. *Skills and abilities:*

To work in different aquatic systems: rivers, reservoirs and aquifers. To collect chemical and biological samples to analyse in field and laboratory, and to interpret and write report with results obtained.

1.12. Contenidos del programa / **Course contents**

- Module 1: Theoretical concepts on inland water management

Administrative structure on Hydraulic Public domain, discharge permits, and organizing a monitoring project.



Asignatura: Integrated Monitoring and Field Studies
Código: 72767
Centro: Facultad de Ciencias
Titulación: Master of Inland Water Quality Assessment
Nivel: Master
Tipo: Obligatoria- Mandatory
Nº de créditos: 6 ECTS

- Module 2: Monitoring studies

Define, organize and develop monitoring program on different aquatic systems. Developing:

- To recognise forms, dimensions, and other aspect of different types of inland aquatic systems.
- To learn sampling methods of water and biological systems
- To make measures of physical and chemical variables in situ and in laboratory
- To learn different methods and strategies of chemical and biological sampling and analyses techniques, under different levels.

Module 3: Analysing and presenting results for monitoring studies:

- To compare results obtained under ecological, chemical and biological point on view
- To write and present an assay/report with the data obtained.

1.13. Referencias de consulta / Course bibliography

- Agence de l'Eau Artois-Picardie 1998. Guide Methodologique pour la mise en oeuvre de L'indice Biologique Diatomées (english version included).
- Hellawell J.M. 1989. Biological indicators of freshwater pollution and environmental management. En: Pollution monitoring series. Elsevier Science Pub. Norwich
- John D.M., Whitton B.A. & Brook A.J. (Eds) 2002. The freshwater algal flora of the British Isles. An identification Guide to Freshwater and terrestrial Algae. Cambridge University Press. London.
- UNITED STATES GEOLOGICAL SURVEY, variously dated. National field manual for the collection of water-quality data: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chaps. A1-A9, available on line at <http://pubs.water.usgs.gov/twri9A>.

2. Métodos docentes / Teaching methodology

1. Lectures in classroom and e-learning.
2. Intensive field and laboratory work (chemical, biological, ecological)
3. Interpretation of results and discussion, including computer sessions for created graph and statistical analyses
4. Written and oral presentation of reports



Asignatura: Integrated Monitoring and Field Studies
Código: 72767
Centro: Facultad de Ciencias
Titulación: Master of Inland Water Quality Assessment
Nivel: Master
Tipo: Obligatoria- Mandatory
Nº de créditos: 6 ECTS

The students will be organized in groups of 3-4 students. Field work will be done by all students within the groups who will develop both the field work as well as the laboratory analyses and writing and presenting the report

3. Tiempo de trabajo del estudiante / Student workload

<i>Tasks</i>	<i>hours</i>
<i>lecture attendance: (presential)</i>	<i>20</i>
<i>Field tasks (presential)</i>	<i>25</i>
<i>Laboratory tasks (presential)</i>	<i>55</i>
<i>Interpretation of results</i>	<i>50</i>
<i>Total amount of work measured in hours</i>	<i>150</i>

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

Distribution of the final grade among the different activities and in relation to the amount of work the student has to do for the course, expressed in percentages

Continuous evaluation of tasks developed in field and laboratory:

- 60 % Final report
- 40 % individual field and lab work, exercises, discussions.

Final report: including the main results and discussion on the results obtained in scientific format (no more than 50 pages).

Next sections should be included in the report: Title, Abstract, Abbreviations, Index, Introduction and Main objectives, Description of the study area, Methodology, Results (including tables and graphs), Discussion, References and Annex.

Any student that participated less than 10% of evaluable activities will be qualified as “unevaluated”.



Asignatura: Integrated Monitoring and Field Studies
Código: 72767
Centro: Facultad de Ciencias
Titulación: Master of Inland Water Quality Assessment
Nivel: Master
Tipo: Obligatoria- Mandatory
Nº de créditos: 6 ECTS

In the case that the student does not obtain the minimum requirements for passing the course (see evaluation section) will have another opportunity “convocatoria extraordinaria” at the end of the academic year, correcting final reports and exercises required.

5. Cronograma* / Course calendar at UAM

Week	Contents	Contact hours	Independent study time
1 and 3	Lectures, preparation field work, Library course,	5 days	10 h
4	Field work	3 full days	
4-5	laboratory work	6 full days	
6	Results and discussion	8 h	20h
7	Report elaboration		30h
8	Report presentation	10 h	

The field and lab activities will take place during October and November and the final report will be presented before Christmas time*

*It is a tentative schedule course, for a more detail one, please checks the final calendar.