

**COURSE DATA****Data Subject**

<b>Code</b>	43280
<b>Name</b>	Birds as bioindicators of ecosystem conservation
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	3.0
<b>Academic year</b>	2021 - 2022

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period year</b>
2148 - Master's degree in Biodiversity: Conservation and Evolution	Faculty of Biological Sciences	1 First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2148 - Master's degree in Biodiversity: Conservation and Evolution	13 - Cross-disciplinary optional subject areas 3	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
LOPEZ LOPEZ, PASCUAL	275 - Microbiology and Ecology
MONROS GONZALEZ, JUAN SALVADOR	275 - Microbiology and Ecology

**SUMMARY**

"Birds as indicators of the state of conservation of ecosystems" is an optional subject for the master's degree in Biodiversity: conservation and evolution, which takes place every four months and is taught in the specialty of Biodiversity and conservation of ecosystems. The subject includes theoretical and practical topics where it is exposed and works on those aspects in which knowledge of birds helps us to manage and sustain the environment. The student must end up being able to work with birds considering different perspectives in order to conserve species and habitats, considering that the conservation of habitats is the best way to conserve biodiversity. The course is divided into 3 credits for a total 75 hours of work.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

The student must have notions in ecology, botany, zoology, microbiology, geography, statistics. In addition, they must be trained to recognize birds using field guides.

### 2148 - Master's degree in Biodiversity: Conservation and Evolution

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- To acquire basic skills to develop laboratory work in biomedical research.
- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.
- Stimulate the capacity for critical reasoning and for argumentation based on rational criteria.
- Favour intellectual curiosity and encourage responsibility for one's own learning.

### General skills

The student should:

- Recognize trends in the distribution of birds, populations and communities, patterns and processes, as well as propose plausible explanations for the patterns found.
- Recognize the similarities and differences between species and communities in different types of environments including those applicable to the current landscape that is strongly influenced by human activities.



- Know the variety of ecological and historical factors that affect the distribution of birds in isolated spaces, recognize which are the most important and achieve a dynamic idea of the patterns of spatial variation.
- Ask him/herself and try to explain the spatial variations of the richness of species, especially in relation to the size of the area and the isolation.
- Understand the role of human activity in modifying the distribution of birds.
- Recognize the importance of this group for the conservation of environments and endangered species for the management of the natural environment.
- Recognize and describe 'hot spots'.
- Recognize natural invasions and invasions from human intervention.

### **Methodological skills**

The student should:

- To understand and learn how to work with mathematical models applied to conservation with birds as material for protection.
- To become familiar with sources of information about birds.
- To deal with the main techniques and methods used in population and biogeographic analysis.
- To know how to apply theoretical knowledge about birds to practical conservation problems.
- To interpret range maps.

## **DESCRIPTION OF CONTENTS**

### **1. Lesson 1**

Introduction to the Biology of birds: the individual, populations, communities. Brief notes on taxonomy. Why use birds in conservation studies.

### **2. Lesson 2**

Concepts. Species and their limits. Its use in the conservation of species and habitats. The case of the Iberian imperial eagle *Aquila heliaca adalberti* or *A. adalberti*.



### 3. Lesson 3

The use of birds for the conservation of ecosystems: the ease of working with birds. The use of birds as framework species for the conservation of environments. Examples of indicator species.

### 4. Lesson 4

Materials and methods for the study of birds. The problem of open spaces and closed spaces. Techniques for studying individual patterns and processes. Techniques for the study of population patterns and processes. Techniques for studying the patterns and processes of bird communities (subcommunities). Qualitative and quantitative methods. The use of the presence / absence dichotomy. Stock assessment. Habitat selection. Choice of physical, chemical, morphological, geographic, landscape variables.

### 5. Lesson 5

Populations. Reproduction and development of the offspring. Consequences of reproductive processes in the protection of species and environments.

### 6. Lesson 6

Risk indicators. The risk of the type of distribution. The risk of the size of the distribution area. The risk of the sizes and density of their populations. Ecological indicators: habitat selection, habitat sensitivity, seasonality, habitat and food specializations. K Species.

### 7. Lesson 7

The role of birds in ecosystems. The Role of History: The Great Predatory Birds of the Past: European and South American Examples. Birds as predators. Birds as prey. Bird extinctions: island and continental species.

### 8. Lesson 8

Range types and their consequences. Movements: dispersal and colonization. Founding populations and island populations. Its application in conservation. Effects of climate change.

### 9. Lesson 9

Migrations. What they are. Where they occur. How it happens. Why do birds migrate. Wintering and summer communities as a consequence of migratory processes. Selection of the study period of bird communities as a result of migrations. Migrations and climate change.



**10. Lesson 10**

Practical applications. Selection of examples with birds as actors in the service of conservation.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	20,00	100
Seminars	10,00	100
Attendance at events and external activities	5,00	0
Development of individual work	10,00	0
Study and independent work	7,00	0
Readings supplementary material	4,00	0
Preparation of evaluation activities	4,00	0
Preparing lectures	4,00	0
Preparation of practical classes and problem	4,00	0
Resolution of case studies	5,00	0
Resolution of online questionnaires	2,00	0
<b>TOTAL</b>	<b>75,00</b>	

**TEACHING METHODOLOGY**

75-hour course corresponding to 3 credits of which 25 hours are face-to-face with 20 hours of theory and 5 practical hours outside the classrooms. The five practical hours are followed by a resolution of the externally obtained data. The use of externality is configured around putting the student in contact with the birds to learn to recognize them, tabulate the results collected in nature and in which previously they have to be sufficiently agile to recognize the birds either by visual or acoustic means.

**EVALUATION**

The evaluation of the subject will be through a final exam of the theory (80% value of the final grade) and the practical part (20%). Where appropriate, the final exam can be replaced by the completion of an original work or the approach to a project to carry out the original. In both cases they can be the germ of the works that are presented as a project. In short, they can be part of the project. On the website of this master there are examples of works presented as projects and that were published in indexed journals.



## REFERENCES

### Basic

- Cox. G. W. 2010. Bird Migration and Global change. Island Press. Whashington.
- Del Hoyo, J., Elliot. A., y Sargatal. J. (16 volumes entre 1992 y 2011). Handbook of the birds of the World. Lynx Ed. Barcelona.
- Ferrer, M. 2001. The Spanish Imperial Eagle. Lynx Edicions.
- Grant. P. Ecology and evolution of Darwin´s Finches. Princenton University Press.
- Ladle. R. J. y Whittaker. R. J. 2011. Conservation biogeography. Wiley-Blackwell.
- McDonal. D. y Service. K. 2007. Key topics in Conservation Biology. Blackwell Publishing.
- Moller, A. P., Fiedler. W. y Berthold, P. 2006. Birds and climate change. Academic Press.
- Moller, A. P., Fiedler. W. y Berthold, P. 2010. Effects of climate change on birds. Oxford University Press.
- Sutherland. W. J., Newton. I. y Green. R. E. 2004. Bird ecology and conservation. Oxford University Press.
- Svenson, L. 2009. Guía para la identificación de los Paseriformes europeos. SEO/BirdLife. (2ª edición en castellano).

### Additional

- Ardea. Ardeola. Auk.
- Bird Study. Condor. Ibis. Journal of Avian Biology. Studies in Avian Biology. Ornithological Monographs.
- Ecology. Biological Conservation. Conservation Biology.

## ADDENDUM COVID-19

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

## English version is not available

### 1. Contenidos

Se mantienen los contenidos inicialmente recogidos en la guía docente.



## **2. Volumen de trabajo y planificación temporal de la docencia**

Se mantiene el peso de las distintas actividades que suman las horas de dedicación en créditos ECTS marcadas en la guía docente original.

Se mantienen las sesiones teóricas en su horario, que podrían ser sustituidas por videoconferencias a través de la plataforma *Blackboard Collaborate* para explicar el tema y resolver dudas. Se mantienen las sesiones de tutoría virtual para resolución de dudas por correo electrónico.

En cuanto a las prácticas se plantea la posibilidad de realizar las salidas de campo como están programadas originalmente que podrían ser sustituidas por trabajos de elaboración no presencial mediante resolución de dudas mediante videoconferencias.

## **3. Metodología docente**

Subida de materiales al Aula virtual y adaptación de los guiones de prácticas de campo, para poder desarrollarlas en casa.

Tutorías mediante sesiones de videoconferencia BBC para resolución de dudas.

Entrega de seminarios y de las presentaciones elaboradas por los estudiantes mediante la opción de “Tarea” del Aula Virtual con resolución de dudas por el sistema de tutorías establecido y presentación de la solución correcta mediante videoconferencia por BBC.

Sistema de tutorías. Se mantiene el programa de tutorías virtuales.

## **4. Evaluación**

El peso de cada apartado de la evaluación se mantiene intacto.

La defensa presencial del seminario se sustituye por la entrega online del mismo y su defensa mediante videoconferencia.

El examen de la parte teórica se realizará mediante una prueba objetiva (tipo test) a través de la herramienta de cuestionarios en el Aula Virtual.

La evaluación del apartado “Asistencia y participación en las actividades” tendrá en cuenta tanto las actividades presenciales como la participación en las actividades y tareas propuestas online en el caso de suspensión de la presencialidad.

Si una persona no dispone de los medios para establecer esta conexión y acceder al aula virtual, deberá contactar con el profesorado por correo electrónico para buscar soluciones personalizadas en función de las circunstancias personales y logísticas del estudiante y las posibilidades vigentes en ese momento. En caso extremo de indisponibilidad de conexión a internet por parte del alumnado se podrá realizar un examen oral vía telefónica previa identificación y consentimiento de la grabación por parte del alumno/a.



## **5. Bibliografía**

Se mantiene la bibliografía recogida inicialmente en la Guía Docente.

