



### ALIEN SPECIES AND BIODIVERSITY MOD. 2

Enrollment year	2020/2021
Academic year	2021/2022
Regulations	DM270
Academic discipline	BIO/07 (ECOLOGY)
Department	DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES
Course	NATURAL SCIENCES
Curriculum	PERCORSO COMUNE
Year of study	2°
Period	2nd semester (01/03/2022 - 10/06/2022)
ECTS	3
Lesson hours	29 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	PAGANELLI DANIELE - 3 ECTS
Prerequisites	Basic knowledge of ecology, zoology and botany is required. Moreover, because most of the material used during the course will be in English, it is recommended that students have a good level of scientific English.
Learning outcomes	The aim of Module 2 of the course Alien Species and Biodiversity is to understand and analyse different aspects of the management of alien species both from scientific and legislative points of view. National and international projects will be presented to the students in order to understand how the issues posed by alien species are managed in Italy and Europe. Moreover, students will be encouraged to actively discuss the proposed case studies. Thus, at the end of this module, students will be able to evaluate the effects of biological invasion on terrestrial and aquatic ecosystems.
Course contents	In Module 2, European, Italian and regional regulation for the management of alien species will be presented, with particular attention

on the assessment methods of impacts (e.g., socioeconomics, human health, and ecosystem services) caused by alien species. Furthermore, several national and international case studies and good practices for the contrast of invasive alien species will be presented during the lessons.

More specifically, during Module 2, the students will have the opportunity to focus their attention on the invasive fauna and flora in Italy, particularly on freshwater and marine ecosystems.

Finally, possible actions to mitigate the impacts of alien species will be described.

#### Teaching methods

Lessons will be in presence using power point support and the pdf of the presentation will be available on the KIRO platform. At the end of each lesson, some time will be dedicated to actively discussing any issues that arise.

During the practical exercises, the most relevant tool for the impact assessment of invasive alien species will be explained and applied by the students. Moreover, specific case studies will be analysed in depth. Finally, in collaboration with the professor of Module 1, a site visit will be organised. On this occasion, methods for the control and management of aquatic and terrestrial invasive alien species will be shown.

#### Reccomended or required readings

Due to the constant updating of the topics proposed during the course, the teaching material will be provided using online databases, scientific articles and international reports, which are easily accessible via internet. However, here is a list of suggested English books:

- Lockwood J.L. et al., 2013. Invasion Ecology, 2nd edition. Wiley and Blackwell. ISBN 978-1-4443-3364-0 (hardback : alk. paper) – ISBN 978-1-4443-3365-7 (softback : alk. paper) – ISBN 978-1-118-57078-4 – ISBN 978-1-118-57080-7 – ISBN 978-1-118-57081-4 (emobi) – ISBN 978-1-118-57082-1 (epub) – ISBN 978-1-118-57083-8 (epdf) 1.
- Clout M. N., Williams P. A., 2009. Invasive Species Management. A Handbook of Principles and Techniques. Oxford Press University. ISBN 978-0-19-921632-1 (Hbk.) ISBN 978-0-19-921633-8 (Pbk.)
- Autori vari, 2009. Handbook of Alien Species in Europe. Springer. ISBN: 978-1-4020-8279-5 e-ISBN: 978-1-4020-8280-1
- Jeschke M., Heger T., 2018. Invasion Biology Hypotheses and Evidence. CABI. ISBN-13: 978 1 78064 764 7
- Simberloff D., 2013. Invasive Species (What Everyone Needs to Know). Oxford University Press.

#### Assessment methods

During the oral exam, students will be asked to present a case study using power point support. During their presentation, students will be asked to explore different aspects that arose during the lessons, and further questions will be asked.

The exam will be evaluated in accordance with the professor of Module 1, and the final mark will be based on the level of knowledge of the students and their correct use of the terminology; moreover, the preparation and organisation of the presentation will be also be evaluated.

#### Further information

#### Sustainable development

#### goals - Agenda 2030

Module 2 of the course Alien Species and Biodiversity is aligned with goals 13 (Climate action), 14 (Life below water) and 15 (Life on land) of the UN agenda 2030

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