



## MOLECULAR METHODOLOGIES FOR BIODIVERSITY CONSERVATION

|                        |   |
|------------------------|---|
| <b>Enrollment year</b> | 2019/2020   |
| <b>Academic year</b>   | 2019/2020   |
| <b>Regulations</b>     | DM270   |
| <b>Department</b>      | DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI" |
| <b>Course</b>          | EXPERIMENTAL AND APPLIED BIOLOGY                              |
| <b>Curriculum</b>      | Biologia ambientale e biodiversità                            |
| <b>Year of study</b>   | 1°  |
| <b>Period</b>          | 1st semester (01/10/2019 - 14/01/2020)                        |
| <b>ECTS</b>            | 9   |
| <b>Language</b>        | Italian   |

The activity is split

500766 - MOLECULAR METHODOLOGIES FOR BIODIVERSITY CONSERVATION

500767 - MOLECULAR METHODOLOGIES FOR BIODIVERSITY CONSERVATION - MODULE 2



## MOLECULAR METHODOLOGIES FOR BIODIVERSITY CONSERVATION

|                            |   |
|----------------------------|---|
| <b>Enrollment year</b>     | 2019/2020   |
| <b>Academic year</b>       | 2019/2020   |
| <b>Regulations</b>         | DM270   |
| <b>Academic discipline</b> | BIO/04 (PLANT PHYSIOLOGY)   |
| <b>Department</b>          | DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"   |
| <b>Course</b>              | EXPERIMENTAL AND APPLIED BIOLOGY  |
| <b>Curriculum</b>          | Biologia ambientale e biodiversità  |
| <b>Year of study</b>       | 1°  |
| <b>Period</b>              | (01/10/2019 - 14/01/2020)   |
| <b>ECTS</b>                | 6   |
| <b>Lesson hours</b>        | 48 lesson hours   |
| <b>Language</b>            |   |
| <b>Activity type</b>       | ORAL TEST   |
| <b>Teacher</b>             | BALESTRAZZI ALMA (titolare) - 6 ECTS  |
| <b>Prerequisites</b>       | Basic knowledge in cellular and molecular biology is required.  |
| <b>Learning outcomes</b>   | This part of the course aims at highlighting some methodological aspects of molecular biology applied to plant biodiversity issues, particularly as concerns GMOs traceability.   |
| <b>Course contents</b>     | GMOs (genetically modified organisms): definition, history. New-generation GMOs. Environmental impact of transgenic plants. Transgene dispersal in soil and gene flow. Techniques for extraction and purification of total DNA from soil, detection of recombinant DNA sequences by standard PCR (Polymerase Chain Reaction). Use of QRT-PCR (Quantitative RealTime-Polymerase Chain Reaction) for the detection and quantification of recombinant DNA in food and environment (GMOs traceability). |

## Teaching methods

Lectures.  
Laboratory activities.

**Reccomended or required readings**

no text books are suggested but all the material will be provided by the teacher



written exam



## Further information





## MOLECULAR METHODOLOGIES FOR BIODIVERSITY CONSERVATION - MODULE 2

|                            |   |
|----------------------------|---|
| <b>Enrollment year</b>     | 2019/2020   |
| <b>Academic year</b>       | 2019/2020   |
| <b>Regulations</b>         | DM270   |
| <b>Academic discipline</b> | BIO/05 (ZOOLOGY)  |
| <b>Department</b>          | DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"   |
| <b>Course</b>              | EXPERIMENTAL AND APPLIED BIOLOGY  |
| <b>Curriculum</b>          | Biologia ambientale e biodiversità  |
| <b>Year of study</b>       | 1°  |
| <b>Period</b>              | (01/10/2019 - 14/01/2020)   |
| <b>ECTS</b>                | 3   |
| <b>Lesson hours</b>        | 24 lesson hours   |
| <b>Language</b>            |   |
| <b>Activity type</b>       | ORAL TEST   |
| <b>Teacher</b>             | GOMULSKI LUDVIK MARCUS - 3 ECTS   |
| <b>Prerequisites</b>       | =   |
| <b>Learning outcomes</b>   | =   |
| <b>Course contents</b>     | <p>Module 2. The course will describe, by means of theoretical lessons and practical laboratory sessions, the application of biochemical (MLEE) and molecular (RFLP, AFLP, rDNA, RAPD, scnDNA, SSR, mtDNA and SNPs) techniques to reveal genetic variability in animal populations. This genetic variability, deduced from DNA and protein polymorphisms, is the basis for different methodologies for the study of taxa at the systematic, population genetics and phylogenetic levels. The combination of different methods to detect variation and the use of appropriate statistical analyses provides an overview of the potentiality of such approaches in different fields of evolutionary and conservation biology.</p> |

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| <b>Teaching methods</b>                            | Lessons and Laboratory practicals                  |
| <b>Reccomended or required readings</b>            | Material and articles provided during the course   |
| <b>Assessment methods</b>                          | Written exam                                       |
| <b>Further information</b>                         | Written exam                                       |
| <b>Sustainable development goals - Agenda 2030</b> | <a href="#">\$lbl legenda sviluppo sostenibile</a> |