

| Main course information | |
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| Academic subject | Genetics |
| Degree course | Biology |
| Degree class | L-13 |
| ECTS credits (CFU) | 10 (9 CFU Lectures + 1 CFU workshop) |
| Compulsory attendance | Yes |
| Teaching language | Italian |
| Academic Year | 2019/2020 |

| Docente responsabile | |
|----------------------|-----------------------------------|
| Name & SURNAME | Clelia Tiziana Storlazzi |
| email | cleliatiziana.storlazzi@uniba.it |
| Tel. | 080-5443582 |
| Tutorial time/day | time/day on appointment by e-mail |

| Course details | Pass-fail exam/Exam with mark out of 30 | SSD code | Type of class |
|----------------|---|----------|------------------|
| | Exam with mark out of 30 | BIO/18 | Lecture/workshop |

| Teaching schedule | Year | Semester |
|-------------------|------|----------|
| | II | I |

| Modalità erogazione | CFU/ECTS | Lessons (hours) | CFU/ECTS lab | Lab hours | CFU/ECTS tutorial/workshop | Tutorial/workshop hours | CFU/ECTS field trip | Field trip Hours |
|---------------------|----------|-----------------|--------------|-----------|----------------------------|-------------------------|---------------------|------------------|
| | | 9 | 72 | - | - | 1 | 15 | - |

| Time management | Total hours | Teaching hours | Self-study hours |
|-----------------|-------------|----------------|------------------|
| | 250 | 87 | 164,5 |

| Academic Calendar | First lesson | Final lesson |
|-------------------|--------------|--------------|
| | October 2019 | January 2020 |

| Syllabus | |
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| Course entry requirements | |
| Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS) | |
| <i>Knowledge and understanding</i> | |
| <i>Applying knowledge and understanding</i> | Acquisition of theoretical and operational skills with reference to basic Genetics, in order to learn the molecular aspects, inheritance mechanisms and evolutionary aspects. These skills will be acquired thanks to the attendance of theoretical lessons, individual study and verification of their comprehension through 2 in-course tests and an oral examination. Students are required to attend workshops where they are invited to solve Genetics exercises by themselves under the supervision of the Professor, in order to guarantee the acquisition of methodological skills for the execution of Genetic analyses in model organisms. |
| <i>Making informed judgements and choices</i> | Acquisition of autonomy in areas related to the evaluation and interpretation of experimental data for the study of Genetics. |
| <i>Communicating knowledge and understanding</i> | Acquisition of the vocabulary and terminology related to Genetics to be able to understand any further information through a specific bibliography. |

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| Capacities to continue learning | Acquisition of the ability to investigate and read the evolution of the discipline with a critical spirit, through the consultation of texts and databases. |
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| Syllabus | |
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| Course content | <p>INTRODUCTION: Mitosis, meiosis, cell cycle with reference to variations in chromosome contents and quantity of DNA</p> <p>CYTOLOGICAL AND MOLECULAR MECHANISMS OF GENETIC INFORMATION TRANSMISSION: concept of genotype and phenotype, Mendel's laws, atypical Mendelian relations, complementation test, chromosomal basis of inheritance and sex determination, statistical analysis of genetic data: chi-square test, analysis of family trees, gene mapping eukaryotes in humans and <i>Drosophila</i>, Linkage analysis, genetic maps and interference, Gene mapping in <i>Neurospora crassa</i>: analysis of ordered tetrads, Physical maps, Genetics of bacteria (conjugation, transformation and transduction) and of bacteriophages (complementation and intragenic recombination), Molecular markers, the genetic material and its function. notes on DNA replication and structure, transcription and translation. Lac operon and its regulation, metabolic pathways. complementation and deletion maps. population genetics.</p> <p>CYTOGENETICS AND ELEMENTS OF HUMAN GENETICS: Chromosomal mutations of number and structure and their impact on gametogenesis, chromosomal non-disjunction</p> <p>MECHANISMS THAT GENERATE VARIABILITY IN THE EUKARYOTS: Definition of mutation, spontaneous and induced mutations, chemical and physical mutagens, notes on transposable elements, mutagenesis tests: CIB test and Ames test, identification of mutations.</p> |
| Course books/Bibliography | Genetica, P.J. Russel, Pearson editore; Principi di Genetica, Snustad-Simmons, EdiSES editore; A. Griffiths et al. GENETICA, Zanichelli editore. |
| Notes | Lecture Power Points (no lecture notes) are available as support to the study. |
| Teaching methods | Lectures with the use of PowerPoint; workshops at the blackboard. |
| Assessment methods (indicate at least the type written, oral, other) | Oral exam with a pre-assessment of the abilities to carry out the Genetics exercises by the student through in-course tests (not compulsory), evaluated by marking. In the case of failure of in-course tests, or in the event of insufficient evaluation, the assessment of the aforementioned skills will take place through the performance of written exercises that will precede the oral examination. |
| Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are) | The exam includes two tests concerning the performance of exercises throughout the course program. Failure to pass the tests (insufficient judgment) does not prevent the oral examination from taking place, even if the same must be preceded by the performance of exercises for which the student has previously shown methodological gaps. In the oral exam, the ability to answer basic theoretical questions will be evaluated and it is required to make connections with other disciplines since Genetics is a subject that requires interdisciplinary skills, without going into much detail of other disciplines. |
| Further information | |