
Testi del Syllabus

Resp. Did. **MANFIOLETTI GUIDALBERTO** **Matricola: 004082**

Docente **MANFIOLETTI GUIDALBERTO, 6 CFU**

Anno offerta: **2023/2024**

Insegnamento: **855SM - ESPRESSIONE GENICA**

Corso di studio: **SM53 - GENOMICA FUNZIONALE**

Anno regolamento: **2022**

CFU: **6**

Settore: **BIO/11**

Tipo Attività: **C - Affine/Integrativa**

Anno corso: **2**

Periodo: **Primo Semestre**

Sede: **TRIESTE**

Testi in italiano

Lingua insegnamento INGLESE

Contenuti (Dipl.Sup.) The course is organized in three parts:
I PART. One week intensive course on regulation of gene expression . The course is part of the Double Diploma programme with the University of Paris Cité (France).
II PART. 1. How a Scientific paper is organized. Several papers will be discussed in this section. 2. RNA analyses. Extraction, purification and analysis of RNA from eukaryotic cells. 3. Protein-DNA interactions.
III PART 1. Eukaryotic RNA polymerases and promoters. 2. Eukaryotic general transcription factors. 3. Eukaryotic transcriptional activators. 4. Chromatin structure and its effects on transcription. 5. Post-transcriptional processes.

Testi di riferimento R. Weaver - Molecular biology - McGraw-Hill. Selected scientific papers and other didactical material will be provided through the Moodle platform.

Obiettivi formativi D1. Knowledge and understanding: The obtained knowhow should extend knowledge previously obtained in bachelor's and master courses (molecular and cellular biology, epigenetic gene regulation, developmental biology) to provide an integrative view on how gene expression can be regulated in normal cell physiology and disease. After the end of the course, students should have the capacity to use the obtained information in order to formulate scientific questions and propose experimental approaches to study gene expression related topics in molecular biology.

D2: Applying knowledge and understanding: Students should be able to integrate the obtained knowledge obtained into a larger context. In

particular, a student should be able to use the general concept and general key-messages from the lecture program to propose solutions for unprecedented and interdisciplinary scientific questions.

D3: Making judgments: After the course a student should be able to manage the complexity of information related to regulation of gene expression. A student needs to individuate central corner stones in this field and be able to integrate this information to explain missing steps in the understanding of a biological pathway or system. In a situation with only fragmented availability of biological information, students should be able to logically expand this information by proposing gene expression related experimental strategies in order to obtain a more complete picture in the respective biological system.

D4: Communication skills: Students will communicate and discuss scientific topics to colleagues (Italian, French and other Countries as well) using different instruments (written and oral presentations). This will help students to learn to extract most relevant information and to scientific data to specialists but also non-specialists.

D5: Learning skills: Based on the obtained knowledge students have to demonstrate the ability to autonomously expand their knowledge in the field of the regulation of gene expression using the appropriate sources of information.

Prerequisiti

Basic concepts in Biochemistry, Molecular and cellular Biology.

Metodi didattici

Frontal lessons, seminars, poster presentations from students, seminars from students, teamwork, visits to scientific institutions.

Altre informazioni

Attendance is highly recommended. Students not able to attend the course should contact the teacher in advance.
Slides of the course, papers and protocols discussed during the course can be found at the Moodle website (password needed).

Modalità di verifica dell'apprendimento

The exam method is explained at the beginning of the course and is available in the introductory presentation to the course.
A written test is at the end of the "International workshop" (part I) and is the discussion of a scientific paper or questions with short answers or multiple choice related to the seminars. A poster presentation is organized in which students present their research activity (the topic of their internship or first level thesis).

Student presentations organized in groups of papers selected from topics present in part III. The last test is based on three open questions related to part II and III (look at the calendar of exams).

D1. Knowledge and understanding: The course has the aim to provide students with a detailed knowledge on the central processes of regulation of gene expression in eukaryotic cells at the transcriptional and post-transcriptional level. Topics will be addressed in the context of cell biology, development and disease to understand how dysregulation of gene expression can affect the normal development and physiological processes in adult cells leading to the development of different pathologies. The obtained knowhow should extend knowledge previously obtained in bachelor's and master courses (molecular and cellular biology, epigenetic gene regulation, developmental biology) to provide an integrative view on how gene expression can be regulated in normal cell physiology and disease. After the end of the course, students should have the capacity to use the obtained information in order to formulate scientific questions and propose experimental approaches to study gene expression related topics in molecular biology.

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Programma esteso

The course is organized in 3 parts:

I PART. One week intensive course on regulation of gene expression . The course is organized in seminars given by experts, professors of the University of Trieste, Udine, SISSA, ICGEB and visiting professors. The course (International workshop) is part of the Double Diploma programme with the University of Paris Cité (France). French students will be also present. The attendance is highly recommended.

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Obiettivi Agenda 2030 per lo sviluppo sostenibile

Obiettivi per lo sviluppo sostenibile

Codice	Descrizione
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Testi in inglese

	English
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