1. BASIC INFORMATION

Course	Cell Biology and Human Genetics
Degree Program	Degree in Dentistry
School	Facultad de Ciencias Biomédicas y Deporte
Year	1st
Credits (ECTS)	6 ECTS
Credit type	Basic
Language(s)	English and Spanish
Delivery mode	On campus
Semester	S1
Academic year	2025-2026
Coordinating professor	

2. PRESENTATION OF THE COURSE

In line with one of the University's core objectives, the comprehensive education of highly qualified professionals, the course Cell Biology and Human Genetics is presented as a fundamental and essential area of knowledge. Its purpose is to provide students with a solid understanding of the principles governing biological processes at the cellular and molecular levels, which are key to comprehending the development, function, and disorders of the human body under both physiological and pathological conditions.

Throughout the course, students will explore core concepts related to cell structure and function, as well as the mechanisms of genetic inheritance. This foundational knowledge is indispensable to the scientific training of future dentists, as it lays the groundwork for numerous clinical and biomedical subjects that will be covered in later stages of the degree program.

Moreover, the course promotes the development of critical thinking and analytical skills, which are essential for professional practice in dentistry and health sciences more broadly. For all these reasons, Cell Biology and Human Genetics serves not only as an introduction to the study of human biology, but also as a key educational tool for understanding the complexity of the human body from its most fundamental levels.

3. LEARNING OUTCOMES

Knowledge:

CON08. Understand the basic biomedical sciences on which dentistry is based to ensure correct oral-dental care.

Describe the biological, physiological and pathophysiological processes of the human body.

- Describe the basic biological processes of the human body.

- Describe the processes of protein synthesis and degradation.
- List the cellular components.
- State the processes of cell division and gametogenesis.
- Describe human genetics and diseases of genetic origin.

Skills:

HAB04. Knowing, critically assessing and knowing how to use clinical and biomedical information sources and critically assessing them in order to obtain, organize, interpret and communicate scientific and health information.

Competences:

CP02. Know the biomedical sciences on which dentistry is based in order to ensure correct oral and dental care. These sciences must include appropriate content in genetics, biochemistry, cellular and molecular biology.

CP70. Cooperate with others in the pursuit of a shared academic or professional goal, participating actively, empathetically and with active listening and respect for all members.

4. CONTENTS

The Contents of the course/module are listed below:

- Introduction to the study of cell biology.
- Plasma membrane, cytoskeleton, mitochondria and endomembrane system.
- Protein synthesis and degradation: ribosomes and proteasomes.
- The interphase nucleus. Cell division: mitosis. Gamete formation: meiosis.
- General aspects of human genetics. Techniques of analysis in human genetics.
- Mendelian and non-Mendelian inheritance. Monogenic, polygenic and multifactorial inheritance.

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Lecture.
- Case method.
- Problem-based learning.
- Learning based on workshop teaching.

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning activity	Number of hours
Lectures	40
Practical seminars	5

Case studies	10
Problem scenario	10
Report writing	7
Workshops/lab work	10
Independent working	60
Academic advising	6
In-person assessment tests	2
TOTAL	**150**

7. CONTINOUS ASSESSMENT

Each assessable learning activity represents an opportunity for the student to make progress, receive feedback, and consolidate knowledge, skills, and competences. The Learning Outcomes outlined in this guide provide direction for this process and serve as benchmarks for their achievement.

Listed below are the assessment systems used and the weight each one carries towards the final course/module grade:

Campus-based mode:

Assessment Systems	Weight (%)
In-person assessment tests	50-60%
Case study/problem scenario	10-25%
Written reports	5-10%
Performance assessment	10-30%

In the Virtual Campus, when you access the corresponding course/module you will find information regarding the evaluation systems, including the due dates and the procedures applicable to each of them.

7.1. First exam period

In order to pass the course/module in the ordinary call, the student must obtain a grade greater than or equal to 5.0 (out of 10), in all the evaluation systems proposed in this guide. The final grade will be calculated from the weighted average of all the evaluation systems described.

If in any of the evaluation systems proposed in this guide, a grade lower than 5.0 (out of 10) is obtained, the final grade of the course/module will be “fail” even if, in the result of the weighted average, a value higher than 5.0 (out of 10) is obtained. In the latter case, the course/module would still be “failed” obtaining a final grade of 4.0 (out of 10).

Delivery of activities

Compliance with deadlines is essential to ensure the fairness and planning of the training process.

In case of not submitting an evaluable formative activity in due time and form, and without prior justification, it will not be evaluated and, therefore, will be recorded as "not submitted".

The student is encouraged to communicate with sufficient time in advance to the teacher of the course/module, any difficulty that may affect their participation in any activity.

Attendance

Active participation in the training sessions is a key component of learning. In order to pass the course/module, at least 50% attendance is required. If this minimum percentage is not reached, the teacher may consider the course/module as "failed", according to the evaluation regulations of the Universidad Europea de Andalucía.

7.2. Second exam period

The extraordinary exam offers a new opportunity for students to demonstrate their learning. To pass it, it will be necessary to obtain a final grade (weighted average) equal to or higher than 5.0 (out of 10.0).

Delivery of activities

The student must submit and pass those mandatory training activities not delivered or not passed in the ordinary call, respecting the new deadlines established. In case of failure to comply with these new deadlines, the activity will not be evaluated and, therefore, will be recorded as "not presented".

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Date
In-person assessment tests	Dec 2025, Feb 2026
Case study/problem scenario	During the semester, deadlines will be specified in CANVAS
Written reports	Jan 2026
Performance assessment	Feb 2026

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. REFERENCES

The reference work for the follow-up of the course is:

- Cooper G.M. 2015. *La célula* (6ª edición). Editorial Marbán.
- Pierce, B. A. 2011. *Fundamentos de Genética: Conceptos y relaciones*. Editorial Panamericana.

Recommended references are listed below:

CELL BIOLOGY

- Lodish y cols. 2015. *Biología celular y molecular* (7ª edición). Editorial Médica Panamericana.
- B. Alberts y cols. 2010. *Biología Molecular de la Célula* (5ª edición). Editorial Omega.
- J. De Robertis. 2001. *Biología Celular y Molecular* (12ª edición). Editorial Buenos Aires, El Ateneo.
- Karp. 2009. Biología Celular y Molecular. Mcgraw-hill interamericana.

HUMAN GENETICS

- Passarge E. 2010. *Genética, Texto y Atlas* (3ª edición). Editorial Médica Panamericana.
- Lewin B. 2009. *Genes IX* (1ª edición). Mcgraw-Hill /Interamericana De Mexico.
- Griffiths y cols. 2008. *Genética* (9ª edición). Mcgraw-Hill Interamericana.
- Novo Villaverde FJ. 2006. *Génetica Humana. Conceptos, mecanismos y aplicaiones de la genética en el campo de la Biomedicina*. Editorial Pearson, Prentice Hall.
- Klug WS y cols. 2006. *Conceptos de genética* (8ª edición). Editorial Pearson, Prentice Hall.

OTHER ONLINE RESOURCES

- BioROM 2011: Ayudas a la enseñanza y el aprendizaje de la Bioquímica y Biología Molecular (Material multimedia en CD-ROM). Publicado por Sociedad Española de Bioquímica y Biología Molecular.
- http://www.ncbi.nlm.nih.gov/PubMed (U.S. National Library of Medicine) Plataforma con bases de datos científicos en el ámbito de las ciencias biomédicas de gran interés.
- http://www.dnalc.org/ (DNA Learning Center, Cold Spring Harbor Laboratory). Portal educativo de genética y biología molecular.

10. AREA OF GUIDANCE, DIVERSITY AND INCLUSION

The Area of Guidance, Diversity and Inclusion (ODI) offers support to students throughout their university career, with the aim of facilitating their academic and personal development and supporting them in achieving their goals. This Area focuses its work on three Core pillars: the inclusion of students with specific educational support needs, the promotion of universal accessibility in the educational community and the guarantee of equal opportunities for all.

Among the services offered are:

- **Academic accompaniment and monitoring**, through counselling and the development of personalised plans aimed at those who need to improve their academic performance.
- **Attention to diversity**, through the implementation of non-significant curricular adjustments - in methodological and Assessment aspects - for students with specific educational support needs, in order to guarantee equal opportunities.
- **Extracurricular training resources**, aimed at developing personal and professional Competencies that contribute to the integral growth of students.
- **Vocational guidance**, through the provision of tools and advice to those who have concerns about their choice of Degree or are considering a change in their educational path.

Students in need of educational support can contact the Area via the following email address: orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Participating in the Satisfaction Surveys is an enriching opportunity to contribute to the continuous improvement of the Degree as well as the institution. Thanks to them, it is possible to identify which aspects of academics, teaching staff and the teaching-learning process are working well and which can be further improved.

With the aim of encouraging active participation in the completion of surveys among students, various channels of dissemination have been set up. The surveys are available in the space provided on the Virtual Campus and are also sent by email to facilitate access.

The responses collected allow decisions to be made that have a direct impact on the quality of the learning experience and on the day-to-day life of the university community.