

POLI ESCOLA SUPERIOR SAÚDE TÉCNICO GUARDA	SUBJECT DESCRIPTION	MODELO PED.015.03
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Course	Pharmacy – 1 st cycle					
Subject	Biotechnology and New Therapeutic Systems					
Academic year	2023-2024	Curricular year	3rd	Study period	2nd semester	
Type of subject	Compulsory	Student workload (H)	Total: 54	Contact: T:15,TP:15, PL:5, S:7,5	ECTS	3,5
Professor(s)	Sónia Alexandra Pereira Miguel					
<input checked="" type="checkbox"/> Area/Group Coordinator <input type="checkbox"/> Head of Department		Sónia Alexandra Pereira Miguel				

PLANNED SUBJECT DESCRIPTION

1. LEARNING OBJECTIVES

The unit of Biotechnology and New Therapeutic Systems aims to:

1. Integration of basic knowledge in biotechnology techniques.
2. Recognize the mechanism and techniques associated with the production of compounds with biological activity.
3. Knowing the basis of cellular reprogramming and cell therapy.
4. Understanding the contribution of biotechnology in pharmaceutical development.
5. Understanding the importance of new therapeutic systems.
6. Update the knowledge in general methodology for the production of molecules with industrial interest, especially pharmacological through Biotechnology
7. Develop the ability to analyse scientific texts and explain the theoretical basis of practical problems.
8. Develop the capacity for self-learning, research and selection of adequate information.

2. PROGRAMME

1. Fundamentals of Biotechnology
2. Bioprocesses
3. Biomaterials
4. Cellular therapy
5. Tissue Engineering
6. Genetic Engineering
7. Pharmacogenetics
8. Systems for controlled drug release
9. Nanotechnology

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10. Safety and regulation in biotechnology

Laboratorial program

I. Production and characterization of (nano) and (micro)systems

II. Production and characterization of biomaterials

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

The programmatic contents that comprise the curricular unit will be in accordance and allowed the achievement of the aims proposed. The integration of knowledge during the program will be obtained through the analysis of scientific texts, the search and selection of adequate information as well as the necessary orientation developed by the professor for the auto-learning process, which allow the student to acquire the basic competences necessary to the development of his activity.

4. MAIN BIBLIOGRAPHY

- Miguel S.P., Ribeiro M.P., Coutinho P. (2021) Experimental Wound-Care Models: In Vitro/In Vivo Models and Recent Advances Based on Skin-on-a-Chip Models. In: Kumar P., Kothari V. (eds) Wound Healing Research. Springer, Singapore. https://doi.org/10.1007/978-981-16-2677-7_15
- Miguel, S. P., Ribeiro, M. P., & Coutinho, P. (2021). Biomedical Applications of Biodegradable Polymers in Wound Care. In In: Kumar P., Kothari V. (eds) Wound Healing Research. Springer, Singapore. https://link.springer.com/chapter/10.1007/978-981-16-2677-7_17
- Miguel, S., Ribeiro, M.P. e Correia, I.J. (2014) "Development of a novel hydrogel for skin regeneration", LAP LAMBERT Academic Publishing.

Biotecnologia: Fundamentos e aplicações. Coordenação: Nelson Lima e Manuel Mota. Lidel-Edições Técnicas, Lda., 2003;

Molecular Biotechnology, B.R.Glick, J.J.Pasternak. ASM Press, Washington, D.C., 2003;

Pharmaceutical Biotechnology. D.J.A. Crommelin, R.D.Sindelar (Eds).Routledge Taylor & Francis, London, UK, 2002;

Biotechnology: An Introduction. S.R.Barnum,Thomson Brooks/Cole, UK, 2005

Stem Cells Handbook, S.Stewart, Humana Press, Totowa, N.J., 2004;

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

The teaching learning process of this curricular unit will be focused on the student, and consequently, the lessons will be developed as theoretical, theoretical-practical, tutorials and seminars.

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The course unit will be passed with a final grade of at least ten on a scale of zero to twenty (0-20). Failure to pass the course will result in an examination, at the times set for this purpose, of all the syllabus content.

Continuous assessment:

It consists of a written test on the content taught in lectures (60%), which will be complemented by group work and group activities proposed during TP classes (30%) and a report on laboratory activities (10%). The assessment result will be expressed on a scale of 0 to 20. Students with a special status, namely student-worker status, benefit from an adapted assessment system, including the possibility of replacing group work in TP classes with individual work, and pedagogical support at a specific time adapted to the student-worker condition.

Final assessment:

Failure to pass continuous assessment (grade <9.5) will result in an exam (0 to 20 points), at the times scheduled for this purpose, on all the syllabus content. The final mark is calculated taking into account the exam result (60 per cent) and the assessment of the PTs and practical component (40 per cent).

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

The methods provided will be consistent with the purpose of the curricular unit.

In theoretical classes, the expository method will be used and promoted by applying the technique of questions and answers, judiciously applied. The students will be having access to all the educational material used (presentations, diagrams, pictures and videos) for each syllabus.

In theoretical-practical classes, the autonomous and the work group will be stimulated through systematic discussion of specific issues or problem solving. Seminars and tutorials class will be intended for the preparation and presentation of the group work. Tutorials classes allowed the teacher to work with students in order to guide and support their individual and group study.

7. ATTENDANCE

75% attendance on Theoretical Practice classes is mandatory to perform continuous assessment.

100% attendance on Laboratory Practice classes is mandatory for approval to the course

8. CONTACTS AND OFFICE HOURS

Sónia Miguel (spmiguel@ipg.pt), Gabinete 16

Office hours: Tuesday (10:00-12:00) and Thursday (14:00-16:00)

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DATE

8 de março de 2024

SIGNATURES

Professor

(signature)

Area/Group Coordinator

(signature)