

GUÍA DOCENTE

CURSO 2016-2017

1. DESCRIPCIÓN DE LA ASIGNATURA

Grado:	Biología
Doble Grado:	
Asignatura:	REPRODUCTIVE TECHNOLOGY AND GENE THERAPY
Módulo:	
Departamento:	Biología Molecular e Ingeniería Química
Año académico:	2016-2017
Semestre:	First Semester
Créditos totales:	6
Curso:	3 rd
Carácter:	Optative
Lengua de impartición:	English

Modelo de docencia:	C1	
a. Enseñanzas Básicas (EB):		50%
b. Enseñanzas de Prácticas y Desarrollo (EPD):		50%
c. Actividades Dirigidas (AD):		

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2. RESPONSABLE DE LA ASIGNATURA

Responsable de la asignatura	
Nombre:	Manuel Fernández Sánchez
Centro:	Universidad Pablo de Olavide
Departamento:	Biología Molecular e Ingeniería Bioquímica
Área:	Genética
Categoría:	Profesor sustituto interino
Horario de tutorías:	
Número de despacho:	
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3. UBICACIÓN EN EL PLAN FORMATIVO

3.1. Descripción de los objetivos

To achieve Knowledge regarding:

- Human Reproduction Physiology
- Male infertility
- Female infertility
- Assisted Reproductive Technique
- New perspectives in Human Infertility prevention
- Stem Cells and Gene Therapy Advances

3.2. Aportaciones al plan formativo.

The global approach of Human infertility and Assisted Reproductive Techniques is one of the most dynamic and influent fields of medicine, biomedicine, biotechnology and biology nowadays.

This subject will allow the student to have a global vision of this and to have the opportunity to reach specialized knowledge about a potential area of future development for a professional career.

3.3. Recomendaciones o conocimientos previos requeridos

This subject doesn't require a concrete previous knowledge apart from the curriculum acquired during the grade.

It would be useful to review subjects as Genetics, Embryology and Physiology.
An English language level enough to understand and to read is required.

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4. COMPETENCIAS

4.1 Competencias de la Titulación que se desarrollan en la asignatura

To understand and to practice the scientific method.

To acquire criticism to select and to discriminate the huge quantity of information existing in the scientific literature, pub med, Wikipedia, internet, etc

To acquire knowledges enough to be able to introduce the basic way of working of an in vitro fertilization and andrology laboratory.

4.2. Competencias del Módulo que se desarrollan en la asignatura

The optativity allows to select different options for specialization and to generate specific curriculum.

4.3. Competencias particulares de la asignatura

- Capability to understand and to use the specific scientific language regarding physiology of human fertility causes of human infertility and different treatments to solve and to prevent this relevant problem in modern societies.
- Capability to discriminate the scientific literature regarding this field.
- Capability to know and to asses about the prevention of human infertility, as gamete preservation, etc.

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5. CONTENIDOS DE LA ASIGNATURA (TEMARIO)

INTRODUCTION

Lesson 1. Introduction

PART I: MALE FACTOR

Lesson 2. Spermiogenesis

Lesson 3. Male Infertility and Spermogram I

Lesson 4 & 5. Male Infertility and Spermogram II & III

PART II: FEMALE FACTOR

Lesson 6. Follicle-genesis I. Introduction

Lesson 7. Follicle-genesis II.

Lesson 8. Female Infertility I & II.

Lesson 9 & 10. Female Infertility III

Lesson 11. Controlled Ovarian Stimulation (COS) I & IUI

Lesson 12. COS II

Lesson 13. COS III

PART III: IN VITRO FERTILIZATION (IVF) LABORATORY

Lesson 14. IVF Laboratory and Culture Media

Lesson 15. Embryo Development I.

Lesson 16. Embryo Development II.

Lesson 17. Intra-Cytoplasmic Sperm Injection (ICSI).

Lesson 18 & 19: Pre-Genetic Screening (PGS) & Pre-Genetic Diagnose (PGD)

Lesson 20 & 21. Gamete Cryopreservation and Gamete Donation

PART IV: GENE THERAPY, STEM CELLS AND THE FUTURE OF ART.

Lesson 22. The future of ART

Lesson 23. Gene Therapy and Bioengineering.

Lesson 24. Stem Cells.

6. METODOLOGÍA Y RECURSOS



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- Theory Lectures: Interactive lectures driven by the professor. The most relevant concepts, classifications, mechanisms, etc, will be analyzed with the active participation of the students.
- Laboratory Sessions: They will take place with a maximal of 20 students per group.
 - The laboratory sessions will be evaluated throughout test questions. To assist to the lab sessions is highly recommended but not mandatory.

STUDENT'S WORKS

During the course, the students are proposed to introduce and publically expose one or more works related to the content of the subject, individually or in groups of 2 or a maximal of 3 students.

This work may consist on a paper's review and critic comment, or original work.

In case of being exposed by a team, every member will have to expose in a proportional part.

RECURSOS

The presential lectures, and the blackboard will be the main channel of communication with the teacher.

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7. EVALUACIÓN

TEST QUESTIONS

A Test questions exam will take place at the end of the Theory Lectures. The course will be evaluated according to the next punctuation:

- ▶ < 50 points: not passed
- ▶ 50 - 69 points: passed
- ▶ 70 - 89 puntos: Notable
- ▶ ≥ 90 puntos: Sobresaliente.
- ▶

It is possible to obtain more than 100 points.

The potential “Honor Qualification” will require at least 90 points.

STUDENT’S WORK

- ▶ The work will be evaluated up to 5 points and the public exposition, and up to 5 points for every student.
- ▶ It is mandatory to obtain at least 2 points in each part.
- ▶ The maximal punctuation that can be achieved is, therefore, 10 points per student.

EXTRA POINTS

The proactive attitude in the classroom and a proper interactive participation of the students will be positively evaluated by the teacher and extra points can be achieved during the whole course.

8. BIBLIOGRAFÍA GENERAL

There is not a book including the whole contain of the subject. In fact, to acquire the competences to obtain proper scientific information from the huge quantity of material available in internet, PubMed, Scientific Journals, etc, is part of the skills



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that will be developed and evaluated.

The main part of the contain will be exposed and discussed during the lectures