New Developments in Cytogenetics and Biology of Reproduction

Code: 42941
ECTS Credits: 6

<table>
<thead>
<tr>
<th>Degree</th>
<th>Type</th>
<th>Year</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>4313782 Cytogenetics and Reproductive Biology</td>
<td>OB</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Contact

Name: Ignasi Roig Navarro
Email: Ignasi.Roig@uab.cat

Use of languages

Principal working language: catalan (cat)

Prerequisites

The same prerequisites for admission to the Master

Objectives and Contextualisation

This is a compulsory course that aims to introduce the latest concepts and methodologies related to the fields of cytogenetics and reproductive biology for all students taking the Masters in Cytogenetics and Reproductive Biology.

The specific goals of the course are:

1.-Understand the structure, regulation and organisation of the mammalian genome.

2.-Understand the process of differentiation and interaction of mammalian gametes that leads to the formation of an embryo.

Skills

- Apply the scientific method and critical reasoning to problem solving.
- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Continue the learning process, to a large extent autonomously.
- Identify the cellular and molecular bases of human pathologies linked to chromosome anomalies.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Recognise the cellular and molecular bases of reproduction in mammals.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
- Use and manage bibliography or ICT resources in the master's programme, in one's first language and in English.

Learning outcomes

1. Apply the scientific method and critical reasoning to problem solving.
2. Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
3. Continue the learning process, to a large extent autonomously.
4. Describe the cellular and molecular processes of fertilisation and pre-implantation embryo development.
5. Describe the epigenetic regulation that conditions the function of centromeres and telomeres.
6. Describe the structure, dynamics and morphology of the eukaryote chromosome at any stage of the cell cycle and during meiosis.
7. Identify chromosome anomalies, understand the mechanisms that cause them and determine the risk of transmission to offspring.
8. Identify the cellular and molecular bases of human spermatogenesis and ovogenesis.
9. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
10. Recognise the fundamental role of immunology in human reproduction
11. Recognise the influence of chromatin fibre in gene expression.
12. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
13. Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
14. Use and manage bibliography or ICT resources in the master's programme, in one's first language and in English.

Content


Methodology

The contents of this course include lectures, taught by academics and / or professionals, which will encourage student participation.

Activities

<table>
<thead>
<tr>
<th>Title</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>32</td>
<td>1.28</td>
<td>4, 6, 7, 8, 9, 12, 3, 10, 11, 14</td>
</tr>
<tr>
<td>Study</td>
<td>104</td>
<td>4.16</td>
<td>4, 6, 5, 7, 8, 9, 3, 10, 11, 14</td>
</tr>
</tbody>
</table>

Evaluation

The skills of this course will be evaluated in two sections:

1.-Written test (80% of grade): two multiple-choice test will evaluate the knowledge acquired by each student. The mark obtained in each test will represent 40% of the final mark. These tests will be performed at the end of the program contents.
Participation in class (20% of grade): An evaluation of student participation during lectures in the debates raised by teachers will be performed.

In case of obtaining less than a 5 in the final grade, a multiple-choice exam will be carried out.

Evaluation activities

<table>
<thead>
<tr>
<th>Title</th>
<th>Weighting</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in the classroom</td>
<td>20%</td>
<td>10</td>
<td>0.4</td>
<td>1, 9, 12, 2, 13, 14</td>
</tr>
<tr>
<td>Written test</td>
<td>80%</td>
<td>4</td>
<td>0.16</td>
<td>1, 4, 6, 5, 7, 8, 9, 12, 3, 10, 11, 13, 14</td>
</tr>
</tbody>
</table>

Bibliography


Editorial i articles inclosos a Mol Hum Reprod. 2010. 16 (1):1-56


The Nucleus. Edited by Tom Misteli, National Cancer Institute/National Institutes of Health; David L. Spector, Cold Spring Harbor Laboratory. Cold Spring Harbor Laboratory Press


