Universidad Zaragoza

Year : 2019/20

66023 - Advanced immunology

Syllabus Information

Academic Year: 2019/20
Subject: 66023 - Advanced immunology
Faculty / School: 100 - Facultad de Ciencias
Degree: 537 - Master's in Molecular and Cellular Biology
ECTS: 6.0
Year: 1
Semester: First semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

The main aim of the subject is to expand the immunological knowledge of students, mainly about
mechanisms by which the immune system prevents pathologies, especially infectious, or patholog
related to failures in the immune system. Moreover the students will get practical content to
the Immunology Service of a Hospital, so that the students get up-to-date with the techniques

With the theoretical and practical classes the students will acquire the basic knowledge and s
The students will put into practice the knowledge acquired with their personal work and the pr

communication skills.

1.2.Context and importance of this course in the degree

This subject is one of the optional subjects that the University Master in Molecular and Cellu

1.3.Recommendations to take this course

Basic training in Immunology is recommended

2.Learning goals

2.1.Competences

After this course, the student will be more competent to
- Work in the Immunology service of a Hospital or in Any entity related to Immunology at the c

- Search and analyze specific information related to Immunology issues
- Make presentations and exhibitions of topics related to Immunology at a higher level

2.2.Learning goals

The student must demonstrate the following results

Predict and describe in detail the most important immune mechanisms in the eradication of infe
Assess the effectiveness of different types of existing vaccines or others that may occur in t
Interpret the results and possibilities of current and future cancer immunotherapy treatments
Interpret the symptoms of diseases due to failures in the immune system, explain them accordi
Solve specific problems related to the diagnostic procedures that are carried out in a regular
Present and exhibit works related to the subject done individually.

2.3.Importance of learning goals

Motivation and relevance of the objectives and competences of ths subject.

Immunology is a biological science that is in full expansion, both at the level of analytical immunochemical methods, as at the conceptual level, with applications of the advances achieved transplants, cancer immunotherapy, the treatment of autoimmune diseases or immunodeficiencies.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

1. Attendance and active participation: 20% of the mark

2. Problem solving in problem classes: 20% of the mark

3. Presentation and exhibition of a seminar: 60% of the mark

The works will deal with a subject related to the subject, which each student will specify with the teacher. The teacher will supervise the student's personal work, guiding the search of information and in its evaluation. The work will be presented and discussed in class. At the time of the exhibition, the student will provide a script of the talk of no more than 2 pages in length

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process that is designed for this course is based on the following: This course is scheduled to start with theoretical contents to finish with an eminently practical and applied orientation. It is intended for students to be able to apply the theoretical and practical knowledge they have acquired in the course.

4.2.Learning tasks

The course includes the following learning tasks:

1. Lectures. 30 hours. Basic theoretical knowledge of the course is presented to the students, using PowerPoint presentations and web resources.

2. Problems and cases clases. 10 hours.

3. Visit, exhibition and learning of the techniques used in an Immunology Servie at a Hospital. 8 hours

4. Preparation and public exposition of a seminar. 12 hours. In this activity, students collect information on a particular topic, helped by the teacher. The analysis of information should lead to the development of a seminar, which will be presented and discussed in the classroom.

4.3.Syllabus

The course will address the following topics:

1. Lectures

SECTION I. UPDATE

Topic 1. Update on integration and regulation of the immune response.

SECTION II. MOLECULAR AND CELLULAR MECHANISMS OF DISEASE PREVENTION BY THE IMMUNE SYSTEM

Topic 2. Immunity against bacteria.

Topic 3. Immunity against viruses.

Topic 4. Vaccines.

Topic 5. Immunity against parasites.

Topic 6. Immunity against cancer. 1. Tumor Immunology.

Topic 7. Immunity against cancer. 2. Cancer immunotherapy.

SECTION III. DISEASES RELATED WITH THE IMMUNE SYSTEM

Topic 8. Organ transplantation and immune rejection.

Topic 9. Autoimmune diseases.

Topic 10. Primary Immunodeficiencies.

Topic 11. AIDS.

Topic 12. Hypersensitivity reactions. Allergies.

2. Practice sessions

- Routine immunological exploration
- HLA typing for transplants
- AIDS diagnostic
- Primay immunodeficiencies diagnostic

4.4.Course planning and calendar

Further information concerning the timetable, classroom, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Faculty of Science website.

Practice sessions' calendar, as well as seminars lead by students shall be notified in class and posted in the virtual platform ADD.

4.5.Bibliography and recommended resources

- Murphy, Kenneth. Janeway's immunobiology / Kenneth Murphy, Paul Travers, Mark Walport; with contributions by, Michael Ehrenstein ... [et al.]. - 7th ed. New York : Garland Science, cop. 2008
- Abbas, Abul K.. Inmunología celular y molecular / Abul K. Abbas, Andrew H. Lichtman, Shiv Pillai ; [revisión, Juan Manuel Igea Aznar] . - 6ª ed., [reimp.] Barcelona [etc.] : Elsevier, D.L. 2009