

68403 - Medical research models

Información del Plan Docente

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| Academic Year | 2016/17 |
| Academic center | 104 - Facultad de Medicina |
| Degree | 530 - Master's in Introduction to Medical Research |
| ECTS | 6.0 |
| Course | 1 |
| Period | Indeterminate |
| Subject Type | Compulsory |
| Module | --- |

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The learning process is designed based on:

The quantity of student and the available resources for the correct learning development .

Defining and categorizing clinical and basic research models is an important part of the program. The best way to explain these models to students is by a structured exposition of the different characteristics of each model, followed by experts lectures who work in that fields.

During the course, the students must prepare a small scientific project helped by a workshop of biomedical scientific projects.

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5.2.Learning activities

The program offers the student the following activities to help them achieve the expected results:

Program lessons and lectures

First part:

From Basic research to clinical research in medicine

Types of study in medical research in Medicine. Which is the most appropriated method to every research?

Experimental animal models. legal and ethical considerations.

Ex-vivo models of research: isolated organs and tissues

Cell cultures. Methodology. primary cultures. continuous cell lines. Advantages and disadvantages of experimentation based on cell cultures.

Genetic analysis: direct and Indirect techniques. Addressing complex pathologies

The molecular revolution recombinant DNA technology.

High performance techniques: genomics, transcriptomics, proteomics, metabolomics and phosphoproteomics

Expression systems of Heterologous protein

Genetically modified organisms for biomedical research

Antibodies; production and applications in biomedical research

Integration models. Bioinformatics. Systems biology.

Lectures

animal models in oncology research

Models on aging research

Lange Syndrome Research as a model for rare diseases.

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Utilities of flow cytometry in Medical Research

Molecular basis of hypertension

Second part

Clinical Research Models

The clinical trial as a model of medical research

Ethics in clinical trial

Research models of evidence-based therapeutic

Models of post-authorization studies

Third part

Design of a research project

I have a question / idea I would like to investigate

What means have to develop this project?

How do I manage to acquire help for my project

How do I budget my project?

How do I design / submit my project?

Practical exercise

The student must design a research project containing the following points:

Background: historical review of the conducted studies and resolved issues. Description of the methods used in the past to identify the causes and pathophysiological mechanisms of that disease

Current status of the topic: description of the problem. Unresolved issues. Description of the methods that are being used in the most recent work investigating the causes or pathophysiological mechanisms of that disease

Enumeration approach of specific hypotheses and research objectives

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Proposed Method or experiment that could resolve outstanding issues on the chosen disease. Writing the Materials and Methods section of the research project.

List the information sources according to standard rules for scientific publication.

Informatic tools will be provided from the University of Zaragoza library

5.3.Program

The learning activities scheduled in the program will be available in the digital platform before the beginning of the course.

5.4.Planning and scheduling

Scheduled sessions and presentation of works

Timetable

Hours: Monday to Thursday / From 16 to 20 H .:

Days: 21th,22th, 23th, 24th, 28th, 29th, 30th November and 1st and 2nd (Friday) December.

Presentation of the draft project before December 2nd

Short answer exam on December 2nd

Informatic tools

Online Page of the course in then Digital platform of the University of Zaragoza

This page will include detaled information about the subject (objectives, program and evaluation system)provide a

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It will be provide a communication system between students and teachers.

The page will allow an easy way to submit evaluable activities of the course.

5.5.Bibliography and recomended resources

Conn, P. Michael.. Totowa, N.J Sourcebook of Models for Biomedical Research

Springer Science & Business Media, 2008

ISBN: 1597452858, 9781597452854

Argimón JM, Jimenez J. Métodos para la investigación clinica y epidemiologica. 3ª ed.
Elsevier España; 2004.

Crawford, R.L.; Allen, T.. In: Sourcebook of models for biomedical research / edited by
P. Michael Conn; Totowa, N.J. : London : Humana Press ; Springer [distributor], 2008.,