

BASIC DETAILS:

Subject:	INVESTIGACIÓN SANITARIA		
Id.:	30392		
Programme:	GRADUADO EN FISIOTERAPIA. PLAN 2009 (BOE 15/10/2011)		
Module:	ENTORNO MEDICO, CIENTIFICO Y SOCIAL		
Subject type:	OBLIGATORIA		
Year:	4	Teaching period:	Segundo Cuatrimestre
Credits:	6	Total hours:	150
Classroom activities:	56	Individual study:	94
Main teaching language:	Inglés	Secondary teaching language:	Inglés
Lecturer:		Email:	

PRESENTATION:

The main goal of Health Research subject is to provide students with the principal and necessary skills **to do a critical appraisal about physiotherapy research** in the future. In addition, students will be learn about how to design, develop and perform a research project and spread their results. Thanks to this knowledge, evidence based physiotherapy may be used as a powerful tool in future clinical decision-making and strengthen research activity in the field of Physiotherapy.

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

General programme competences	G01	Ability to analyse and summarise information from several sources with the aim of providing effective physiotherapy care based on the primary treatment of the patients/ users.
	G02	Solve problems that arise day-to-day both creatively and efficiently, in order to ensure the highest levels of quality of professional work.
	G04	Use of information and communication technologies to meet the needs of patients/ clients and for the design, application and evaluation of treatments.
	G09	Ability to come up with new ideas (creativity).
	G10	Ability to incorporate scientific research and evidence-based practice as a professional culture in physiotherapy, updating knowledge and skills continuously.
	G11	Ability to develop learning strategies throughout life to be able to acquire new knowledge, by developing their own academic and professional career path.
	G14	Ability to establish and meet the the most appropriate quality criteria and apply methodologies and work strategies geared towards continuous improvement.
Specific programme competences	E15	Identify the concept, evolution and fundamentals of physiotherapy in its scientific and professional aspects.
Regulated profession competences	P17	Understand the importance of updating the knowledge, skills, abilities and attitudes that make up the professional competencies of the physiotherapist.
Learning outcomes	R01	Identificar e interpretar los principales conceptos metodológicos en investigación para posibilitar la elaboración/ generación de opiniones críticas, basadas en la evidencia, de las diferentes áreas de fisioterapia
	R02	Implementar/ aplicar los conocimientos previos de bioestadística y búsqueda bibliográfica para la elaboración, interpretación y discusión de artículos científicos
	R03	Averiguar y conocer la evidencia científica actual de los principales tratamientos de fisioterapia de las diferentes áreas de actuación
	R04	Difundir correctamente los resultados de un estudio/ proyecto de investigación en el ámbito científico, así como conocer el procedimiento correcto para solicitar adecuadamente subvenciones económicas para el desarrollo de un proyecto de investigación
	R05	Formar parte activa de grupos de trabajos diferentes, aportando ideas individuales sobre las temáticas planteadas, que serán respetadas pero discutidas y criticadas por el resto de sus compañeros.

PRE-REQUISITES:

It is recommended:

1. Basic knowledge of the main statistical test frequently used **and their clinical interpretation.**
2. An intermediate English level (B1) to ensure effective understanding and learning.
3. Basic knowledge of search strategies for physiotherapy topics in health research.

SUBJECT PROGRAMME:

Observations:

The subject program will be divided into different units. The first one (block 2) will be a theoretical unit which is aimed at teaching the principles of research methodology (i.e., hypothesis testing, different study designs, precision and validity principles). Moreover, students will obtain enough information to explain and spread clinical scientific knowledge thanks to the second unit, including essential concepts related to writing abstracts and manuscripts (block 4). Qualitative research methods will be teaching in the third unit (block 5). Finally, there will be activities focus on having class discussions on different recently published papers (block 3 and 6).

Subject contents:

1 - INTRODUCTION UNIT: SUBJECT PRESENTATION
1.1 - PRESENTATION: Planning and activities
2 - EXTENSION RESEARCH METHODOLOGY
2.1 - HYPOTHESIS TESTING
2.1.1 - Type I and II errors. Power
2.2 - STUDY DESIGNS
2.2.1 - Descriptive designs
2.2.2 - Analytical designs
2.2.3 - Choosing the appropriate study design
2.3 - PRECISION (RELIABILITY) AND VALIDITY (ACCURACY)
2.3.1 - Precision: random errors
2.3.2 - Sample size calculation for randomised controlled trial
2.3.3 - Internal validity: systematic errors
3 - JOURNAL CLUB ACTIVITY (Major Comments)
3.1 - Physical Therapy in Neuromusculoskeletal dysfunction
3.2 - Respiratory and Cardiac Rehabilitation
3.3 - Neurological Rehabilitation
3.4 - Physical Therapy in Cardiovascular disorders
3.5 - Paediatric Physiotherapy
4 - SPREAD OF CLINICAL SCIENTIFIC KNOWLEDGE
4.1 - SCIENTIFIC ARTICLE
4.1.1 - Step 2: How can I explain the results?
4.1.2 - Step 1: Writing a research paper.
4.1.3 - Step 3: Peer review: minor comments
4.2 - PUBLIC PRESENTATION
4.2.1 - Poster-discussion session
5 - QUANTITATIVE RESEARCH vs. QUALITATIVE RESEARCH
5.1 - Qualitative Research Methods
6 - EVIDENCE BASED PHYSIOTHERAPY PRACTICE
6.1 - Physical Therapy in Nueromusculoskeletal dysfunction
6.2 - Respiratory and Cardiac Rehabilitation
6.3 - Neurological Rehabilitation
6.4 - Physical Therapy in Cardiovascular disorders
6.5 - Paediatric Physiotherapy

Subject planning could be modified due unforeseen circumstances (group performance, availability of resources, changes to academic calendar etc.) and should not, therefore, be considered to be definitive.

TEACHING AND LEARNING METHODOLOGIES AND ACTIVITIES:

Teaching and learning methodologies and activities applied:

In this subject, students have the leading role in their learning, and the role of teachers is only to facilitate the choice and the use of the correct learning tools. Both aspects enable students to acquire and internalize knowledge independently.

In order to achieve this, the teaching and learning methodologies consist of the following:

- **Demonstration teaching method** Problem solving and practical case. Critical appraisal of the data in published research related to physiotherapy topics. Identify reliable online resources in order to provide update scientific knowledge based on scientific evidence.
- **Expository teaching method** Theoretical lesson teaching through masterclass
- **Tutorials** Voluntary: individual or group

Student work load:

Teaching mode	Teaching methods	Estimated hours
Classroom activities	Master classes	3
	Other theory activities	3
	Practical exercises	10
	Practical work, exercises, problem-solving etc.	10
	Debates	15
	Coursework presentations	8
	Films, videos, documentaries etc.	5
	Assessment activities	2
Individual study	Tutorials	2
	Individual study	22
	Individual coursework preparation	8
	Group coursework preparation	18
	Research work	16
	Compulsory reading	16
	Recommended reading	4
	Other individual study activities	8
Total hours:		150

ASSESSMENT SCHEME:

Calculation of final mark:

Written tests:	10 %
Individual coursework:	10 %
Group coursework:	45 %
Final exam:	35 %
TOTAL	100 %

*Las observaciones específicas sobre el sistema de evaluación serán comunicadas por escrito a los alumnos al inicio de la materia.

BIBLIOGRAPHY AND DOCUMENTATION:

Basic bibliography:

THOMAS S.A. How to write health sciences papers, dissertations and theses. Churchill Livingstone, reim. 2005.
DAY R.A. How to write and publish a scientific paper. Cambridge University Press, 2012.
ALVAREZ CACERES R. El método científico en ciencias de la salud: las bases de la investigación biomédica. Diaz de Santos, D.L. 1996

ALVAREZ CACERES, R. Ensayos clínicos: diseño, análisis e interpretación. Diaz de Santos, D.L. 2005
ARGIMON PALLAS J.M, JIMENEZ VILLA J. Métodos de investigación clínica y epidemiológica. Elsevier. 2000
FLETCHER R.H. FLETCHER S.W. Epidemiología clínica. Wolters Kluwer, cop. 2008.
HERBER R. Practical evidence-based physiotherapy. Elsevier 2011
JIMENEZ VILLA J.; ARGIMON PALLÁS J.M.; MARTIN ZURRO A.; VILARDELL TARRÉS M. Publicación científica biomédica. Como escribir y publicar un artículo de investigación. Elsevier, 2010.
POLITE D.F.; HUNGLER B.P.; Investigación científica en Ciencias de la Salud. Mc-Graw Hill Interamericana. 2000
HERNADEZ AVILA M. Epidemiología: diseño y análisis. Medica Panamerica. 2007

Recommended bibliography:

FIELD A.P. Discovering statistics using IBM SPSS statistics: (and sex, drugs and rock'n'roll). Sage Publications, 2009.
ARMITAGE P. Statistical methods in medical research. Blackwell Science, cop. 2002.
ALVAREZ CACERES R. Estadística aplicada a las ciencias de la salud. Diaz de Santos, D.L. 2007

Recommended websites:

BIBLIOTECA COCHRANE PLUS	http://www.bibliotecacochrane.com/
CASPe	http://www.redcaspe.org
CLINICAL TRIAL	http://www.clinicaltrials.gov/
ENFISPO	http://alfama.sim.ucm.es/isishtm/Enfispo.asp
FISTERRA	http://www.fisterra.com/formacion/metodologia-investigacion/
INSTITUTO ARAGONES DE LAS CIENCIAS DE LA SALUD	http://www.iacs.aragon.es/awgc/contenido.busquedapredefinidas.do?idBusqueda=biblioteca
Physiotherapy Evidence Based. PEDRo	http://www.pedro.org.au
PUBMED	http://www.ncbi.nlm.nih.gov/pubmed
SCIELO	http://www.scielo.cl/
WEB OF KNOWLEDGE (WOK)	http://www.accesowok.fecyt.es/

* Guía Docente sujeta a modificaciones