



**UCAM**  
UNIVERSIDAD  
CATÓLICA DE MURCIA

# Guía Docente 2018/2019

## Bibliographic Searching and Analysis

*Búsqueda y análisis bibliográfico*

Master's in High Performance Sport: Strength and  
Conditioning

Mode: Semi-presencial

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## Bibliographic Searching and Analysis

Module: I.

Subject matter: **Research Methodology.**

Requisite: **Mandatory.**

Nº of credits: **2.**

Academic term: **1st semester**

Professors: **Dr. Pedro Alcaraz and Dra. Linda Chung**

Email: **palcaraz@ucam.edu / lhchung@ucam.edu**

Office hours: **by appointment via email**

Coordinator: **Dra. Linda Chung**

## Brief Description

The main objective of this course is that students acquire the skills to search, analyze and cite scientific information, in order to carry out their own scientific text. Thus, the main databases to acquire library materials are taught, as well as leading indexes to measure the quality impact score of such documents. In addition, students acquire the ability to cite their work in a scientific manner using normative standards such as Vancouver or Harvard citation, as well as database management to set these citations (EndNote, RefWorks and Zotero).

## Breve descripción del módulo

Esta materia tiene como principal objetivo que el alumno adquiera las habilidades para buscar, analizar y citar información científica y poder llevar acabo de manera automática un trabajo de investigación de posgrado. Para ello, a lo largo de la materia se enseñan las principales bases de datos para adquirir material bibliográfico, así como los principales índices de impacto para medir la calidad de dichos documentos. Además, el alumno podrá adquirir la habilidad de citar de manera científica sus trabajos utilizando normas de citación como Vancouver o Harvard, así como gestionar bases de datos para configurar las citas bibliográficas (EndNote, Refworks y Zotero).

## Pre-requisites

None.

## Objectives

1. Establish the necessary bases so that student is able to independently address all phases of scientific research. Specifically, special attention is given to enable students to search and analyze academic information, as well as acquire the ability to scientifically cite articles and research in their own research works.

The specific objectives to be acquired are:

1. Acquire the capacity to perform a search of scientific information.
2. Acquire the capacity to interpret and analyze scientific documents.
3. Analyze the characteristics of the measurements and instrumentation in science.
4. Know the main catalogs and databases to find relevant information for research, including the doctoral thesis.
5. Evaluate the quality of the bibliographical sources using quality criteria established by organizations in relevant institutions.
6. Learn to cite bibliographic references following the standards of style set by the area of Social Sciences (Harvard Model).
7. Learn and manage databases to configure citations (*EndNote, Refworks, and Zotero*).

## Competencies and Learning Outcomes

**MECES1:** Students will know how to apply the acquired knowledge and have the capacity to problem solve in new or unfamiliar settings within broader (or multidisciplinary) contexts related to their field of study.

**MECES2:** Students will be able to integrate knowledge and handle the complexity of formulating judgment based on information that may be incomplete or limited, including reflections on social and ethical responsibilities linked to the application of their knowledge and judgment.

**MECES3:** Students will know how to communicate their conclusions (and the knowledge and rationale underpinning them) to the public (specialists and non-specialists) in a clear and unambiguous manner.

**MECES4:** Students will possess learning skills that will allow them to continue studying in a way that is largely self-directed or autonomous.

**MECES5:** To have and understand knowledge that will provide them the foundation or opportunity to be original in the development and/or application of ideas, often within the research context.

**BAB1:** Manage scientific databases to review and conduct a literature search in the specific area of the Master's thesis.

**BAB2:** Cite and reference works correctly in the Master's thesis.

Bibliographic Searching and Analysis

Learning Outcomes

**RA:** Have the ability to search and analyze bibliography of relevant scientific bases in academia.

**RA:** Know and understand different impact scores to evaluate different materials collected.

**RA:** Be able to cite and reference correctly material derived from the literature search, according to citation standards established in academia (Harvard or Vancouver).

Methodology

Methodology	Hours	Work hours Required attendance	Work hours no attendance
Theoretical exposition	10	12.5 hours (25 %)	
Tutorial	1.5		
Evaluation	1		
Personal study	5	37.5 hours (75 %)	
Readings and information search	15		
Solving exercises and work	7.5		
Work performed	10		
<b>TOTAL</b>	<b>50</b>	<b>12.5</b>	<b>37.5</b>

Syllabus

Theoretical Teaching Program

## Bibliographic Searching and Analysis

### Topic 1. Bibliographic Searching and Analysis.

- Objectives. Concepts: review and literature search. Types. Meta-analysis.
- Definition of the search. Criterias. Delimitation.
- Strategies for conducting a review and literature search. Types of literature sources. Key words and descriptors (thesaurus). Database of thesaurus: *Medical Subject Headings (MeSH)*, *HONselect*. Descriptors in Health Sciences (DeCS).
- Application of logical operators: Boolean operators, proximity operators and truncation.

### Topic 2. Access to sources of information and management of scientific databases.

- Library databases. Catalogs. Digital library. E-book
- Digital Repertoire open. Collect. CSIC. Open Access platform Spanish and Latin American Scientific Electronic Journals. University databases of doctoral theses: Theseus. Dialnet, Databases of Spanish journals.
- Literature sources in Health Sciences. The virtual library in Health. LILACS: Latino-american and Caribbean literature in Health Sciences. Cochrane Library. CATS: evidence-based medicine. PEDro: evidence-based physical therapy databases. Enfispo: Nursing, Physical Therapy and Podiatry databases. Cuidatge: References in nursing. CINAHL: Cumulative Index to Nursing and Health Allied Literature. CUIDEN: Nursing database. DOYMA. SciELO España. Directory of spanish journals in Health Sciences. DOAJ: Directory of Open Access Journals. FreeMedical Journals. Fistera: Directory of Spanish and International journals. NARIC.TRIP database.
- Bibliographic web platforms: Scopus. Web of Knowledge. ISI Current Contents Connect. ISI Proceedings. Derwent Innovations Index. ISI Essencial Science Indicators. ISI Journal Citation Report on the web
- ISI Web of Science. Citation index. Types of documents. Búquedas: simple and advanced. Search operators and standards. Results. Presentation of results: Showing results and complete record. Removing results.
- Literature search in specific databases. Adquisition of complete article texts. Medline. Ebsco. PubMed. SpringerLink. ScienceDirect

### Topic 3. Classification and evaluation of quality of scientific journals. Bibliometric indicators. The evaluation of scientific journals.

#### ISI Journal Citation Report (JCR). Uses.

- Concepts
- JCR search

#### Quality parameters of the journal.

- Scientific nature
- Peer review
- Editorial board

## Bibliographic Searching and Analysis

- Frequency
- Time of existence and punctuality
- Summary, key words and title in English
- Standardization
- Author affiliation
- Referred citations
- Evaluation of process of journal
- Evaluation criteria for permanence

### Quality Criteria of journals for ANECA

- List of journals in function of knowledge area
  - Journal impact via *Web of Knowledge*
- Criteria for selection of journals for publishing scientific articles
  - Where to publish?
  - Impact factor.
  - Scientific rigor and editorial efficiency.
  - Other important factors
  - Other indexing platforms (LATINDEX).

### Topic 4. Dissemination of results.

#### a) Articles:

- Learn the basics of specific journals in each area (ISI, DICE, ...)
- Select a possible journal to publish the article.
- The process to publish in journals

#### b) Libros:

- Editorial selection
- Process to publish in journals
- Journals to publish reviews

#### c) Congresos:

- Search conference and criteria for selection
- Process to publish in journals.

### Topic 5. Bibliographic editing in scientific publications.

#### Incorporation of citations in scientific text.

#### Bibliographic references.

- Formats y standard of referencing literature.
- Vancouver standards
- Harvard style, A.P.A (American Psychological Association), M.L.A. (Modern language association)

## Bibliographic Searching and Analysis

- Use of database administrators and bibliography creators (Reference manager, EndNote y RefWorks)
- Value of the citation for the journal

## Relationship with other subjects of the curriculum

This material is linked with the rest of the sections that complete the Research Methodology module.

## Evaluation System

February/June/September Call:

- **Exams:** 30%. Students will be tested on theoretical-practical questions and solving cases that come from covered class content.

- **Realized coursework:** 70%. Student participation in the various training activities that make up the majority of the subjects will be evaluated through correcting exercises, assignments, case studies, problems and participation of discussion forums. The use of diverse information sources are specifically evaluated, in some cases, by work in which, following a formal scheme, develops further a current issue previously proposed by the teacher associated with the acquired knowledge.

The scoring system will be as follows, set by R.D. 1.125/2003 of September 5<sup>th</sup>: Fail: 0-4,9; Pass: 5-6,9; Notable: 7-8,9; Outstanding: 9-10. The honorable mention of Distinction (Matrícula de honor) will be awarded by the professor to the student. Based on the number of students enrolled, only 5% will be eligible for this honorable mention, except for when the enrollment is under 20 in which case only one student will be granted this honor.

To have a passing grade for this module, one must obtain at least half of the total score for each of the instruments of evaluation.

## Bibliography

### Basic Bibliography

- Manual de Estilo para la presentación de trabajos según las normas de la Asociación Americana de Psicología (APA, 2001).



## Bibliographic Searching and Analysis

- Forner Martínez, A. & Carro, L. (1997). Orientaciones para la elaboración de trabajos académicos y científicos: Interpretación y adaptación de la normativa APA. Revista Interuniversitaria de Formación del Profesorado, 28, 271-285.
- Fernández Cano, A., Torralbo Rodríguez, M., Bueno Sánchez, A., Vallejo Ruiz, M. & Ocaña Fernández, A. (2005). Producción científica sobre educación multicultural contenida en las bases de datos Social Sciences Citation Index y Arts & Humanities Citation Index. Revista Española de Documentación Científica, 28(2), 206-220.
- José Manuel Estrada Lorenzo (2007) Capítulo 2. La Búsqueda bibliográfica y su aplicación en PubMed-MEDLINE Semergen: revista española de medicina de familia, ISSN 1138-3593, Nº. 4, , págs. 193-199
- José Antonio Cordón García, José Raúl Vaquero Pulido, Jesús López Lucas Manual de búsqueda documental y práctica bibliográfica Ediciones Pirámide, 1999. ISBN 84-368-1202-6

### Complementary bibliography

- Amparo Muñoz Izquierdo, M.A. Peiró Andrés. Estrategia general de búsqueda bibliográfica. Cuarto paso: Traducción de la consulta al lenguaje documental Enfermería en cardiología: revista científica e informativa de la Asociación Española de Enfermería en Cardiología, ISSN 1575-4146, Nº. 19, 2000, págs. 40-44
- Arranz M. Cómo escribir y publicar un artículo científico. Arch Prev Riesgos Labor 1998; 1:33-6.
- Arranz M. La búsqueda bibliográfica: algunas nociones, algunas definiciones. Gac Sanit 1997; 11
- (1): 44-5.
- AENOR. Directrices para el establecimiento y desarrollo de tesauros monolingües. En: AENOR.
- Documentación. Tomo 2. Normas fundamentales. 2.a ed. Madrid: AENOR, 1997. p. 275.

## Related websites

Web of Knowledge <http://www.accesowok.fecyt.es/>

<http://www.nlm.nih.gov/pubs/factsheets/jsel.html>

[http://www.nlm.nih.gov/pubs/factsheets/j\\_sel\\_faq.html](http://www.nlm.nih.gov/pubs/factsheets/j_sel_faq.html)

<http://wwwcf.nlm.nih.gov/lstrc/lstrcform/med/index.cfm>

<http://www.crd.york.ac.uk/crdweb/>

[http://www.hon.ch/HONselect/index\\_s\\_p.html](http://www.hon.ch/HONselect/index_s_p.html).

## Bibliographic Searching and Analysis

<http://decs.bvs.br/>

<http://www.ucam.edu/biblioteca/catalogos>

<http://digital.csic.es/>

<http://www.tdr.cesca.es/>

<http://dialnet.unirioja.es/>

<https://www.educacion.es/teseo>

<http://www.recolecta.net/buscador/results.jsp>

<http://dialnet.unirioja.es/>

<http://regional.bvsalud.org/php/index.php?lang=es>

<http://lilacs.bvsalud.org/es/>

<http://www.ncbi.nlm.nih.gov/pubmed>

<http://www.bibliotecacochrane.com/>

## Study tips

Attend classes and actively participate in the classroom. Orient the effort and study on the argumentative reasoning of the course contents. Utilize office hours, Campus Virtual or email of the professor to help clarify or resolve any questions or doubts you may have regarding the course or course material. Review recommended reading to increase depth of knowledge and not limit oneself to the study of class notes.

## Educational materials

The educational materials to facilitate competency in this module are:

- Presentations (PowerPoint) that the professor uses as a guide. The student should elaborate his/her own notes using all of the educational materials described here.
- Scientific articles that are posted in Campus Virtual and that are related to each educational unit. The forum and social networks will be used to share critical thinking and practical application of each of the articles.
- Supporting documents that can be posted on Campus Virtual or requested for the students to search via information and communication technology. Also, these should be related to each educational unit.



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# Guía Docente 2018/2019

## Preparation and publication of scientific work

*Elaboración y publicación de un trabajo científico*

Master's in High Performance Sport: Strength and Conditioning

Mode: Semi-presencial

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## Preparation and publication of scientific work

Module: I.

Subject matter: **Preparation and publication of scientific work.**

Requisite: **Mandatory.**

Nº of credits: **3.**

Academic term: **1st semester**

Professors: **Dra. Linda Chung and Dr. Luis Manuel Martínez Aranda.**

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Office hours: **by appointment via email**

Coordinator: **Dra. Linda Chung**

### Brief Description

In this subject, included in the research methodology module, the student is able to transmit the results of scientific research. To obtain this objective, the student will learn the different types of scientific texts that exist, their structure, style and scientific writing.

Students will learn the process of publishing a scientific paper and its diffusion.

Another important aspect in this subject is the art of public speaking and computer programs that can help in the presentation of results.

### Breve descripción del módulo

En esta asignatura, enmarcada dentro del módulo de metodología de la investigación, se pretende que el alumno sea capaz de transmitir los resultados obtenidos en una investigación científica. Para conseguir este objetivo, el alumno aprenderá los diferentes tipos de textos científicos que existen, su estructura y profundizará en el estilo y la redacción.

El alumno adquirirá importantes nociones acerca del proceso de publicación de un trabajo científico y también de su difusión.

Otro aspecto importante en esta asignatura es la presentación y la exposición oral de los trabajos, para los que se les enseñará oratoria y también diferentes programas informáticos que le puedan ayudar en la edición y presentación de sus resultados.

## Pre-requisites

None.

## Objectives

1. To establish the necessary bases so that student is able to independently address all phases of scientific research, and specifically the writing, publication and dissemination of scientific papers.

The specific objectives to be acquired are:

1. Know the different types of scientific texts.
2. Learn the structure and style of writing in different scientific works.
3. Start building the ability to present results and conclusions at the scientific level in oral and written form.
4. Know the different stages that exist in publishing a scientific article.
5. Know how to disseminate scientific work.

## Competencies and Learning Outcomes

**MECES1:** Students will know how to apply the acquired knowledge and have the capacity to problem solve in new or unfamiliar settings within broader (or multidisciplinary) contexts related to their field of study.

**MECES2:** Students will be able to integrate knowledge and handle the complexity of formulating judgment based on information that may be incomplete or limited, including reflections on social and ethical responsibilities linked to the application of their knowledge and judgment.

**MECES3:** Students will know how to communicate their conclusions (and the knowledge and rationale underpinning them) to the public (specialists and non-specialists) in a clear and unambiguous manner.

**MECES4:** Students will possess learning skills that will allow them to continue studying in a way that is largely self-directed or autonomous.

**MECES5:** To have and understand knowledge that will provide them the foundation or opportunity to be original in the development and/or application of ideas, often within the research context.

**EPTC1:** Distinguish the structure and characteristics of different scientific publications, mainly the Master's thesis.

**EPTC2:** Write and properly structure the Master's thesis and do the oral presentation.

### Learning Outcomes

At the end of this course, the student will be able to:

- Know the different types of scientific texts that exist.
- Clearly differentiate different parts of scientific work.
- Know the distinctive features in the lexicon, syntax and writing in scientific texts.
- Understand different types of publications of scientific texts and the stages of publication.
- Know how to spread and increase the impact factor of scientific work.
- Make oral presentations.

To manage different software programs that help with not only analyzing results but also presenting them.

## Methodology

Methodology	Hours	Work hours Required attendance	Work hours no attendance
Theoretical exposition	15	18.75 hours (25 %)	
Tutorial	2		
Evaluation	1.75		
Personal study	9.25	56.25 hours (75 %)	
Readings and information search	10		
Solving exercises and work	10		
Work performed	15		
Preparation of oral presentations or discussion	12		
<b>TOTAL</b>	<b>75</b>	<b>18.75</b>	<b>56.25</b>

## Syllabus

### Theoretical Teaching Program

Topic 1. Structure of a scientific article.

- Types of scientific articles.
- Essential characteristics of a scientific article.
- Sections of a scientific article:
  - Title characteristics.



## Preparation and publication of scientific work

- Uniform requirements that indicate who should be listed as authors in a research paper. Order of the authors. Author information that should appear in an article.
- Abstract.
- Definition of key words.
- Parts of the introduction.
- Developing material and methods section.
- Results and Discussion section contents.
- Conclusions and most common errors in its formulation.
- Acknowledgement section.
- References, common formats.
- Examples of scientific articles in different disciplines.

### Topic 2. Writing a scientific article.

#### Writing method:

- Method of successive approximations and context that justifies this method
- Order in which the different parts of a scientific article should be written and why.

#### Scientific style:

- Scientific article characteristics: Maximum of Gracie
- Precautions with respect to style
- Conditions and structuring strategies, syntax and vocabulary.
  - Syntactic characteristics.
  - Scientific lexicon characteristics.
- Examples of scientific articles of different disciplines: analyzing the writing and scientific style.

### Topic 3. Publication of a scientific article.

- Criteria for judging scientific papers (M. Bobenrieth)
- Self-assessment of an article by the author before sending a scientific paper to a journal
- Stages in the publication of an article
  - Examples of the total process of a publication of articles: referee evaluation form, cover letter, letter of acceptance, letter of rejection, referees evaluation form, cover letter, proofs, copyright, ethics, guidelines for authors.
  - Example of following on-line an article sent to a specific journal.
- Review system of articles used in different journals:
  - Peer review system:
    - Members of the editorial committee, editors, referees: designation, qualification, incentives and referee assignments.
    - Reliability.
    - Validity.
    - Types of bias in the system.

## Preparation and publication of scientific work

- Detecting errors and frauds in research by the system –
- Double-blinded review system:
  - Advantages.
  - Disadvantages.
- Rejection rate of works. How to challenge the rejection of an article.
- Fraud detection in research: Responsible institution.

### Topic 4. Writing, publishing and its relation with the impact score.

What you need to know to increase the impact of the articles?

What can you do to write an article to increase future impact?

What can you do when publishing an article to increase their impact?

How can you spread the articles themselves?

How can you increase and control the spread of the articles themselves?

### Topic 5. Other types of research works.

- Short report.
- Review of a book.
- Presentation.
- Conference communication.
- Scientific monograph. Diffusion.
- Research project.
- Master's thesis:
  - Structure, contents, language, writing, text organization, timeline
- Master's thesis defense

### Topic 6. Doctoral Thesis.

- Structure of a Doctoral thesis project
- Thesis by compendium. Structure and formal requirements and style.
- European Doctoral Thesis.
- Rules by the Vice-Rector of Research in UCAM  
(<http://www.ucam.edu/estudios/doctorado/normativa/propia>)
- Structure, contents, language and writing, text organization, timeline.
- Goals to be achieved by the student in the development of a Doctoral Thesis.
- Doctoral Thesis Defense.
- Diffusion of results obtained in the Doctoral Thesis: articles, conference communications, etc.

### Topic 7. Presentation of research works.

## Preparation and publication of scientific work

- Basic rules for presenting scientific work.
- Advice about the use of tables and figures.
- Management software:
  - Sigma Plot 9: Graph editing program. Doing exercises for designing graphs to adjust for linear regression, non-linear, etc.
  - EndNote: Insertion of citations within text.
- Power point. Slides and poster designs.

## Topic 8. Public speaking.

- General recommendations for communicating work. Introduction to public speaking.
- Oral expression. Techniques in transmitting messages and diverse contents to a particular audience.
- Speech:
  - The thesis.
  - The body of the speech.
  - The introduction: 3 fundamental principles.
  - Ending the speech: the principles of a conclusion.
- The style of the speaker:
  - The wit and humor in the speech.
  - Intentional repetitions.
  - Self-adulation and brevity.
  - Nervous habits.
  - Appearances do matter.
  - Body language.
  - Voice projection.
  - The magic of pauses/breaks.
  - Other interruptions.
  - Time control.
- The audience:
  - Do not bore them.
  - Public awareness.
  - Adequate or correct speech.
  - Honors and accolades.
  - Public speaking.

## Relationship with other subjects of the curriculum

This material is linked with the rest of the sections that complete the Research Methodology module.

## Evaluation System

February/June/September Call:

- **Exams:** 30%. Students will be tested on theoretical-practical questions and solving cases that come from covered class content.

- **Realized coursework:** 70%. Student participation in the various training activities that make up the majority of the subjects will be evaluated through correcting exercises, assignments, case studies, problems and participation of discussion forums. The use of diverse information sources are specifically evaluated, in some cases, by work in which, following a formal scheme, develops further a current issue previously proposed by the teacher associated with the acquired knowledge.

The scoring system will be as follows, set by R.D. 1.125/2003 of September 5<sup>th</sup>: Fail: 0-4,9; Pass: 5-6,9; Notable: 7-8,9; Outstanding: 9-10. The honorable mention of Distinction (Matrícula de honor) will be awarded by the professor to the student. Based on the number of students enrolled, only 5% will be eligible for this honorable mention, except for when the enrollment is under 20 in which case only one student will be granted this honor.

To have a passing grade for this module, one must obtain at least half of the total score for each of the instruments of evaluation.

## Bibliography

### Basic Bibliography

- Alley, M. (1996). *The craft of scientific writing*. 3<sup>a</sup> ed., Springer.
- Barker, M. (2011). *A Small Diatribe and a Serious Challenge to Other Journals, Participations*, vol 8,nº2, noviembre. URL: <http://www.participations.org/Volume%208/Issue%202/documents/1BarkerMainIntro.pdf>
- Berg, J. (2010). *The Art of Public Speaking*. New York: Oxford University Press.
- Berkun, S. (2011). *Confessions of a Public Speaker*. O'Reilly Media.
- Carnegie, D. (2009). *El camino fácil y rápido para hablar en público*. Edhasa, Madrid.
- Day. R.A.; Castel B. (2008). *Como escribir y publicar trabajos científicos*. 4<sup>a</sup> ed., Madrid, Organización Panamericana de la Salud.
- Esposito, J.. (2005). *In the Spotlight, overcome fear of public Speaking and Performing*. In the Spotlight, LLC.
- Fortante, I. (2002). *Cómo escribir un artículo de investigación en inglés*. Alianza Editorial S. A.

## Preparation and publication of scientific work

- Janner, G. (1986). *Janner's Complete Speechmaker*. Publisher: Guild, United Kingdom.
- Lebrun, J.L. (2007). *Scientific writing. A reader and writers guide*. New Jersey, World Scientific Co.
- Mollett, A., Moran, D. y Dunleavy, P. (2011). *Using Twitter in university research, teaching and impact activities*. London School of Economics Public Policy Group. URL: [http://blogs.lse.ac.uk/impactofsocialsciences/files/2011/11/PostedTwitter\\_Guide\\_Sept\\_2011.pdf](http://blogs.lse.ac.uk/impactofsocialsciences/files/2011/11/PostedTwitter_Guide_Sept_2011.pdf)
- Osborn, M. (2008). *Public Speaking*. Pearson.
- Pérez, J.A. (1999). *Diccionario urgente de estilo científico del español*. URL: <http://www.dlsi.ua.es/~japerez/pub/pdf/duce1999.pdf>
- Thomas, J.R., & Nelson, J.K. (2007). *Métodos de Investigación en Actividad Física*. Barcelona: Paidotribo.
- Zeoli, R. (2008). *The 7 principles of Public Speaking: proven methods for professionals*. Pearson.

### Complementary bibliography

- Amparo Muñoz Izquierdo, M.A. Peiró Andrés. Estrategia general de búsqueda bibliográfica. Cuarto paso: Traducción de la consulta al lenguaje documental Enfermería en cardiología: revista científica e informativa de la Asociación Española de Enfermería en Cardiología, ISSN 1575-4146, Nº. 19, 2000, págs. 40-44
- Alonso, M.R. (2009). *Writing for academic purposes: a handbook for learners of English as a second language*. Muenchen, Lincom Europa Book.
- Brause, R.S. (2000). *Writing your doctoral dissertation: invisible rules for success*. London, Falmer Press.
- Friedland, A. J. & Folt, C. L. (2000). *Writing successful science proposals*. Londres, Yale University Press,
- Gauch, H. G. Jr. (2003). *Scientific method in practice*. Cambridge, Cambridge University Press.
- Young, P. (2006). *Writing and presenting in English: the Rosetta Stone of science*. Elsevier Science.

## Related websites

<http://science.thomsonreuters.com/>

Web de ISI (Thomson Reuters)

<http://garfield.library.upenn.edu>

Webpage founder of ISI, Dr. Eugene Garfield.

## Preparation and publication of scientific work

<http://www.garfield.library.upenn.edu/impactfactor.html>

All written articles by Eugene Garfield about the impact factor

[http://www.fisterra.com/recursos\\_web/mbe/escritu\\_cientifica.htm](http://www.fisterra.com/recursos_web/mbe/escritu_cientifica.htm)

Guidelines about how to obtain scientific documentation and how to write and publish academic works, including Doctoral thesis.

<http://www2.caes.hku.hk/kenhyland/>

Professor Ken Hyland's webpage, a linguistic pioneer in the study of scientific style.

<http://francisthemulenews.wordpress.com/2011/07/30/videos-de-la-ac-s-que-explican-como-escribir-un-articulo-cientifico/>

Link to videos from the American Chemical Association that explain how to write an scientific article

<http://www.endnote.com/>

EndNote program

[http://www.nlm.nih.gov/bsd/uniform\\_requirements.html](http://www.nlm.nih.gov/bsd/uniform_requirements.html)

International Committee of Medical Journal Editors (ICMJE). Uniform requirements for manuscripts submitted to biomedical journals: writing and editing preparation of biomedical publication. Vancouver standards. Updated February 2006. National Library of Medicine of the USA (NLM).

## Study tips

Attend classes and actively participate in the classroom. Orient the effort and study on the argumentative reasoning of the course contents. Utilize office hours, Campus Virtual or email of the professor to help clarify or resolve any questions or doubts you may have regarding the course or course material. Review recommended reading to increase depth of knowledge and not limit oneself to the study of class notes.

## Educational materials

The educational materials to facilitate competency in this module are:

- Presentations (PowerPoint) that the professor uses as a guide. The student should elaborate his/her own notes using all of the educational materials described here.
- Scientific articles that are posted in Campus Virtual and that are related to each educational unit. The forum and social networks will be used to share critical thinking and practical application of each of the articles.

## Preparation and publication of scientific work

- Supporting documents that can be posted on Campus Virtual or requested for the students to search via information and communication technology. Also, these should be related to each educational unit.



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# Guía Docente 2018/2019

## Research Methodology and Management

*Metodología y Gestión de la Investigación*

Master's in High Performance Sport: Strength and  
Conditioning

Mode: Semi-presencial



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## Research Methodology and Management

Module: I.

Subject matter: **Research Methodology and Management.**

Requisite: **Mandatory.**

Nº of credits: **2.**

Academic term: **1st semester**

Professors: **Dra. Linda Chung.**

Email: **lhchung@ucam.edu**

Office hours: **by appointment via email**

Coordinator: **Dra. Linda Chung**

### Brief Description

The main techniques and methodologies for scientific research are presented. The necessary knowledge for doing documental and experimental research is given to the student. The structure of the I+D+I system and the main funds for research are shown.

### Breve descripción del módulo

Se exponen las técnicas y metodología de la investigación científica. Se proporciona al estudiante el conocimiento necesario para la realización de la investigación documentada y experimental. Se presenta la estructura del sistema I+D+I y de las principales ayudas a la investigación.

### Pre-requisites

None.

### Objectives

1. Establish the necessary bases so that the student is able to independently address all phases of scientific research.
2. Present students with the knowledge of the main techniques used in research.
3. Teach students how to develop projects and apply for grants.

## Research Methodology and Management

The specific objectives are:

1. Know the characteristics of the scientific method and its application.
2. Know the phases and characteristics of scientific research.
3. Analyze the characteristics of measurement and instrumentation in science.
4. Know the I+D+I Spanish and European system.
5. Develop a research project.
6. Know the main existing financial support for research.
7. Understand the main models of technology transfer.

## Competencies and Learning Outcomes

**MECES1:** Students will know how to apply the acquired knowledge and have the capacity to problem solve in new or unfamiliar settings within broader (or multidisciplinary) contexts related to their field of study.

**MECES2:** Students will be able to integrate knowledge and handle the complexity of formulating judgment based on information that may be incomplete or limited, including reflections on social and ethical responsibilities linked to the application of their knowledge and judgment.

**MECES3:** Students will know how to communicate their conclusions (and the knowledge and rationale underpinning them) to the public (specialists and non-specialists) in a clear and unambiguous manner.

**MECES4:** Students will possess learning skills that will allow them to continue studying in a way that is largely self-directed or autonomous.

**MECES5:** To have and understand knowledge that will provide them the foundation or opportunity to be original in the development and/or application of ideas, often within the research context.

**MGI.1:** Distinguish and interpret different experimental designs in the area, with respect for the ethics and intellectual integrity.

**MGI.2:** Know the I+D+I Spanish system and the different parts of a research project in the area.

## Methodology

Methodology	Hours	Work hours Required attendance	Work hours no attendance
Theoretical exposition	10	12.5 hours (25 %)	
Tutorial	1.5		
Evaluation	1		
Personal study	10	37.5 hours (75 %)	
Readings and information search	10		
Solving exercises and work	7.5		
Work performed	10		
<b>TOTAL</b>	<b>50</b>	<b>12.5</b>	<b>37.5</b>

## Syllabus

### Theoretical Teaching Program

Topic 1. Nature of science: science and scientific.

- Analysis of the origin and social importance of science and its different forms of development.
- Analysis of the characteristics of science and scientists.

Topic 2 Scientific method.

Students will learn the bases of the scientific method as a method of knowledge and its relation to other methods of knowledge.

Topic 3. Research designs: Key parameters in the study design.

## Research Methodology and Management

Students will learn the different types of taxonomic axes in the research design.

### Topic 4. Research designs: Types of Studies.

Students will learn the different types of design that can be used to answer a scientific question. Likewise, students will learn the characteristics of each of them and the conditions that indicate its use. Also, students will learn the appropriate protocol to follow in human research study.

### Topic 5. Research Management.

The Spanish system of science and technology: present situation, the agencies of the Spanish system of science and technology, innovation in Spain: technology transfer, fellowships and research grants, development of a research project.

## Relationship with other subjects of the curriculum

This material is linked with the rest of the sections that complete the Research Methodology module.

## Evaluation System

February/June/September Call:

- **Exams:** 30%. Students will be tested on theoretical-practical questions and solving cases that come from covered class content.

- **Realized coursework:** 70%. Student participation in the various training activities that make up the majority of the subjects will be evaluated through correcting exercises, assignments, case studies, problems and participation of discussion forums. The use of diverse information sources are specifically evaluated, in some cases, by work in which, following a formal scheme, develops further a current issue previously proposed by the teacher associated with the acquired knowledge.

The scoring system will be as follows, set by R.D. 1.125/2003 of September 5<sup>th</sup>: Fail: 0-4,9; Pass: 5-6,9; Notable: 7-8,9; Outstanding: 9-10. The honorable mention of Distinction (Matrícula de honor) will be awarded by the professor to the student. Based on the number of students enrolled, only 5% will be eligible for this honorable mention, except for when the enrollment is under 20 in which case only one student will be granted this honor.

To have a passing grade for this module, one must obtain at least half of the total score for each of the instruments of evaluation.

## Bibliography

### Basic Bibliography

- Alley, M. (1996). *The craft of scientific writing*. 3ª ed., Springer.
- Bunge, M. (2000) *La investigación científica. Su estrategia y su filosofía*. Editorial Siglo XXI
- Corbetta, P. (2003). *Metodología y Técnicas de Investigación Social*. McGraw-Hill Interamericana
- de España.
- Sanchez María, E. (2005), *Análisis de situaciones sociales*, Grupo Editorial Universitario,
- Madrid
- Hernández Sampieri, Roberto [2007]. *Fundamentos de metodología de la investigación*. Madrid: McGraw-Hill Interamericana.
- Currás, Emilia. (1985) *Documentación y metodología de la investigación científica : cuaderno de trabajo*.
- R. Burgos, Rodríguez, J. A. Chicharro Molero, M. A Bobenrieth Astete (1994) *Metodología de investigación y escritura científica en clínica*. Granada: Escuela Andaluza de Salud Pública.
- María Jesús Uriz, Alberto Ballester, Juan Jesús Biscarret, Nicanor Ursua. [2006]. *Metodología para la investigación*. Eunate, Pamplona
- Hernández Sampieri, Roberto [2010]. *Metodología de la investigación*. McGraw-Hill Interamericana, Madrid.
- Ráfales Lamarca, Ernesto J. (1993) *Metodología de la investigación técnico-científica*. Rubiños, D.L. Madrid 1993

### Complementary bibliography

- Callejo, J., 2001, *El grupo de discusión: introducción a una práctica de investigación*. Ariel Barcelona
- García Ferrando, M. et al (2000) *El análisis de la realidad social. Métodos y técnicas de investigación*. Alianza Editorial
- Landete Ruiz, M. Martínez Mayoral, A. *Técnicas de Investigación Sociales. Manual de la Universidad Miguel Hernández*.
- Sierra Bravo, R. (1997). *Técnicas de investigación Social. Teoría y Ejercicios*. Paraninfo. Madrid.

## Research Methodology and Management

- Valles, M. (1999) Técnicas cualitativas de investigación social. Reflexión metodológica y práctica profesional .Síntesis. Madrid.

## Related websites

<http://www.fundacion-seneca.org/> fundación Séneca.

<http://www.idi.mineco.gob.es/> secretaría de estado de investigación desarrollo e innovación.

<http://www.csic.es/web/quest/home> consejo superior de investigaciones científicas.

<http://www.rediris.es/> la red académica y de investigación española.

[http://www.ucam.edu/investigacion/apoyo-investigacion/plan-propio-fomento-investigacion/programa\\_de\\_potenciancion\\_de\\_recursos\\_humanos](http://www.ucam.edu/investigacion/apoyo-investigacion/plan-propio-fomento-investigacion/programa_de_potenciancion_de_recursos_humanos) UCAM

<http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.abd9b51cad64425c8674c210a14041a0/?vgnnextoid=d9581f4368aef110VgnVCM1000001034e20aRCRD> Ministerio de Economía y Competitividad.

<http://www.fundacionareces.es/fundacionareces/portal.do?IDM=37&NM=1> Fundación Areces

[http://www.fundacionmapfre.org/fundacion/es\\_es/prevencion-salud-medio-ambiente/becas-y-ayudas/](http://www.fundacionmapfre.org/fundacion/es_es/prevencion-salud-medio-ambiente/becas-y-ayudas/) Fundación Mapfre

## Study tips

A system of daily study is recommended by performing exercises and doing comprehensive reading.

## Educational materials

- Independent study. Taking into account the Blended Learning Mode of the program, it is important for the student to have adequate computer equipment.



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# Guía Docente 2018/2019

## Statistics and analysis of results

*Estadística y análisis de resultados*

Master's in High Performance Sport: Strength and  
Conditioning

Mode: Semi-presencial



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## Statistics and analysis of results

Module: I.

Subject matter: **Statistics and analysis of results.**

Requisite: **Mandatory.**

Nº of credits: **3.**

Academic term: **1st semester**

Professors: **Dr. David Prieto**

Email: **lhchung@ucam.edu**

Office hours: **by appointment via email**

Coordinator: **Dra. Linda Chung**

## Brief Description

An introductory in statistical concepts and methods, emphasizing exploratory data analysis for univariate and bivariate data, sampling and experimental designs, basic probability models, estimation and tests of hypothesis in one-sample and comparative two-sample studies. Practices be conducted using SPSS.

## Breve descripción del módulo

Introducción a conceptos y métodos estadísticos, haciendo hincapié en el análisis exploratorio de datos para datos univariados y bivariados, muestreo y diseños experimentales, modelos básicos de probabilidad, estimación y pruebas de hipótesis en una muestra y estudios comparativos de dos muestras. Las prácticas se realizarán con el programa SPSS.

## Pre-requisites

None.

## Objectives

1. To establish the necessary bases so that student is able to independently address all phases of scientific research. To understand the theoretical foundation that underlies the application of statistics.

## Statistics and analysis of results

The specific objectives to be acquired are:

1. Acquire the ability to design, conduct and analyze data from a scientific study;
2. Learn how to utilize statistical software for data analysis;
3. Be able to read and interpret statistical books;
4. Establish basic concepts in Descriptive Statistics and the different techniques of Multivariate Data Analysis.
5. Train students on how to analyze descriptive data, which is central to any statistical work in research.

## Competencies and Learning Outcomes

**MECES1:** Students will know how to apply the acquired knowledge and have the capacity to problem solve in new or unfamiliar settings within broader (or multidisciplinary) contexts related to their field of study.

**MECES2:** Students will be able to integrate knowledge and handle the complexity of formulating judgment based on information that may be incomplete or limited, including reflections on social and ethical responsibilities linked to the application of their knowledge and judgment.

**MECES3:** Students will know how to communicate their conclusions (and the knowledge and rationale underpinning them) to the public (specialists and non-specialists) in a clear and unambiguous manner.

**MECES4:** Students will possess learning skills that will allow them to continue studying in a way that is largely self-directed or autonomous.

**MECES5:** To have and understand knowledge that will provide them the foundation or opportunity to be original in the development and/or application of ideas, often within the research context.

**EAR1:** Apply the main statistical techniques using specialized software to analyze the study results.

### Learning outcomes

- Know the main simple statistics and sampling distribution.
- Calculate and interpret statistical measures associated with a data set.
- Check Independence of random variables.
- Calculate and apply simple linear regression models.
- Make statistical decisions on population parameters.
- Understand and calculate Descriptive Statistics concepts.
- Understand the relationship between 2 statistical variables after determining the correlation between them.
- Utilize statistical software to manipulate, analyze and model different data sets.

## Methodology

Methodology	Hours	Work hours Required attendance	Work hours no attendance
Theoretical exposition	15	18.75 hours (25 %)	
Tutorial	2		
Evaluation	1.75		
Personal study	15	56.25 hours (75 %)	
Readings and information search	10		
Solving exercises and work	21.25		
Work performed	10		
<b>TOTAL</b>	<b>75</b>	<b>18.75</b>	<b>56.25</b>

## Syllabus

### Theoretical Teaching Program

Topic 1. The research process.

- Topic definition and research objective
- Literature review
- Formulating a research hypothesis
- Variable selection
- Research design: Quantitative analysis (secondary, observation or survey) versus qualitative analysis
- Data collection.
- Technical and practical difficulties
- Data analysis.

## Statistics and analysis of results

- Data collection

### Topic 2. Basic definitions.

- Population and parameters versus sample and statistics
- Why choose a sample
- Sampling probability versus non-probability
- Sample size
- Types of variables

### Topic 3. Descriptive statistics. Analysis with SPSS.

- Introduction and data preparation
- Frequency tables
- Graphs
- Measures of location and measures of variability
- Bivariate data:
  - Contingency tables
  - Scatter plots
  - Covariance and correlation
  - Measures of association
  - Causality

### Topic 4. Inferential statistics. Analysis with SPSS.

- Techniques to analyze the relationships between variables.
  - Correlation (Chi square test of independence)
  - Regression (multiple, logistics)
  - Factor Analysis
- Techniques to compare groups.
  - T-test (and alternative non-parametric tests).

## Relationship with other subjects of the curriculum

This material is linked with the rest of the sections that complete the Research Methodology module.

## Evaluation System

February/June/September Call:

## Statistics and analysis of results

- **Exams:** 30%. Students will be tested on theoretical-practical questions and solving cases that come from covered class content.

- **Realized coursework:** 70%. Student participation in the various training activities that make up the majority of the subjects will be evaluated through correcting exercises, assignments, case studies, problems and participation of discussion forums. The use of diverse information sources are specifically evaluated, in some cases, by work in which, following a formal scheme, develops further a current issue previously proposed by the teacher associated with the acquired knowledge.

The scoring system will be as follows, set by R.D. 1.125/2003 of September 5<sup>th</sup>: Fail: 0-4,9; Pass: 5-6,9; Notable: 7-8,9; Outstanding: 9-10. The honorable mention of Distinction (Matrícula de honor) will be awarded by the professor to the student. Based on the number of students enrolled, only 5% will be eligible for this honorable mention, except for when the enrollment is under 20 in which case only one student will be granted this honor.

To have a passing grade for this module, one must obtain at least half of the total score for each of the instruments of evaluation.

## Bibliography

### Basic Bibliography

- Estadística aplicada a las ciencias de la salud, Rafael Álvarez Cáceres, Ediciones Díaz de Santos, 2007
- Gestión de datos con SPSS Statistics. Pardo A., Ruiz, M.A, Ed. Síntesis. 2009.
- Tratamiento estadístico de datos con SPSS, Quintín Martín Martín, Thomson, 2008

### Complementary bibliography

- Estadística, Ciencias Sociales, Del Comportamiento Y de la Salud, Arnoldo Elorza Perez Tejada, CengageLearning Editores, 2008
- Estadística aplicada: una visión instrumental : teoría y más de 500 problemas resueltos o propuestos con solución, Alberto Pérez de Vargas Luque, Ediciones Díaz de Santos, 2009
- Introducción a la Estadística en Ciencias de la Salud. Macchi RL. Madrid: Editorial Medica Panamericana; 2001.

## Related websites

Official website for the statistical application SPSS: (<http://www.spss.es>)

## Statistics and analysis of results

National Institute of Statistics: (<http://www.ine.es>)

Free SPSS course: (<http://www.spssfree.com/indice.html>)

## Study tips

It is recommended that study of material and comprehensive reading be done on a daily basis.

## Educational materials

- Independent study. Taking into account the Blended Learning Mode of the program, it is important for the student to have adequate computer equipment.