



Universitat de Lleida

# DEGREE CURRICULUM **SCIENCE COMMUNICATION, MANAGEMENT AND INNOVATION**

Coordination: HERREROS DANES, JUDIT

Academic year 2016-17

## Subject's general information

<b>Subject name</b>	SCIENCE COMMUNICATION, MANAGEMENT AND INNOVATION			
<b>Code</b>	14701			
<b>Semester</b>	1st Q(SEMESTER) CONTINUED EVALUATION			
<b>Typology</b>	Degree	Course	Typology	Modality
	Master's Degree in Biomedical Research	1	COMMON	Attendance-based
<b>ECTS credits</b>	4			
<b>Groups</b>	1GG			
<b>Theoretical credits</b>	2			
<b>Practical credits</b>	2			
<b>Coordination</b>	HERREROS DANES, JUDIT			
<b>Department</b>	CIENCIAS MEDICAS BASICAS,MEDICINA EXPERIMENTAL			
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.			
<b>Language</b>	English			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
FIBLA PALAZON, JOAN	joan.fibla@cmb.udl.cat	,3	
HERREROS DANES, JUDIT	j.herrerros@cmb.udl.cat	3,5	
SOLER TATCHE, ROSA MARIA	rosa.soler@cmb.udl.cat	,2	

## Learning objectives

### Learning:

After the course, students should know about:

1. Science communication.
2. Science management.
3. Career planning.
4. Basic concepts on transfer of technology

### Capacities:

After the course, students should be able to:

1. Write scientific papers.
2. Use bibliographic software and to find out the relevant bibliometric parameters of a publication.
3. Prepare scientific presentations for different audiences.
4. Prepare grants for submission.
5. Choose appropriate research subjects.
6. Plan a scientific career.
7. Write a CV
8. Develop abilities for team working
9. Protect the intellectual property and apply for a patent

## Competences

CB2 To be able to apply the acquired knowledge and have the ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study

CB3 To be able to integrate knowledge and handle the complexity of formulating judgments based on information that, being incomplete or limited, includes thoughts on social and ethical responsibilities supported their own judgments

CB4 To be able to communicate conclusions, and the knowledge and rationale behind them, to specialist and non-specialist audiences in a clear and unambiguous terminology

CB5 To possess learning skills that enable them to continue studying in a way that will be largely self-directed or autonomous

CG2 To know how to plan and execute a research project, following the scientific method and the appropriate technology with a high degree of initiative and commitment.

CG3 Capacity for teamwork, leadership and decision making.

CG4 Capacity for critical and creative thinking with their own work and that of other researchers

CG5 Ability to obtain, process and interpret the experimental results in a rigorous manner and applying the appropriate technologies.

CG7 To be able to present scientific papers and scientific articles that may be considered for publication in international journals

CE2 To value the importance of protecting intellectual property and knowledge transfer to industry and to have a basic knowledge on how to carry it out.

CT1 To have a correct oral and written expression

CT2 To master a foreign language

CT3 Mastering ICT

CT4 To respect the fundamental rights of equality between men and women, to the promotion of human rights and the values ??of a culture of peace and democratic values

## Subject contents

1. **Learning how to write scientific papers (9 h)**
  - **Organizing and presenting scientific knowledge in written form.**
  - **Managing bibliographic software**
2. **Learning how to prepare scientific presentations for different audiences (11 h)**
  - **Organizing and presenting scientific knowledge in multimedia presentation form.**
3. **Learning Grantsmanship: how to prepare grants for submission (6 h)**
  - **Scientific hypothesis making and presentation.**
  - **What do funding institutions look for in a proposal.**
4. **Choosing Research Subjects (5 h)**
  - **Research Seminar Sessions on a variety of topics in the biomedical and biotechnological sciences.**
5. **Planning a Scientific Career (5 h)**
  - **Strategic plan making and contingency preparations.**
  - **Preparing a CV (academia vs industry). Bibliometric parameters**
  - **Working in a company**
6. **Valorization process (4 h)**
  - **How to protect the intellectual property . Obtaining a patent.**
  - **Technology transfer. Spin offs.**

## Methodology

Lectures, scientific conferences, debates conducted on seminars, group work, individual written work (writing a scientific paper, developing a project / grant application, complete a scientific review and CV), project development , oral presentation of a paper or results in English.

The course usually invites different professionals (editors scientists, science communicators, professionals of technology transfer and scientific communication media) to give talks and complete the training.

## Development plan

### Learning how to write scientific papers (7h)

1. What is a paper and how do you organize it? (2h seminar)
2. Writing the paper (1h seminar)
3. Learning how to use bibliographic software(s) (2h seminar)
4. Case studies/reviewing a paper (1h seminar)
5. *Invited speaker*: journal editor

### Learning how to prepare scientific presentations for different audiences (12h):

1. What is a presentation and how do you organize it? Know your audience (2h Seminar).
2. Do it yourself-presentations (6h practice)
3. Releasing your results to the media (2h). Writing a press note (1h seminar; Dr. Joan Fibla)
4. *Invited speaker*: science propagation (1h seminar)

### How to prepare grants for submission (4h):

1. Looking for funding sources. What is a call for proposals and how do you respond to it? (2h Seminar)
2. Preparing and writing the grant. (1h Seminar)
3. Case studies. (a seminar of 1h)

### How to choose a research subject and answer a scientific question (5h):

1. Research Seminars. (five 1h Seminars)

### Planning a Scientific Career. (8h) :

1. Can you plan a scientific career? Career in Academia (2h Seminar)
2. Understanding what is the impact factor of a journal. Finding out the bibliometric parameters of my publications (2h seminar)
3. How to write a CV: academia vs. industry (2h)
4. Working in a company: *invited speaker* (2h)

### Valorization process (4h)

1. How to protect the intellectual property. How to patent (2h)
2. Technology transfer and spin off. *Invited speaker* (2h)

## Evaluation

One evaluation activity in the practice sessions (oral presentation): 25%

Three homework assignments (writing a paper, 30%; applying for a fellowship, 20%; writing a CV, 15%): 65%

Assistance to scientific conferences and active participation: 10%

**RUBRIQUES. Evaluation items in each exercise*****Paper:***

Clarity of the message Written expression. Correct spelling. Format according to journal.

Structuring the paper and all its parts as recommended.

***Oral Presentation:***

Clarity/well communicated. Easy to follow slides (titles). Use of visual content.

Timing.

Grabbing interest /general introduction slide.

Conclusive slide (take home message). Acknowledgement slide

***Fellowship:***

Written expression. Background on subject. Clearly stating the hypothesis. Aims to be developed in order to test the hypothesis.

Possible implications & interest.

Introduction to subject. Background and question to be addressed.

Clear hypothesis to be investigated

Two-three objectives (with possible subparts). Briefly mention a few techniques/experiments to be developed to achieve each objective.

Avoid spelling mistakes. Define abbreviations

***CV:***

Clear, visual. Schematic. Concise. Consistent format.

All relevant information (institutions, dates, supervisors). Correction on written expression.

“Present situation” easy to identify.

Mention Institution (city, country) and dates in each stage of your career

Give names of possible referees in each stage.

If publications or posters, keep same format.

Avoid spelling mistakes.

***Assistance to 5 research seminars:***

No assistance to one seminar will subtract 20% of the mark of this part.

**Bibliography**

Communicating Science: Professional, Popular, Literary (2009) N. Russel. Cambridge University Press.

Proposal Writing: Effective Grantsmanship (2007) S. M. Coley & C. A. Scheinberg, Sage Publications, Inc.

Lab Dynamics: Management Skills for Scientists (2006).C. M. Cohen & S. L. Cohen. CSHL Press.

At The Helm: A Laboratory Navigator (2002). K. Baker. CSHL Press.

Planning a Scientific Career in Industry: Strategies for Graduates and Academics (2010) S. Mohanti & R. Gosh. Wiley

Careers in Science and Engineering: A Student Planning Guide to Grad School and Beyond. (1996) NAS, NIH & NAE. National Academies Press

Goleman, Daniel; Boyatzis, Richard; McKee, Annie. El líder resonante crea más, el poder de la inteligencia emocional (2002). Plaza & Janés.

Ginebra, Gabriel. Gestión de incompetentes, un enfoque innovador de la gestión de personas. Libros de cabecera (2010), Barcelona.