

COMMUNICATION STRATEGIES FOR CANCER RESEARCH

1.- Datos de la Asignatura

Code	303024	Plan		ECTS	3
Type	Mandatory	Course	2023/204	Periodicity	2 <sup>nd</sup> Semester
Department	Cancer Research Center				
Virtual Platform	Platform:	CICLOUD			
	URL de Acces:	<a href="http://cicloud.dep.usal.es/index.php/s/Gp0vghR305Y6glo/authenticate">http://cicloud.dep.usal.es/index.php/s/Gp0vghR305Y6glo/authenticate</a>			

Datos del profesorado

Professor Coordinator	Esther Castellano Sánchez				
Departamento	Biochemistry and Molecular Biology				
Area de Investigación	Molecular mechanisms mediating tumour:stroma crosstalk				
Centro	Cetro de Investigación del Cancer				
Laboratorio	Laboratorio 5				
Tutorials	On students demand				
URL Web	<a href="https://www.cicancer.org/grupo?id=38">https://www.cicancer.org/grupo?id=38</a>				
E-mail	<a href="mailto:ecastellano@usal.es">ecastellano@usal.es</a>	Phone	663181610 (ext. 5805)		

Professor	Sandra Blanco Benavente				
Area de Investigación	Cancer epitranscriptomics				
Centro	Centro de Investigación del Cancer				
Laboratorio	Laboratorio 5				
Tutorials	On students demand				
URL Web	<a href="https://www.cicancer.org/grupo?id=34">https://www.cicancer.org/grupo?id=34</a>				
E-mail	<a href="mailto:sblanco@usal.es">sblanco@usal.es</a>	Phone	663181610 (ext. 5805)		

Professor	Carmen Guerrero Arroyo		
Departamento	Medicine		
Area de Investigación	Role of C3G in the biology of platelets and megakaryocytes. Contribution of C3G protein to pathological neoangiogenesis and tumor metastasis		
Centro	Centro de Investigación del Cancer		
Laboratorio	Laboratory 17		
Tutorials	On students demand		
URL Web	<a href="https://www.cicancer.org/grupo?id=55">https://www.cicancer.org/grupo?id=55</a>		
E-mail	<a href="mailto:cguerrero@usal.es">cguerrero@usal.es</a>	Phone	923294720 (ext. 4817)

Professor	Jesús Lacal Romero		
Departamento	Microbiology and Genetics		
Area de Investigación	Functional genetics of rare diseases: the RASopathies		
Centro	Edificio Departamental – Faculty of Biology		
Laboratorio	324		
Tutorials	On students demand		
URL Web	<a href="http://diarium.usal.es/jlcal/inicio-3/">http://diarium.usal.es/jlcal/inicio-3/</a>		
E-mail	<a href="mailto:jlcal@usal.es">jlcal@usal.es</a>	Phone	923 663 030 885

## 2.- Objetivos y competencias de la asignatura

<b>Training Module</b>
Second semester. This module will be part of group 5 (March-April). Students will learn how to present their projects in different formats including but not limited to posters and reports. Therefore, it is convenient a few months of previous lab work to become familiar with their projects and have some data to work with in this course.
<b>General aim of the subject</b>
The overall goal of this course is to teach the students how to communicate scientific projects and data to a non scientific audience. It is very important to pay special attention to both the content of what is going to be presented and how to present it. In scientific communication scientific-technical language is used and it must meet minimum requirements of objectivity, rigor and clarity. A good presentation will lead to the achievement of key milestones such as the funding of a project or the acceptance of a paper within the scientific community, among others. Since it is in the Universities and Research Centres where new knowledge is generated and accumulated, it is precisely from there that much of the actions aimed at communicating and disseminating scientific

and technological advances must be started. It is necessary, therefore, that future scientists know how to communicate their findings efficiently to both the scientific community and the general public.

The Master in Biología y Clínica del Cáncer presents a solid theoretical and practical program that includes topics of current interest in the field of cancer. This module will reinforce student's ability for the analysis and interpretation of scientific data, the presentation of scientific ideas at oral and written level, as well as the ability to collect information, synthesize it and make it accessible to different audiences. The acquisition of these skills is essential when it comes to training scientists who can compete at the highest level in their fields

Professional specialization

### 3.- Previous recommendations

Students will have to fulfil the general requirements applied to the MSc programme.

This module will be taught in English, therefore, a good level of English is highly recommended.

### 4.- Aims of the subject

The acquisition of skills will be carried out through a combination of theoretical classes and interactive workshops and presentations. The theoretical classes will be didactic presentations given by the teachers in which the basic information of each of the formats of scientific dissemination will be provided: monograph or thesis, scientific dissemination for non-scientific public, short talk (power point presentation), presentation/motivation letter, analysis and interpretation of data in poster format and evaluation (peer review).

The main objective of this module is to increase the students' communication capacity in order to increase their employability. The subject will be oriented towards topics related to the biology and clinical nature of cancer (by working with their own project), but the acquired tools may be applicable to any other area of knowledge. At the end of this course, students will have acquired practical skills in terms of:

- a) Present, read and interpret scientific data to scientific colleagues
- b) Present scientific ideas to a non-specialized public
- c) Collect published scientific information, synthesize it and make it accessible to different audiences.
- d) Introduce themselves when applying for a job/PhD.

To acquire these skills, students will have to:

- Present and defend their project in a short presentation and in a poster.
- Synthesize the information of a work area to produce a thesis for a reader specialized in the field.
- "Sell" their project to a non-expert audience.
- Introduce themselves and their career ambitions when applying for a PhD/job position

The specific attributes that students will get are:

- Improve their ability for written communication.
- Improve their capacity for verbal communication, learning to adapt to different types of audiences.
- Learn to read and interpret scientific data.
- Learn to find, organize, synthesize and write complex scientific information in a clear and interesting way and to present information in an objective way.
- Improve their ability to present quantitative information in an objective way.

## 5.- Temario de contenidos

The program is presented below the subject presented in sections:

### SECTION 1: THE NEED FOR SCIENCE COMMUNICATION

- The scientific method
- The scientific “language”
- The different forms of communication in science
- Effective communication

### SECTION 2: SCIENCE COMMUNICATION

- What is Science communication?
- The different formats of presentation to a non-expert audience

### SECTION 3: HOW TO WRITE MOTIVATION LETTERS AND E-MAILS

- What is a motivation letter?
- The importance of a good motivation letter
- Examples of good and bad motivation letters

### SECTION 3: PRESENTATION OF CONCEPTS AND SCIENTIFIC DATA

- Interpretation and presentation of scientific data.
- How to structure a presentation
- Talks vs Poster. Differences and similarities
- Examples of good and bad presentations

### SECTION 4: PRESENTATION OF A SCIENTIFIC PROJECT

- Presentation and evaluation of an extensive scientific work: Master Thesis
- Structure of the Master Thesis
- Presentation of data

### **Workshop program**

For the workshops and presentations, the main types of communications that the students will have to carry out during their professional careers have been considered. Given the practical aspect that is intended to give in this module, the number of hours dedicated to workshops and presentations will be considerably greater than that of the theoretical classes (as reflected in section 8). During the workshops the student will be guided in the preparation of the works and supervised work time will be provided.

Students will have to prepare the following exercises:

- Write a Master thesis. Students will write a thesis of a maximum of 2000 words, 5 figures and a maximum of 50 references based on their own project. This will provide a first attempt to write their final Master Thesis. Students will be encouraged to start writing from the first week of this module in order to receive as much guidance and supervision as possible. Deadline to present their Master Thesis will be the last day of this module.
- Prepare a video/short presentation. Students will present a 1-minute video/talk aiming at presenting their project to non-scientific public.
- Write a motivation letter. Students will be offered different job positions/PhD studentships and they will be asked to send an email and a motivation letter in order to apply to them.
- Present a poster. Students will present their own project in a poster. Posters will all be exhibited at CIC premises for 5 days. Students will be asked to be on their posters 1 day for 30 minutes so they can explain their projects to CIC's staff. Posters will be evaluated by 3 independent researchers.

## 6.- Competencias a adquirir

### Basic skills

- Students will be able to integrate knowledge and face the complexity of making judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of acquired knowledge.
- Students will possess the learning skills that allow them to continue their theoretical-practical training so that they will be autonomous. In this context it is important that the student develops the following abilities
- Students will develop their critical capacity in design, execution and interpretation of their own experimental results.
- Students will be able to apply the scientific method to the experimental approaches that are used in oncological research.

### Specific skills

- Students will know how to communicate their conclusions and the ultimate knowledge and reasons that support them to specialized and non-specialized audiences in a clear and unambiguous way.
- Students will develop their ability to understand and critical assessment about specialized scientific publications on this field.
- Students will be able to apply the scientific method to the experimental approaches that are used in cancer research.
- Students will be able to integrate new knowledge in the field of Molecular Cancer Biology, and develop their ability for self-learning.

### Transversal skills

- Students will know how to apply the knowledge acquired and their ability to solve problems in new or uncertain environments within broader (or multidisciplinary) contexts related to the Molecular and Cellular Biology Cancer research area.

## 7.- Metodologías docentes

The student must attend the assessable theoretical sessions of the course. The first session will focus on the approach of the sessions and their organization, discussion of the doubts and comments of the students.

The student must attend the workshops in which the different aspects of science communication will be presented and should participate in establishing a critical discussion of presented works.

## 8.- Previsión de distribución de las metodologías docentes

		Hours tutored by the teacher		Individual work (hours)	TOTAL HOURS
		Attendance required (hours)	Distance learning (hours)		
Lectures		30			30
Practices	- In classroom				
	- In laboratory				
	- In computer classroom				
	- Countryside				
	- Visualization classroom				
Seminars					
Work presentations and debates		10		15	25
Tutorials					
Online activities					
Work preparation				20	20
Other activities					
Exams - evaluation					
TOTAL		<b>40</b>		<b>35</b>	<b>75</b>

## 9.- Recursos

### Books

No applicable.

### Other bibliographical, electronic references or any other type of resource

- Divan, A. 2009. COMMUNICATION SKILLS FOR THE BIOSCIENCES. Ed. Oxford
- Bowater, L., Yeoman, K. 2012. Science Communication: A Practical Guide for Scientists. Ed. Wiley
  - Van der Brul, C. 2013. Crackle And Fizz: Essential Communication And Pitching Skills For Scientists. Ed. Imperial College Press
  - Willis, J. 2005. DATA ANALYSIS AND PRESENTATION SKILLS: AN INTRODUCTION FOR THE LIFE AND MEDICAL SCIENCES. Ed. Wiley
  - Davis, M.; Davis, K.J.; Dunagan, M. 2012. SCIENTIFIC PAPERS AND PRESENTATIONS. EFFECTIVE SCIENTIFIC COMMUNICATION. 3rd Edition. Ed Academic Press.

## 10.- Evaluación

### Assessments on the performance of the student

The assessment for the module will use a variety of formats, enabling students to demonstrate a variety of different skills or strengths.

### Recommendations

The evaluation proposed for this subject is:

- Thesis report (35%): contents, clarity of presentation, organization and correct use of tables, figures and references will be evaluated.
- Video (15%): content accessible to non-scientific public and clarity of concepts will be assessed.
- Motivation letter (15%).
- Poster (35%): content, clarity of data, methodology and presentation will be evaluated.

Students will have to apply what they have learned during the module for the different presentations.