

COMMUNICATION STRATEGIES FOR CANCER RESEARCH

1.- General information					
Code	303024	Plan		ECTS	3
Type	Mandatoy	Course	2025/2026	Periodicity	2 nd Semester
Language		English			
Department	Cancer Research Center				
Virtual Platform	https://cicloud.dep.usal.es/				

1.1.- Faculty			
Professor Coordinator	Dra. Esther Castellano Sánchez		
Departments	Biochemistry and Molecular Biology		
Research area	Molecular mechanisms mediating tumour:stroma crosstalk		
Center	Cancer Research Center		
Office	Laboratory 5		
Tutorials	On students demand		
URL Web	https://www.cicancer.org/grupo?id=38		
E-mail	ecastellano@usal.es	Phone	+34 923295805

Professor	Dra. Sandra Blanco Benavente		
Research area	Cancer epitranscriptomics		
Center	Cancer Research Center		
Office	Laboratory 5		
Tutorials	On students demand		
URL Web	https://www.cicancer.org/grupo?id=34		
E-mail	sblanco@usal.es	Phone	+34 923295805

Professor	Dra. Carmen Guerrero Arroyo		
Departments	Medicine		
Research area	Role of C3G in the biology of platelets and megakaryocytes. Contribution of C3G protein to pathological neoangiogenesis and tumor metastasis		
Center	Cancer Research Center		
Office	Laboratory 17		
Tutorials	On students demand		
URL Web	https://www.cicancer.org/grupo?id=55		
E-mail	cguerrero@usal.es	Phone	+34 923294817

Professor	Dr. Jesús Lacal Romero		
Departments	Microbiology and Genetics		
Research area	Functional genetics of rare diseases: the RASopathies		
Center	Edificio Departamental – Faculty of Biology		
Office	324		
Tutorials	On students demand		
URL Web	http://diarium.usal.es/jlcal/inicio-3/		
E-mail	jlcal@usal.es	Phone	663030885

2.- 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.

3.- Aims of the subject

Skills acquisition will be facilitated through a series of theoretical lectures and interactive workshops and presentations. The theoretical sessions will include didactic presentations delivered by instructors, offering foundational insights into various formats of scientific dissemination. These formats include theses, scientific outreach for non-specialist audiences, scientific presentations (utilizing tools like PowerPoint), data analysis and interpretation in poster format.

These theoretical sessions will provide students with essential knowledge and understanding of the principles underlying each mode of scientific communication. Through interactive workshops and presentations, students will have the opportunity to apply these concepts in practical scenarios, sharpening their proficiency in effectively conveying scientific information across diverse platforms and audiences.

At the end of this course, students will have acquired practical skills in terms of:

- Present a poster based on their TFM project.
- Write a brief thesis report.
- Present their TFM project to non-specialized public (Secondary School students).

On top of the new knowledge students will improve/gain the following soft skills:

- Written communication.
- Verbal communication in the context of different types of audiences.
- Interpret and communicate scientific data.
- Organize, synthesize and write complex scientific reports.
- Present quantitative information in an objective way.

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.

4.- Skills to be acquired / Learning outcomes
Skills 4.1: Basic skills: The basic skills to be acquired by students in this module may include: - Effective Communication: students will learn written, oral, and visual communication techniques to convey scientific concepts clearly and persuasively. - Audience Adaptation: Students will gain ability to tailor communication strategies to suit diverse audiences, including scientific peers, policymakers, funding bodies, and the general public. - Scientific Writing: students will acquire proficiency in crafting scientific documents such as research papers, reports, and proposals with accuracy, objectivity, and clarity. - Presentation Skills: students will acquire competence in delivering engaging and informative presentations using appropriate visual aids and communication tools. - Data Analysis and Interpretation: students will increase their capacity to analyze and interpret scientific data accurately, and present findings in a comprehensible manner. - Critical Thinking: students will develop critical thinking skills to evaluate scientific literature, identify key messages, and synthesize complex information effectively. - Media Literacy: students will acquire awareness of how scientific information is portrayed in various media outlets and strategies for engaging with media to communicate research effectively. - Professionalism: students will acquire professional attitudes and behaviors, including teamwork, time management, and adherence to ethical standards in scientific communication. 4.2: Specific skills: Students will be able to 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 be able to 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. 4.3: 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.

5.- Contents (Syllabus)
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: 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: WRITING A SCIENTIFIC PROJECT

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

Workshop program

In this module, the emphasis is on preparing students for real-world communication scenarios essential to their professional journeys. Consequently, workshops and presentations will take precedence over theoretical classes, ensuring ample time for hands-on learning and guidance in project preparation. Students will have to work on:

- Write a brief Master thesis report. Students will write a thesis report 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 talk for non-scientific public. Students will visit nearby secondary schools with the aim of sharing essential insights about cancer, covering topics such as its nature, treatment, and prevention. Additionally, they will provide a concise overview of their project. Following the presentation, Master's students will actively engage with secondary school attendees, addressing any queries they may have.

- Present a poster. Students will present their own TFM project in a poster. Posters will be exhibited at CIC premises for 2 days. Students will be asked to be on their posters 1 day for 2 hours so they can answer questions from the attendees. Posters will be evaluated by 3 researchers from the institution.

6.- Teaching methodology

Teaching methodologies will consist of a combination of lectures and practices. Attendance is mandatory.

6.1.- Estimated learning time					
		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				
	- Others (specify)				
Seminars					
Work presentations and debates		10		15	25
Tutorials					
Online activities					
Work preparation				20	20
Other activities					
Exams - evaluation					
TOTAL		40		35	75

7.- Materials, other bibliographical, electronic references or any other type of resource
Books: • Connection: Hollywood Storytelling meets Critical Thinking, Dr Randy Olson • Championing Science: Communicating Your Ideas to Decision Makers, Dr Roger Aines and Amy Aines • If I Understood You, Would I Have This Look on My Face?: My Adventures in the Art and Science of Relating and Communicating. Alan Alda • Escape from the Ivory Tower: A Guide to Making Your Science Matter. Nancy Baron • The Sense of Style: The Thinking Person's Guide to Writing in the 21st Century. Steven Pinker. Other bibliographical: 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.

8.- Assessment
8.1: Assessment Criteria: Attendance to all scheduled classes is mandatory. Failure to attend without proper justification, as well as failure to submit any of the required assignments or to participate in the practical activities, will result in automatic failure of the course. Active participation and completion of all components are essential to successfully pass the subject. 8.2: Assessment Systems: The final grade will be based on the following components:

- Thesis report (35%): The written report will be evaluated based on its content, clarity, organization, and appropriate use of tables, figures, and references.
- Presentation to a non-scientific audience (30%): Assessment will consider the relevance of the content, clarity of the presentation, and communication skills adapted to a lay audience.
- Poster (35%): Evaluation will focus on the clarity of data presentation, methodology, overall content, and visual effectiveness.
- Class participation: Active engagement in face-to-face sessions will be taken into account.

Students will be expected to apply the knowledge acquired during the course in all assessed components.

8.3: General Considerations and Recommendations for Assessment and Resits:

1. **Engage Actively:** Actively participate in class discussions, workshops, and practical exercises. Engaging with the material and fellow classmates enhances understanding and retention.
2. **Practice Regularly:** Dedicate time outside of class to practice science communication techniques such as writing, public speaking, and visual communication. Regular practice improves proficiency and confidence.
3. **Seek Feedback:** Be open to feedback from instructors and peers. Constructive criticism helps identify areas for improvement and refine communication skills.
4. **Tailor to Audience:** Consider the needs and knowledge level of your audience when communicating scientific concepts. Adapting your message to resonate with diverse audiences improves clarity and impact.

Stay Updated with emails and notifications from the instructors.

9.- Weekly Teaching Schedule

The course runs Monday to Friday from 6:00 PM to 8:00 PM. However, face-to-face sessions are not held every day. The schedule is structured as follows:

- During the initial weeks, theoretical sessions are delivered to provide the foundational knowledge required for the course.
- These are followed by practical workshops and individual supervision sessions, during which students receive tailored feedback and guidance on their assignments.

Given the practical nature of the course, the weekly schedule may vary each year depending on the academic calendar and specific activities planned. A detailed timetable with all sessions is provided at the beginning of the module.