

Universidad Autónoma de Baja California
 Coordinación General de Investigación y Posgrado



UNIVERSIDAD AUTÓNOMA DE BAJA CALIFORNIA
RESEARCH AND POSTGRADUATE HEAD OFFICE
LEARNING MODULE PROGRAM

Identification Information

School: Facultad de Ciencias Marinas and Instituto de Investigaciones Oceanológicas

Program: PhD in Coastal Oceanography

Study Program: 2021-1

Name of Learning Module: Scientific Communication

Learning Module Number:

Type of Learning Module: Elective

Class Hours (HC):

2

Field Practice Hours (HPC):

0

Workshop Hours (HT):

3

Clinical Hours (HCL):

0

Lab Hours (HL):

0

Extracurricular Hours (HE)

2

Credits (CR): 7

Requirements:

End of Program Profile

Upon completion of the PhD Program in Coastal Oceanography the student will be trained to develop original and independent research in marine sciences with top-level technical and methodological capabilities. The program will equip the student to push scientific knowledge forward and solve emerging problems related to the marine environment. Upon completion of the PhD Program in Coastal Oceanography the student will be able to:

Evaluate the oceanographic and climatological conditions in a comprehensive manner, through professionally applying the scientific method, including interdisciplinary and multidisciplinary work, as well as critical thinking implementing innovative strategies that resolve emerging regional and global problems to appropriately use and protect the marine environment, with honesty, social responsibility and respect for the environment.

Evaluate the effects of physical and climatological variability on chemical-biological variables that occur in the ocean, through the generation and application of multidisciplinary methodologies and techniques of biogeochemical analyses, for the implementation of innovative and comprehensive mitigation actions fostering the protection and sustainability of marine natural resources, with a proactive and innovative attitude, social responsibility and respect for the environment.

Evaluate the biological components of an ecosystem, their relationship and adaptation to the environmental physicochemical variables and their anthropic variations, through collaborating in interdisciplinary and multidisciplinary groups, as well as generating innovative biotechnological tools, to contribute to the implementation of conservation and management strategies of marine resources based on the environmental service value they provide to the ecosystem, with a proactive and innovative attitude, social responsibility and respect for the environment.

General Definitions of the Learning Module

General Purpose of the Learning Module:

The purpose of the Scientific Communication learning unit is for the student to develop and practice communication skills through the integration, interaction and practice of a diverse set of tools. The Scientific Communication learning unit supports the core and optional units of the PhD Program in Coastal

Universidad Autónoma de Baja California
 Coordinación General de Investigación y Posgrado

| | |
|---|---|
| | Oceanography by providing the basis for understanding how best communicate science to peers in the field and the general public. |
| Competency of the Learning Module: | Apply communicating tools and strategies for science communication related to coastal oceanography, using theoretical references, readings discussions and through practical oral and writing exercises, to implement them for disseminating scientific knowledge and contribute to the solution of marine environmental problems, with social responsibility, honesty and respect for the environment. |
| Learning Evidence (achievement or product to assess) of the Learning Module: | Portfolio of reports based on rubric where manuscripts, exercises, website content and readings reports are carried out in the course are synthesized. |

| | |
|--|-----------------|
| Content | |
| I. Name of the Module: Introduction to scientific communication | Hours: 5 |
| Competency of the Module: Identify the importance and the structure of scientific writing in academic and professional development, through theoretical references, review of readings, and writing exercises, to discern the different levels of communication within the coastal oceanography field, with a responsible, thoughtful and collaborative attitude. | |
| Topic and subtopics: | |
| 1.1. Writing as an activity inherent to research | |
| 1.2. Writing strategies | |
| 1.3. The organization of the scientific document | |
| 1.3.1. Title | |
| 1.3.2. Abstract | |
| 1.3.3. Introduction | |
| 1.3.4. Methods | |
| 1.3.5. Results | |
| 1.3.6. Discussion | |
| 1.3.7. Acknowledgments | |
| 1.3.8. Literature cited | |
| Practice (workshop): | Hours: 8 |
| 1. Preparation of summary of readings related to the topics seen in module I. | |
| 2. Group discussion of the concepts presented in the readings, where historical aspects about applied ecology study cases are analyzed. | |

| | |
|---|-----------------|
| II. Name of the Module: Statement of the problem | Hours: 5 |
| Competency of the Module: Develop a testable research question on a marine science related topic, through theoretical references, class discussion, and writing exercises, to successfully communicate the statement of a coastal oceanography problem, with a responsible, thoughtful and collaborative attitude. | |
| Topic and subtopics: | |
| 2.1. Problem statement | |
| 2.2. Identification of the limits | |

Universidad Autónoma de Baja California
 Coordinación General de Investigación y Posgrado

| | |
|---|-----------------|
| 2.3. Message development (“message box”) | |
| Practice (workshop): 1. Preparation of summary of readings related to the topics seen in module II. 2. Group discussion of the concepts presented in the readings, where historical aspects and applications of ecology are analyzed. 3. Build a message box directed to peers 4. Develop a website to share the message box | Hours: 8 |

| | | |
|---|-----------------|-----------------|
| III. Name of the Module: Conceptual framework | | Hours: 6 |
| Competency of the Module: Contextualize arguments related to research questions, through theoretical references, class discussion, and writing exercises, to successfully provide evidence supporting the statement of a coastal oceanography problem across multidisciplinary research fields, with a responsible, thoughtful and collaborative attitude. | | |
| Topic and subtopics: 3.1. Background 3.2. Hypothesis and its types 3.3. Objectives 3.4. Bibliography (Mendeley, Papers or EndNote) | | |
| Practice (workshop): 1. Preparation of summary of readings related to the topics seen in module III. 2. Group discussion of the concepts presented in the readings, where historical aspects and applications of ecology are analyzed. 3. Prepare a test manuscript linked to a bibliography manager tool. | Hours: 8 | |

| | | |
|---|--|-----------------|
| IV. Name of the Module: Scientific writing | | Hours: 6 |
| Competency of the Module: Identify the writing characteristics for science communication, through theoretical references, class discussion, and writing exercises, to develop accurate grammatical and orthographic considerations, with a responsible, thoughtful and collaborative attitude. | | |
| Topic and subtopics: 4.1. Types of scientific papers 4.2. Characteristics of the scientific style 4.3. Times and modes of scientific writing 4.4. The use of the gerund 4.5. Accent rules 4.6. Anglicisms | | |

Universidad Autónoma de Baja California
 Coordinación General de Investigación y Posgrado

| | |
|---|-----------------|
| 4.7. Common but erroneous terms | |
| Practice (workshop): 1. Preparation of summary of exercises related to the topics seen in module IV. 2. Group discussion of the concepts presented in the readings, where historical aspects and applications of ecology are analyzed. 3. Develop a written scientific proposal | Hours: 8 |

| | |
|---|-----------------|
| V. Name of the Module: Research Proposal | Hours: 6 |
| Competency of the Module: Identify elements for a research proposal relevant to marine science funding, through theoretical references, class discussion, and writing exercises, in order to get first-hand experience on elaborating a successful funding proposal, with a responsible, thoughtful and collaborative attitude. | |
| Topic and subtopics: 5.1. Financing sources 5.2. The sponsor 5.3. Calls and terms of proposals 5.4. Strategies for obtaining funds 5.5. Formats of research projects 5.6. Evaluation of research proposals | |
| Practice (workshop): 1. Preparation of summary of exercises related to the topics seen in module IV. 2. Group discussion of the concepts presented in the readings, where historical aspects and applications of ecology are analyzed. 3. Further develop a scientific proposal and adjust it to different funding sources. | Hours: 8 |

| | |
|--|-----------------|
| VI. Name of the Module: Oral presentations | Hours: 5 |
| Competency of the Module: Analyze the methods for oral communication of science, through theoretical references, class discussion, and group presentation exercises, to develop oral communications skills and enhance knowledge transfer, with a responsible, thoughtful and collaborative attitude. | |
| Topic and subtopics: 6.1. Selection of information 6.2. Characteristics and design of audiovisual content 6.3. Poster presentation 6.4. Oral presentation | |
| Practice (workshop, lab, clinic, field): 1. Student Project and proposal presentations | Hours: 8 |

Universidad Autónoma de Baja California
Coordinación General de Investigación y Posgrado

2. Group discussion

Learning Strategies used:

Analysis of readings about the class topics.

Active participation in discussions, to strengthen the concepts discussed.

Research proposal preparation and oral presentation.

Evaluation Criteria:

Considering that students will be using their own research, the interest and scientific concern of each of the students will be used to develop the research proposal, website, presentation and other communication tools. The evaluation of student performance will be carried out following these criteria:

| | |
|--|------|
| Research proposal | 30% |
| Participation in classroom discussion..... | 20% |
| Oral Presentation..... | 30% |
| Website content | 20% |
| Total..... | 100% |

Accreditation Criteria:

- Students must comply with the stipulations of the valid School Statutes or other applicable regulations.
- The grading scale is from 0 to 100. The minimum passing grade is 70.

Bibliography:

Woodford, P. (1986). *Scientific Writing for Graduates Students*. Maryland: Council of Biology Editors, Inc. [classic]

Strunk, W.Jr. & White, E. B. (2009). *The Elements of Style* (5a. ed.). Boston: Allyn and Bacon. [classic]

Gastel, B. & Day, R. (2016). *How to write and publish a scientific paper* (8a. ed.). Santa Barbara:Greenwood.

Date Created / Updated: August, 2020.

Professor Profile: The person who teaches the Scientific Communication learning unit must have an academic degree in the area of Natural and Exact Sciences or a related one with knowledge in Oceanology; preferably with postgraduate studies.

Name(s) and signature(s) of the creator(s) of this Learning Module Program:

Dr. Rodrigo Beas Luna
Profesor de Tiempo Completo
FCM, CA de Ecología, Conservación y Manejo de Recursos Marinos

Dr. José A. Zertuche González
Investigador de Tiempo Completo Titular
IIO, CA de Botánica Marina

Name and signature of the person who authorizes this Learning Module Program:

Dra. Lus Mercedes López Acuña
Directora de la Facultad de Ciencias Marinas
Profesor de Tiempo Completo
FCM, CA de Biotecnología Acuícola Animal

Universidad Autónoma de Baja California
Coordinación General de Investigación y Posgrado

Dr. Alejandro Cabello Pasini
Director del Instituto de Investigaciones Oceanológicas
Investigador de Tiempo Completo
IIO, CA de Botánica Marina

Name(s) and signature(s) of the person(s) who peer-reviewed the Learning Module Program:

Dra. Alicia Abadía Cardoso
Profesor de Tiempo Completo
FCM, CA de Recursos Genéticos Acuáticos

Dra. Adriana Gisel Gonzalez Silvera
Profesor de Tiempo Completo
FCM, CA de Ecología del fitoplancton

Dra. Mónica Torres Beltrán
Profesora por Asignatura
UABC, Facultad de Ciencias Marinas