



IDENTIFYING DATA

Quality management and control

Subject	Quality management and control			
Code	V02G030V01911			
Study programme	Grado en Biología			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language	Spanish			
Department				
Coordinator	Gallardo Medina, Mercedes Cal Arca, Ángela María			
Lecturers	Cal Arca, Ángela María Gallardo Medina, Mercedes			
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General description The aim of this course is for the student to know and understand the principles of quality management and of the environment, as well as the rules of organization and effective management of a laboratory. In this respect, may acquire competence in the application of the ISO 9000 quality management standard, ISO 14000 of environmental management and ISO 17025 for the management and technical competence of testing and calibration laboratories.

The schedule of the subject is approved in the Faculty Board and can be consulted in the following link:
<http://bioloxia.uvigo.es/en/teaching/schedules>

Training and Learning Results

Code	
A1	Students should prove understanding and knowledge in this study field that starts in the Secondary Education and with a level that, even though it is supported in advanced books, also includes some aspects that involve knowledge from the vanguard of the study field.
A2	Students should know how to apply their knowledge to their work or vocation in a professional way. They also should have the competences that are usually proved through the elaboration and defence of arguments and the resolution of problems within their study field.
A3	Students should prove ability for information-gathering and interpret important data (usually within their study field) to judge relevant social, scientific or ethical topics.
A4	Students should be able to communicate information, ideas, issues and solutions to all audiences (specialist and unskilled audience).
A5	Students should develop the necessary learning skills to undertake further studies with a high degree of autonomy
B2	Ability of reading and analyzing scientific papers and having critical assessment skills to understand data collection, deducing the main idea from the least relevant ones and basing on the corresponding conclusions.
B3	Acquisition of general knowledge about the basic subjects of biology, both at theory and experimental level, without dismissing a higher specialization in subjects that are oriented to a concrete professional area.
B4	Ability in handling experimental tools, both scientific and computer technology equipment that support the search for solutions to problems related to the basic knowledge of biology and with those of a concrete labour context.
B7	Collection of information about issues of biologic interest, analysis and emission of critical opinions and reason them including the reflection about social and/or ethical aspects related to the issue.
B10	Development of analytic and abstraction skills, the intuition and the logical and rigorous thought through the study of biology and its uses.
B11	Ability to communicate in detail and clearly: knowledge, methodology, ideas, issues and solutions to all audiences (not only qualified but unskilled in Biology).
B12	Ability to identify their own educational necessities in the biology field and in concrete labour areas and to organize their learning with a high grade of autonomy in any context.

C25	Gathering background information, develop experimental work and analysing data results
C27	Developing and monitoring management systems and quality control on Biology
C29	Helping and evaluating scientific, technical, ethical, legal and socioeconomically aspects related to Biology.
C30	Controlling and counselling on every aspect related to Organisms Welfare.
C31	Knowing and handling technical and scientific apparatus.
C32	Knowing and handling basic or specific key concepts and terminology
C33	Understanding the social projection of Biology.
D1	Development of capacity of analysis and synthesis
D2	Acquisition of the organization and planning capacity for tasks and time
D6	Research and interpreting of information from different sources
D11	Adquisition of an ethical agreement with the society and the profession
D13	Sensitivity for environmental issues
D14	Adquisition of abilities in the interpersonal relationships
D16	Acceptance of a quaility commitment
D18	Development of negotiating power

Expected results from this subject

Expected results from this subject	Training and Learning Results			
To know the standards of management and quality control of processes, systems, research, etc., related to Biology.	A1	B2 B3	C27 C32 C33	D1 D6 D13 D16
Understand the concept of quality systems and their application. Manage and apply the main systems of quality.	A1 A2	B3	C27 C31	D2 D6 D13 D16
Knowledge and get used to methods of validation, calibration, uncertainty calculation, verification tests, quality standards and other parameters and quality systems.	A2	B2 B4	C31 C32	D6 D13 D16
Knowing how to evaluate, verify and accredit quality.	A2 A5	B4 B7 B11	C27 C30	D1 D2 D13 D14 D16 D18
Understand the importance and impact of the implementation of quality systems in professional and social fields.	A4	B10 B11	C27 C33	D11 D13 D14 D16 D18
Obtain information, evaluate and interpret results	A3	B2 B7 B10	C25	D2
Apply knowledge of quality management to advise, supervise and assess scientific-technical, ethical, legal and socio-economical aspects related to biology.	A2 A3	B10 B12	C29	D2 D6 D11 D13 D14 D16 D18
To know and handle the concepts, terminology and scientific-technical instrumentation related to quality management.	A1 A4	B4 B11	C32	D6 D13 D16

Contents

Topic	
Block 1.- The Quality Management System	Subject 1. The Quality management: concept and historical evolution Subject 2. Design and implementation of a Quality Management System
Block 2.- Models and standards for the Quality management	Subject 3. Quality Management. UNE-EN-ISO 9000 Subject 4. Environmental management: UNE-EN-ISO 14000. EMAS Subject 5. Quality management in the laboratory: standards and techniques. Regulation UNE-EN ISO/IEC 17025
Block 4.- Tools for the Quality management	Subject 6. Tools for the Quality management

Subject 7. The continuous improvement and the participatory management of the quality

Seminars and ABPs	Develop in small groups a project for a company, organisation or institution on the implementation of an integrated quality and environmental management system, applying ISO 9000 and ISO 14000 standards.
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Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	20	0	20
Project based learning	5	20	25
Discussion Forum	2	0	2
Essay	20	60	80
Project	5	10	15
Objective questions exam	1	5	6
Presentation	0	2	2

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Lecturing	Exposure by the teachers of the contents on the subject of study, theoretical bases and/or guidelines of a work, exercise or project to be developed by the student
Project based learning	Carrying out activities to integrate theoretical knowledge, management tools and formal quality management standards and models. Students, working in small groups, must develop an integrated project on the application of quality and environmental management systems, using the ISO 9000 and ISO 14000 standards as a tool. With this, students are expected to train, among others, the skills of analysis and synthesis, cooperative learning, organisation, information search, communication and strengthening of personal relationships.
Discussion Forum	The activity takes place in a face-to-face environment in which various topics related to the academic and/or professional field are discussed with renowned professionals who carry out their main work activity in the field of quality.

Personalized assistance

Methodologies	Description
Lecturing	Students can ask any questions they may have during the lectures by e-mail. On the other hand, each lecturer sets aside 6 hours of tutoring per week for students who request it. The timetable for these tutorials will be announced by the subject coordinator, but will also be available to students both in the subject area on the Moovi platform and on the Faculty's website.
Project based learning	In these activities, the teacher has the function of guiding and orienting the students' learning process and helping them to successfully carry out the planned project. To this end, effective monitoring will be carried out focused on the equipment configured to carry it out. Likewise, all the material will be available on the Moovi Platform with a summary of the theoretical class presentations, some examples of previous projects that will be progressively uploaded to the platform throughout the course, as well as standards and other useful documents for carrying out the project. On the other hand, students will also be able to resolve their doubts individually in the hours allocated to tutorials, which, as indicated in the previous section, will be communicated through the subject coordinator and will be available on the subject's space in Moovi, as well as on the Faculty's website.

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Class attendance will be randomly checked throughout the course.	5	A1 B2 C29 D1 A5 B3 C30 D6 B7 C31 D11 B10 C32 D13 B12 C33 D16

Essay	The practical sessions will be complemented with the individual delivery through the Moovi platform of the tasks performed during each practical. These deliverables may be subsequently completed and improved within the deadline established for each delivery. This methodology is part of the continuous evaluation.	30	A2 B2 C25 D1 A3 B4 C27 D2 A4 B7 C29 D6 A5 B10 C30 D11 B11 C31 D13 B12 C32 D14 C33 D16 D18
Project	The project will be carried out in groups (2 to 3 students). On the established date (usually 10-15 days prior to the date of the final exam), each group of students will submit the written project as a result of the Project Based on Learning, carried out during the practical sessions. This methodology is part of the continuous evaluation.	30	A2 B2 C25 D1 A3 B4 C27 D2 A4 B7 C29 D6 A5 B10 C30 D11 B11 C31 D13 B12 C32 D14 C33 D16 D18
Objective questions exam	It will be carried out in the final exam. It will allow to evaluate the theoretical knowledge imparted in the teaching sessions, as well as the acquired competences. They may include closed questions with different answer alternatives (true/false, multiple choice, matching of elements, etc.).	25	A1 B2 C29 D1 A5 B3 C30 D6 B7 C31 D11 B10 C32 D13 B12 C33 D16
Presentation	It will be carried out in the final exam. The group of students will carry out the presentation and defense of their project.	10	A3 B11 C27 D1 A4 B12 C32 D14 C33 D18

Other comments on the Evaluation

CONTINUOUS EVALUATION

In order to pass the subject, students must complete the following activities: work, project, presentation, exam, and achieve a minimum grade of 5 points out of 10. Nevertheless, the different activities can be compensated if a minimum grade of 4/10 points is achieved on them. In case of not reaching the minimum grade in the Project section (4/10) or in the exam of objective questions (4/10), the grade obtained will be the one that appearing as the subject final grade (the rest of the sections will not be taken into account). During the theoretical classes, four attendance controls will be carried out randomly. Each control will value 0.125 points that will have an impact on the final grade of the subject.

Exam

In order to take the theoretical exam it is necessary to attend the practical sessions. Non-attendance of a practical for justified reasons must be documented within 24 hours after the end of the practical.

Project

This is the final report of the project carried out during the practical sessions. The quality of the project presented, its originality, usefulness and possible practical application will be evaluated. In addition, it will also be taken into account:

- The inclusion of qualitative aspects of scientific rigor, bibliographical references and the use of scientific terminology.
- Formal appearance of the report: organization, format and style of writing, inclusion of logos, as well as spelling, grammatical and punctuation errors, bad expressions, etc.

Work

The work developed by the student will be evaluated in the classroom during the practical sessions. This will be reflected in a deliverable that must be uploaded to the Moovi platform at the end of each practical session. In order to complete and improve each section of the project carried out during the internship, it will be valued the fact of uploading to Moovi an improvement of the work done in the practices (complete information, aspects of organization and format, etc.), within the deadlines assigned for this purpose. On the other hand, the participation and interest shown by the student in the classroom during the internship will also be valued.

Presentation

The evaluation of the presentation takes into account if it includes the key ideas of the project, the student's ability to convey a clear idea of the project to third parties and him/her fluently in the presentation.

SECOND OPPORTUNITY

In the second opportunity the student will be able to recover the following activities of the subject: project, presentation and

exam of objective questions. The 'work' part is not recoverable and therefore must be passed during the class period of the course.

In the case of the project, if it was not passed at the first opportunity, the student may correct and complete the corresponding parts or, if necessary, repeat the entire project.

GLOBAL EVALUATION

Students may request a global evaluation, according to the dates and procedure established by the center, and it will entail the waiver of the continuous evaluation. The global evaluation will allow obtaining 100 % of the score of the subject through a test on the official date set for the final exam of the subject, both in the first and second opportunity.

The test will include an exam of objective questions and the written and oral presentation of the Project.

Academic and Examination Calendars

The academic calendar can be consulted at: <http://bioloxia.uvigo.es/es/docencia/horarios>

The exam calendar can be consulted at: <http://bioloxia.uvigo.es/es/docencia/examenes>

Ethical aspects

Plagiarism in papers and the unjustified use of artificial intelligence programs will be prosecuted. Copying from other students during the evaluation tests may also be a reason for a grade reduction and a failure in the subject.

Sources of information

Basic Bibliography

Camisón C, **Gestión de la calidad: conceptos, enfoques, modelos y sistemas**, 2006

Cuatrecasas L; Gonzalez Babón J, **Gestión integral de la calidad. Implantación, control y certificación.**, 2017

Llorens Montes F.J., **Gestión de la Calidad Empresarial: fundamentos e implantación**, 2005

Complementary Bibliography

López Lemos, Paloma, **Como documentar un sistema de Gestión de calidad según ISO 9001:2015**, 2015

Vilar Barrio JF, **Las Siete nuevas herramientas para la mejora de la calidad**, 2017

Cláver Cortés E, **Gestión de la calidad y gestión medioambiental**, 2011

López Lemos, Paloma, **Novedades ISO 9001:2015**, 2015

Varios autores, **Herramientas para la Calidad**, 2004

Woodside G, **Auditoría de sistemas de gestión ambiental: introducción a la norma ISO 14001**, 2001

Enríquez Palomino A. y Sánchez Rivero, M., **ISO 14001: 2015 Implantación de Sistemas de Gestión Ambiental**, Confemetal, 2018

Seoánez Calvo Mamp; Angulo Aguado L, **Manual de gestión medioambiental de la empresa: sistemas de gestión medioambiental, auditorías medioambientales, evaluaciones de impacto ambiental y otras estrategias**, 1999

Rubio Romero JC, **Gestión de la prevención de riesgos laborales: OHSAS 18001 - Directrices OIT para su integración con calidad y medioambiente**, 2002

Recommendations

Subjects that continue the syllabus

Internships/V02G030V01981

Drafting and execution of projects/V02G030V01801

Final Year Dissertation/V02G030V01991

Subjects that are recommended to be taken simultaneously

Agri-food analysis and diagnostic/V02G030V01901

Clinical diagnosis and analysis/V02G030V01903

Environmental analysis and diagnosis/V02G030V01902

Biodiversity: management and conservation/V02G030V01905

Pollution/V02G030V01906

Environmental impact evaluation/V02G030V01904

Management and Conservation of spaces/V02G030V01910

Animal production/V02G030V01907

Microbial Production/V02G030V01908

Plant Production/V02G030V01909