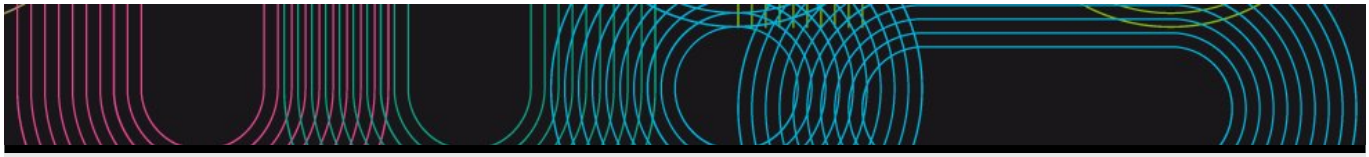

IDENTIFYING DATA				
Quality management and control				
Subject	Quality management and control			
Code	V02G031V01401			
Study programme	Grado en Biología			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language	Spanish			
Department				
Coordinator	Gallardo Medina, Mercedes Cal Arca, Ángela María			
Lecturers	Cal Arca, Ángela María Gallardo Medina, Mercedes			
E-mail	ANGELA.CAL@UVIGO.ES medina@uvigo.es			
Web				
General description	English Friendly subject: International students may request from the teachers: a) resources and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English. 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	
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.
A4	Students should able to communicate information, ideas, issues and solutions to all audiences (specialist and unskilled audience).
B4	Draft and write reports, documents and projects related to Biology. Proceed to their presentation and debate in the teaching and specialized areas, highlighting the competences of the degree.
B5	Develop capacities for creativity, innovation and entrepreneurship, in academic and social relevant fields as well as in interaction with the productive sector.
B7	To aim for quality objectives in the development of the activity done and incorporate ethical principles, which should prevail in the professional practice of Biology.
C9	Identify resources of biological origin and assess their efficient and sustainable use in order to obtain products of interest. Propose and implement improvements in production systems.
C12	Writing reports and technical dossiers, as well as directing and executing projects on topics related to biology and its applications.
C13	Provide training, participate in R+D+i projects, communicate results and disseminate knowledge. Contribute to the social projection of biology and to raising awareness of the environment.
C14	Advise, assess and supervise scientific-technical, ethical, legal and socio-economic aspects related to biology and its applications.
D3	Commitment to sustainability and the environment. Equal, sensible and efficient use of resources.
D4	Collaborate and work in teams or multidisciplinary groups, promote negotiation skills and the ability to reach agreements.

D5 Communicate effectively and appropriately, including the use of computer tools and English.

Expected results from this subject	Expected results from this subject	Training and Learning Results			
To know the standards of management and control of quality systems related to biology.	A2	B7	C9 C13	D3
To understand the concept of quality systems and their application. To manage and apply the most important quality systems.	A4	B4 B5	C9 C12	D3 D5
To know and become familiar with the methods of validation, calibration, uncertainty calculation, verification tests, quality standards and other quality parameters and systems.	A2 A4	B4 B7	C14	D3 D5
To assess, verify and accredit quality.	A2 A4	B4 B5	C12 C13 C14	D4 D5
To be aware of the importance and impact of the implementation of quality systems at professional and societal level.	A2 A4	B5 B7	C9 C13	D3 D4
Apply knowledge of quality management to advise, supervise and assess scientific-technical, ethical, legal and socio-economic aspects related to Biology.	A2 A4	B5 B7	C14	D4 D5

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, organization or institution on the implementation of an integrated system of Quality & Environment management, applying ISO 9000 and ISO 14000 standards

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 that allow the integration of theoretical knowledge, management tools and formal standards and models of quality management. Students, working in small groups, will have to develop an integrated project on the application of Quality and Environmental management systems, using ISO 9000 and ISO 14000 standards as a tool. With this, students are expected to train, among others, the skills of analysis and synthesis, learning in cooperation, organization, information search, communication and strengthening of personal relationships.
Discussion Forum	Activity is carried out in a face-to-face environment in which various topics related to the academic and/or professional field are discussed with professionals of renowned prestige 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	A2 B7 C9 C14 D3
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 B4 B7 C12 C14 D3 D4
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 A4 B4 B5 B7 C9 C12 C13 C14 D3 D4 D5
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	A2 B7 C9 C14 D3
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	A2 A4 B5 C13 D4 D5

Other comments on the Evaluation

CONTINUOUS EVALUATION

In order to pass the subject, students mustcomplete the following activities: work, project, presentation, exam, andachieve a minimum grade of 5 points out of 10. Nevertheless, the differentactivities can be compensated if a minimum grade of 4/10 points is achieved onthem. 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 theone that appearing as the subject final grade (the rest of the sections willnot be taken into account).
During the theoretical classes, four attendance controls will be carried outrandomly. Each control will value 0.125 points that will have an impact on thefinal grade of the subject.

Exam

In order to take thetheoretical 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 ofthe project carried out during the practical sessions. The quality of the project presented, its originality, use fulness 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 inthe classroom during the practical sessions. This will be reflected in adeliverable that must be uploaded to the Moovi platform at the end of eachpractical session. In order to complete and improve each section of the projectcarried out during the internship, it will be valued the fact of uploading toMoovi an improvement of the work done in the practices (complete information,aspects of organization and format, etc.), within the deadlines assigned forthis purpose. On the other hand, the participation and interest shown by thestudent in the classroom during the internship will also be valued.

Presentation

The evaluation of the presentation takes in 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 fluenty 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 Riovero, M., **ISO 14001:2015. Implantación de sistemas de gestión ambiental**, Confemental, 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

Bioinformatics/V02G031V01403
Pollution/V02G031V01402
Internships/V02G031V01981
Drafting and execution of projects/V02G031V01404
Final Year Dissertation/V02G031V01991

Subjects that are recommended to be taken simultaneously
Agri-food analysis and diagnostic/V02G031V01409
Environmental analysis and diagnosis/V02G031V01413
Biodiversity: management and conservation/V02G031V01415
Integrative cell biology and physiology: Implications for health/V02G031V01407
Clinical biochemistry and inmunology/V02G031V01405
Biotechnology applied to animal production/V02G031V01410
Biotechnology applied to microbiological production/V02G031V01412
Biotechnology applied to plant production/V02G031V01411
Environmental impact evaluation/V02G031V01414
Human genetics and molecular pathology/V02G031V01408
Management and Conservation of spaces/V02G031V01416
Public health microbiology and parasitology/V02G031V01406