



Teaching Guide				
Identifying Data				2016/17
Subject (*)	Calidade nos laboratorios químicos	Code	610509028	
Study programme	Mestrado en Investigación Química e Química Industrial (plan 2016)			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	Yearly	First	Optativa	3
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Química Analítica			
Coordinador	Andrade Garda, Jose Manuel	E-mail	jose.manuel.andrade@udc.es	
Lecturers	Andrade Garda, Jose Manuel	E-mail	jose.manuel.andrade@udc.es	
Web				
General description				

Study programme competences	
Code	Study programme competences
A1	Define concepts, principles, theories and specialized facts of different areas of chemistry.
A2	Suggest alternatives for solving complex chemical problems related to the different areas of chemistry.
A5	Properly assess risks and environmental and socioeconomic impacts associated with special chemicals
A6	Design processes involving the treatment or disposal of hazardous chemicals
B5	Students must possess learning skills to allow them to continue studying in a way that will have to be largely self-directed or autonomous.
B6	Innovate in the different areas of chemistry, demonstrating initiative and entrepreneurship
B8	Evaluate responsibility in the management of information and knowledge in the field of Industrial Chemistry and Chemical Research
B11	Apply correctly the new technologies to gather and organize the information to solve problems in the professional activity.
B13	Assess the human, economic, legal and ethical dimension in professional practice as well as the environmental implications of their work

Learning outcomes			
Learning outcomes			Study programme competences
The objectives of this subject are, in brief: to know and to understand the basic concepts behind the term quality (in particular, in analytical laboratories); to train the student to establish and write standard operating procedures according to the ISO 17025 guide; to be able to validate analytical procedures and to calculate their uncertainties.			AC1 AC2 AC5 AC6 BC5 BC6 BC8 BC11 BC13

Contents	
Topic	Sub-topic
Chapter 1	Introducing Quality
Chapter 2	Quality Management
Chapter 3	Metrology: trazability and uncertainty
Chapter 4	Managing instruments
Chapter 5	Validating analytical methodologies
Chapter 6	Tools for managing quality

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Seminar	A2 B5 B11	7	14	21



Supervised projects	A5 A6 B5 B11	2	4	6
Objective test	A1 A5 A6 B8 B13	2	4	6
Guest lecture / keynote speech	A1 B6 B8 B13	12	30	42
Personalized attention		0		0

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

Methodologies	
Methodologies	Description
Seminar	They may include debates between students, lectures from professionals working at the industry, written works presented by students, etc. It is attempted to encourage the participation of the students.
Supervised projects	Reports written by the students on a particular topic. They have to be presented orally to the classmates.
Objective test	The objective test (exam) will contain theoretical questions and numerical exercises
Guest lecture / keynote speech	The teachers will explain the lessons but it will also be attempted to enrole other professionals

Personalized attention	
Methodologies	Description
Seminar	O seu obxectivo é discutir aspectos do curso, resolver dúbidas e debater contidos e/ou organización. Ademáis, os alumnos poderán empregar horas de titorías para abordar estes mesmos aspectos ou planificar os traballos tutelados.
Supervised projects	

Assessment			
Methodologies	Competencies	Description	Qualification
Guest lecture / keynote speech	A1 B6 B8 B13	Lecciones impartidas por el profesorado, mediante el apoyo de medios audiovisuales e informáticos. Se potenciará, dentro de lo posible, que todos los alumnos participen en las mismas.	10
Seminar	A2 B5 B11	Sesiones interactivas relacionadas con las distintas materias con debates e intercambio de opiniones de los alumnos. También se utilizarán para la resolución de ejercicios prácticos y presentación de los trabajos, en algunos casos utilizando herramientas informáticas. El alumno participa activamente en estas clases de distintas formas: entrega de ejercicios al profesor; resolución de ejercicios en el aula, etc. En estas clases es posible la participación de personas invitadas por su especial cualificación y/o experiencia para la discusión de casos prácticas y el debate con los alumnos	35
Objective test	A1 A5 A6 B8 B13	Prueba escrita para mostrar el grado de asimilación de los temas impartidos. Constará de preguntas breves a resolver por el alumno. Podrá incluir algún ejercicio numérico.	55

Assessment comments
O exame final (proba obxectiva) incluirá tanto elementos de tipo teórico como de tipo práctico (resolución de casos) asociados ás actividades desenvolvidas
O criterio para ser evaluado coma ?Non Presentado? é que o alumno non se presente ao exame final.
Esixirase unha asistencia superior ao 80% do total das horas docentes (expositivas e seminarios)

Sources of information



<b>Basic</b>	<ul style="list-style-type: none"><li>- R. Compañó, A. Ríos (2002). Garantía de la calidad en los laboratorios analíticos. Ed. Síntesis (Madrid)</li><li>- D.H. Besterfield (2009). Control de Calidad. Pearson-Prentice</li><li>- J.R. Evans, W.M. Lindsay (2005). Administración y control de la calidad. Thomson</li></ul>
<b>Complementary</b>	

### Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Subjects that continue the syllabus

Other comments

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.