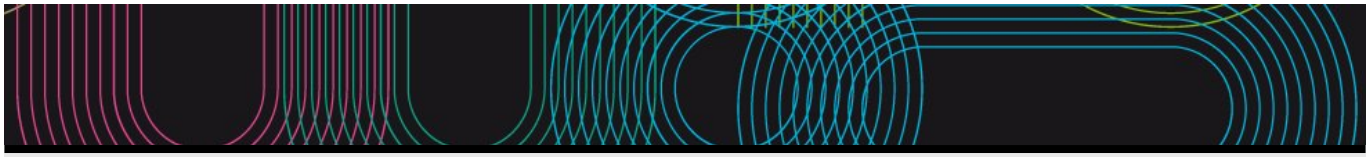
Universidade Vigo

Subject Guide 2018 / 2019



IDENTIFYING DATA				
Techniques to Study Marine Organisms				
Subject	Techniques to Study Marine Organisms			
Code	V02M098V01108			
Study programme	(*)Máster Universitario en Bioloxía Mariña			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Mandatory	1st	1st
Teaching language	Spanish			
Department	Functional Biology and Health Sciences Biochemistry, Genetics and Immunology External			
Coordinator	Molist García, María del Pilar			
Lecturers	Galindo Dasilva, Juan González Sotelo, María del Carmen Molist García, María del Pilar Pasantes Ludeña, Juan José Suarez Alonso, Maria del Pilar			
E-mail	pmolist@uvigo.es			
Web				
General description	It is a essentially practical subject, in which students will be familiar with histological, biochemical and genetic techniques. These techniques will be used in studying tissues, protein and gene expression, genetic markers, biomolecules purification and immunological techniques. Its main aim is that the student knows and evaluates the potentiality of a variety of techniques for the study of marine organisms.			

Competencies	
Code	
A1	(*)Posuír e comprender coñecementos que acheguen unha base ou oportunidade de ser orixinais no desenvolvemento e/ou aplicación de ideas, adoito nun contexto de investigación.
A2	(*)Que os estudantes saiban aplicar os coñecementos adquiridos e a súa capacidade de resolución de problemas en contornos novos ou pouco coñecidos dentro de contextos máis amplos (ou multidisciplinares) relacionados coa súa área de estudo.
A3	(*)Que os estudantes sexan capaces de integrar coñecementos e se enfrontar á complexidade de formular xuízos a partir dunha información que, sendo incompleta ou limitada, inclúa reflexións sobre as responsabilidades sociais e éticas vinculadas á aplicación dos seus coñecementos e xuízos.
A4	(*)Que os estudantes saiban comunicar as súas conclusións, e os coñecementos e razóns últimas que as sustentan, a públicos especializados e non especializados dun xeito claro e sen ambigüidades.
A5	(*)Que os estudantes posúan as habilidades de aprendizaxe que lles permitan continuar estudando dun xeito que terá que ser, en grande medida, autodirixido e autónomo.
B1	Utilización de criterios y métodos científicos en el planteamiento y resolución de problemas aplicando los conocimientos adquiridos
B2	Búsqueda, análisis e integración de información a partir de diferentes fuentes y capacidad para su interpretación y evaluación
B3	Aprendizaje de diversas técnicas y métodos analíticos tanto en el medio natural como en el laboratorio
B4	Desarrollo de habilidades en el manejo y tratamiento de herramientas, matemáticas, estadísticas e informáticas
C2	Conocimiento de la diversidad de organismos marinos y sus estrategias adaptativas
C8	Conocimiento y manejo de la metodología de investigación, de las técnicas muestreo e instrumentales y de análisis de datos aplicados al medio marino
C11	Estudios de dinámica poblacional, mejora genética y selección de stocks en pesquerías, acuicultura y programas de repoblación
D1	Desarrollo de las capacidades comprensivas, de análisis y síntesis
D2	Desarrollo de la capacidad de razonamiento crítico y autocrítico

Learning outcomes	
Expected results from this subject	Training and Learning Results
Application of histological, biochemical and genetic techniques to the study of marine organisms	A1 A2 A3 A4 A5 B1 B2 B3 B4 C2 C8 C11 D1 D2 D4

Contents	
Topic	
1.- Histological techniques	1a.- Processed of samples for microscopic study: applications of the microscopy. 2b.- Inmunohistochemistry and application of the histochemica techniques using lectins.
2. Genetic techniques	2a.- Detection of the genetic variation. 2b.- Genetic markers and their applications 2c.- Molecular resources in the internet
3.- Biochemical techniques	3a.- Extraction, separation and quantification of biomolecules. 3b.- Spectrophotometric electrophoretic, chromatographic, fluorometric and of enzymatic determination.
4.- Identification of species	4.- Use of molecular tools for the identification of fisheries products.

Planning	Class hours	Hours outside the classroom	Total hours
Laboratory practices	15	34.5	49.5
Presentation	2	8	10
Group tutoring	1.5	0	1.5
Lecturing	4	8.48	12.48
Other	1.52	0	1.52

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

Methodologies	Description
Laboratory practices	The techniques proposed in the content section will be carried out. In advance, a script will be delivered to the students explaining the basis and objectives to develop each technique. During or at the end of the development of the protocol students will make problems and solve practical cases .
Presentation	A practical problem with a combination of techniques will be proposed to the students who will have to choose the techniques that are best suited to solve that problem and, explain the basis of their choice.
Group tutoring	There will take place two 2 group tutorials, in which the doubts and questions will be ask about different aspects of the subject. The teacher will guide in the elaboration of personal works.
Lecturing	The theorical aspects and the usefulness of the laboratory techniques will be treated in the master sessions.

Personalized attention	
Methodologies	**Description**
Group tutoring	In the group tutorials will raise doubts and questions of the subject. The student will be advised to carry out their work

Assessment

	Description	Qualification	Training and Learning Results			
Laboratory practices	Continuous evaluation by means of the follow-up of the student's work in the laboratory.	20	A2	B1 B3	C8	
Presentation	Continuous evaluation through the delivery and/or exhibition of works, results, reports, etc.	30	A1 A4	B2		D1 D2 D4
Group tutoring	Evaluation of the monitoring of the performance of the work in the different parts of the subject.	10				D2 D4
Lecturing	Continuous evaluation by means of the follow-up of the student's work.	10	A1 A3	B1 B3	C8	D4
Other	Evaluation of the learning process by means of written and oral examinations, which may include test-type exams, miscellaneous format tests, reasoning questions, topic and short questions, problem solving, and case studies.	30	A2 A3	B1 B2 B3	C8 C11	D1

Other comments on the Evaluation

Sources of information

Basic Bibliography

Montuenga Badía, L., Esteban Ruiz, F.J., Calvo González, A., **Técnicas en histología y biología celular + StudentConsult en español**, 2ª, Elsevier-Masson, 2014

Perera, J., Tormo, A., García, L., **Ingeniería genética. Preparación, análisis, manipulación y clonaje de DNA.**, 1ª, Síntesis DL., 2009

Complementary Bibliography

Bergmeyer, H.U., **Methods of Enzymatic Analysis**, 3ª, Academic Press., 1995

Recommendations