



| Teaching Guide           |                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |                                                                                                                                                                                                                                                                                                                        |           |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Identifying Data         |                                                                                                                                                                                                                                                                                                                                                                                                                                              |        | 2020/21                                                                                                                                                                                                                                                                                                                |           |
| Subject (*)              | Project                                                                                                                                                                                                                                                                                                                                                                                                                                      |        | Code                                                                                                                                                                                                                                                                                                                   | 610441022 |
| Study programme          | Mestrado Universitario en Bioloxía Molecular , Celular e Xenética                                                                                                                                                                                                                                                                                                                                                                            |        |                                                                                                                                                                                                                                                                                                                        |           |
| Descriptors              |                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |                                                                                                                                                                                                                                                                                                                        |           |
| Cycle                    | Period                                                                                                                                                                                                                                                                                                                                                                                                                                       | Year   | Type                                                                                                                                                                                                                                                                                                                   | Credits   |
| Official Master's Degree | Yearly                                                                                                                                                                                                                                                                                                                                                                                                                                       | First  | Obligatory                                                                                                                                                                                                                                                                                                             | 12        |
| Language                 | SpanishFrenchGalicianEnglish                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                                                                                                                                                                                                                                                                                                                        |           |
| Teaching method          | Face-to-face                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                                                                                                                                                                                                                                                                                                                        |           |
| Prerequisites            |                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |                                                                                                                                                                                                                                                                                                                        |           |
| Department               | BioloxíaCiencias da Computación e Tecnoloxías da InformaciónFisioterapia, Medicina e Ciencias BiomédicasPsicoloxía                                                                                                                                                                                                                                                                                                                           |        |                                                                                                                                                                                                                                                                                                                        |           |
| Coordinador              |                                                                                                                                                                                                                                                                                                                                                                                                                                              | E-mail |                                                                                                                                                                                                                                                                                                                        |           |
| Lecturers                | Bernal Pita da Veiga, María de los Ángeles<br>Carrillo Barral, Néstor<br>Díaz Varela, Jose<br>Dorado de la Calle, Julian<br>Folgueira Otero, Mónica<br>Freire Picos, María Ángeles<br>Gonzalez Siso, Maria Isabel<br>Insua Pombo, Ana Maria<br>Laffon Lage, Blanca<br>Rioboo Blanco, Carmen<br>Sangiao Alvarellos, Susana<br>Valdiglesias García, Vanessa<br>Veloso Freire, Javier                                                           | E-mail | angeles.bernal@udc.es<br>n.carrillo@udc.es<br>jose.diaz.varela@udc.es<br>julian.dorado@udc.es<br>m.folgueira@udc.es<br>maria.freirep@udc.es<br>isabel.gsiso@udc.es<br>ana.insua@udc.es<br>blanca.laffon@udc.es<br>carmen.rioboo@udc.es<br>susana.sangiao@udc.es<br>vanessa.valdiglesias@udc.es<br>javier.veloso@udc.es |           |
| Web                      | http://ciencias.udc.es/MBMCG/                                                                                                                                                                                                                                                                                                                                                                                                                |        |                                                                                                                                                                                                                                                                                                                        |           |
| General description      | Coordination: María Esperanza Cerdán Villanueva<br><br>It is an individual work carried out by the student under the direction of one of the professors of the Master and in which he will approach research in one of the thematic areas of the Master.<br><br>The offer of experimental works by the teachers is updated each course and the list of topics for the TFM realization is published on the WEB in June of the previous course |        |                                                                                                                                                                                                                                                                                                                        |           |
| Contingency plan         | If situations occur that make it impossible to attend the centers to carry out experimental work, it will be necessary to redo the training plans presented by students and professors who direct the work to adapt them to modality B (Research Project) provided for in the master's regulations.                                                                                                                                          |        |                                                                                                                                                                                                                                                                                                                        |           |

| Study programme competences |                                                                                                                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Code                        | Study programme competences                                                                                                                                                                                              |
| A1                          | Skills of working in a sure way in the laboratories knowing operation handbooks and actions to avoid incidents of risk.                                                                                                  |
| A2                          | Skills of using usual techniques and instruments in the cellular, biological and molecular research: that are able to use techniques and instruments as well as understanding potentials of their uses and applications. |
| A3                          | Skills of understanding the functioning of cells through the structural organization, biochemistry, gene expression and genetic variability.                                                                             |
| A8                          | Skills of having an integrated view of the previously acquired knowledge about Molecular and Cellular Biology and Genetics, with an interdisciplinary approach and experimental work.                                    |
| A13                         | Skills to become a professional in health, pharmacy, veterinary, animal production, biotechnology or food sectors.                                                                                                       |
| B1                          | Analysis skills to understand biological problems in connection with the Molecular and Cellular Biology and Genetics.                                                                                                    |
| B2                          | Skills of decision making for the problem solving: that are able to apply theoretical knowledges and practical acquired in the formulation of biological problems and the looking for solutions.                         |



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| B3 | Skills of management of the information: that are able to gather and to understand relevant information and results, obtaining conclusions and to prepare reasoned reports on scientific and biotechnological questions  |
| B4 | Organization and work planning skills: that are able to manage the use of the time as well as available resources and to organize the work in the laboratory.                                                            |
| B5 | Correct oral and written communication on scientific topics in the native language and at least in another International diffusion language.                                                                             |
| B6 | Skills of team work: that are able to keep efficient interpersonal relationships in an interdisciplinary and international work context, with respect for the cultural diversity.                                        |
| B7 | Personal progress skills : that are able to learn from freelance way, adapting to new situations, developing necessary qualities as the creativity, skills of leadership, motivation for the excellence and the quality. |
| B8 | Critical reasoning skills and ethical commitment with the society: sensitivity in front of bioethical problems and to the ones related to the natural resource conservation                                              |
| B9 | Skills of preparation, show and defense of a work.                                                                                                                                                                       |
| C1 | Adequate oral and written expression in the official languages.                                                                                                                                                          |
| C2 | Mastering oral and written expression in a foreign language.                                                                                                                                                             |
| C3 | Using ICT in working contexts and lifelong learning.                                                                                                                                                                     |
| C4 | Acting as a respectful citizen according to democratic cultures and human rights and with a gender perspective.                                                                                                          |
| C5 | Understanding the importance of entrepreneurial culture and the useful means for enterprising people.                                                                                                                    |
| C6 | Acquiring skills for healthy lifestyles, and healthy habits and routines.                                                                                                                                                |
| C7 | Developing the ability to work in interdisciplinary or transdisciplinary teams in order to offer proposals that can contribute to a sustainable environmental, economic, political and social development.               |
| C8 | Valuing the importance of research, innovation and technological development for the socioeconomic and cultural progress of society.                                                                                     |

| Learning outcomes                                                                                                                                                                                                                                                                                                                                                                                                     |  |                             |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------|---------|
| Learning outcomes                                                                                                                                                                                                                                                                                                                                                                                                     |  | Study programme competences |         |
| The student will do an experimental work integrated into a research group or, alternatively, will undertake a personal research project; in both cases under the direction of a doctor. The personal research work is not just a literature review, but implies the development of a project. The work will be written and then exposed and defended in public session. The rules of TFM are in the WEB of the Master |  | AR1                         | BR1 CC1 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  | AR2                         | BR2 CC2 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  | AR3                         | BR3 CC3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  | AR8                         | BR4 CC4 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  | AR13                        | BR5 CC5 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                             | BR6 CC6 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                             | BR7 CC7 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                             | BR8 CC8 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                             | BR9     |

| Contents                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topic                                                                                                                                                                                                                                                                               | Sub-topic                                                                                                                                                                                                                                                                                                          |
| The specific topics of the TFM work of each academic year will be announced at the beginning of the first semester, based on enrollment and availability of teachers to guide them. Generic topics and contact details of teachers are released before the pre-registration period. | Os temas concretos dos traballos do Mestrado de cada curso académico daránse a conocer ao principio do primer cuatrimestre en función dos alumnos matriculados e da disponibilidad de profesores para dirixirlos. Os temas xenéricos e profesores de contacto se dan a coñecer antes do período de pre-inscrición. |

| Planning                |              |                      |                               |             |
|-------------------------|--------------|----------------------|-------------------------------|-------------|
| Methodologies / tests   | Competencies | Ordinary class hours | Student's personal work hours | Total hours |
| Introductory activities | C7           | 2                    | 0                             | 2           |



|                                                                                                                                 |                                                                    |     |    |     |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----|----|-----|
| Research (Research project)                                                                                                     | A2 A1 A3 A8 A13 B1<br>B3 B2 B4 B6 B7 B8<br>C2 C3 C4 C5 C6 C7<br>C8 | 112 | 20 | 132 |
| Directed discussion                                                                                                             | A8 B1 B7 B8 C6 C8                                                  | 6   | 12 | 18  |
| Oral presentation                                                                                                               | B5 B9 C1 C3                                                        | 0   | 20 | 20  |
| Summary                                                                                                                         | A3 A8 B3 B9 C1 C2                                                  | 0   | 70 | 70  |
| Document analysis                                                                                                               | A3 B3 C2                                                           | 0   | 50 | 50  |
| Personalized attention                                                                                                          |                                                                    | 8   | 0  | 8   |
| (*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students. |                                                                    |     |    |     |

| Methodologies               |                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------|
| Methodologies               | Description                                                                             |
| Introductory activities     | Aimed at selecting the theme / Director                                                 |
| Research (Research project) | Laboratory work or project                                                              |
| Directed discussion         | Data analysis and discussion with director / tutor ahead of the drafting of conclusions |
| Oral presentation           | Public exhibition and defence                                                           |
| Summary                     | Preparation of the writing summary of the work (Memoria TFM)                            |
| Document analysis           | Bibliographic search to define &quot;state of the art&quot; in the written memory       |

| Personalized attention                                                                                                             |                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Methodologies                                                                                                                      | Description                                                                  |
| Oral presentation<br>Introductory activities<br>Research (Research project)<br>Directed discussion<br>Document analysis<br>Summary | The Personalized attention hours will be distributed by the director / tutor |

| Assessment                  |                                                                    |                                                                                                                                                                                                                                                       |               |
|-----------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Methodologies               | Competencies                                                       | Description                                                                                                                                                                                                                                           | Qualification |
| Oral presentation           | B5 B9 C1 C3                                                        | The competences achieved in the analysis of the documentary sources, the written report, presentation and public defense of the work are evaluated using a rubric used by members of the evaluating committee and published in the web of the master. | 30            |
| Research (Research project) | A2 A1 A3 A8 A13 B1<br>B3 B2 B4 B6 B7 B8<br>C2 C3 C4 C5 C6 C7<br>C8 | The director of the TFM evaluates these competencies through the rubric published on the website of the master.<br><br>The % of the final score may represent 30% or less at the discretion of the evaluating committee.                              | 30            |
| Summary                     | A3 A8 B3 B9 C1 C2                                                  | The competences achieved in the analysis of the documentary sources, the written report, presentation and public defense of the work are evaluated using a rubric used by members of the evaluating committee and published in the web of the master. | 40            |

| Assessment comments |
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## Sources of information

|               |                                                                                   |
|---------------|-----------------------------------------------------------------------------------|
| Basic         | Serán específicas para cada traballo e na maior parte buscadas polo propio alumno |
| Complementary | Serán específicas para cada traballo                                              |

## 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.