



| Teaching Guide | | | | |
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| Identifying Data | | | | 2022/23 |
| Subject (*) | Biological Basis and Physical Human Movement | Code | 750G02106 | |
| Study programme | Grao en Podoloxía | | | |
| Descriptors | | | | |
| Cycle | Period | Year | Type | Credits |
| Graduate | 1st four-month period | First | Basic training | 6 |
| Language | SpanishGalician | | | |
| Teaching method | Face-to-face | | | |
| Prerequisites | | | | |
| Department | BiologíaEnxeñaría Naval e Industrial | | | |
| Coordinador | Lamas Criado, Iban | E-mail | iban.lamas@udc.es | |
| Lecturers | Cuadrado Aranda, Francisco Javier Lamas Criado, Iban | E-mail | javier.cuadrado@udc.es iban.lamas@udc.es | |
| Web | campusvirtual.udc.gal/ | | | |
| General description | Physical bases: The necessary knowledge of mechanics will be provided to understand the analysis of the human gait. Biological bases: necessary knowledge about animal cells and tissues, cell pathology, tumors and cancer will be provided. | | | |

| Study programme competences | |
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| Code | Study programme competences |
| A67 | CE3 - Adquirir coñecementos sobre a composición e organización da materia dos seres vivos, bioloxía celular e tisular, histoloxía e xenética |
| A69 | CE5 - Coñecer os principios físicos aplicables á marcha humana |
| A72 | CE8 - Coñecer a patoloxía celular, as alteracións do crecemento celular e reparación tisular, os principios da anatomía patolóxica e a nomenclatura e clasificación das neoplasias |
| B23 | CB1 - Que os estudantes demostrasen posuír e comprender coñecementos nunha área de estudo que parte da base da educación secundaria xeral, e adóitase atopar a un nivel que, aínda que se apoia en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo |
| B29 | CG02 - Coñecer a estrutura e función do corpo humano en especial da extremidade inferior, semioloxía, mecanismos, causas e manifestacións xerais da enfermidade e métodos de diagnóstico dos procesos patolóxicos médicos e cirúrxicos, interrelacionando a patoloxía xeral coa patoloxía do pé. |
| B35 | CG08 - Adquirir habilidades de traballo nas contornas educativo e investigador, asistencial-sanitario, así como en equipos uniprofesionais e multiprofesionais. Asesorar na elaboración e execución de políticas de atención e educación sobre temas relacionados coa prevención e asistencia podolóxica |
| B39 | CG12 -Capacidade para a cooperación, o traballo en equipo e a aprendizaxe colaborativo en contornas interdisciplinares |
| C9 | CT01 - - Expresarse correctamente, tanto de forma oral como escrita, nas linguas oficiais da comunidade autónoma |
| C11 | CT03 - Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida |

| Learning outcomes | | | |
|---|-----|-----|-----------------------------|
| Learning outcomes | | | Study programme competences |
| Composición y organización de los seres vivos. Biología celular. Histología humana y principios de anatomía patológica. Principios de Genética | A67 | | C9 |
| Patología celular, alteraciones del crecimiento celular y reparación tisular. Nomenclatura y clasificación de las neoplasias | A72 | | C9 |
| Principios físicos aplicables á marcha humana | A69 | B29 | |
| Cinemática e dinámica | A69 | B29 | |
| Tecnoloxías de análise de movemento 3D, captura de movemento y medición de fuerzas | A69 | B23 | C11 |



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| Trabajo, enerxía y potencia mecánica | A69 | B35 B39 | |
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| Contents | |
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| Topic | Sub-topic |
| BLOQUE I. BIOLOXÍA DE CÉLULAS E TECIDOS | Composición e organización dos seres vivos. Biología celular. Principios de histoloxía humana e anatomía patolóxica. Principios de xenética. Patoloxía celular, alteracións do crecemento celular e reparación de tecidos. Nomenclatura e clasificación das neoplasias. |
| BLOQUE II. BASES FÍSICAS DO MOVEMENTO HUMANO | Principios físicos aplicables á marcha humana. Cinemática. Dinámica. Traballo, enerxía e potencia mecánica. Tecnoloxías de análises de movemento 3D, captura de movemento e medición de forzas. |

| Planning | | | | |
|---------------------------------|---------------------------------------|----------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies | Ordinary class hours | Student?s personal work hours | Total hours |
| Laboratory practice | A67 A69 B39 C9 | 9 | 3 | 12 |
| Problem solving | A69 B23 B29 | 2 | 4 | 6 |
| Supervised projects | A67 A69 A72 B23 B29 B35 B39 C9 C11 | 3 | 9 | 12 |
| Mixed objective/subjective test | A67 A69 A72 B23 C9 | 5 | 1 | 6 |
| Guest lecture / keynote speech | A67 A69 A72 B23 B29 | 42 | 70 | 112 |
| Personalized attention | | 2 | 0 | 2 |

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

| Methodologies | |
|---------------------------------|--|
| Methodologies | Description |
| Laboratory practice | Biological Bases: Use of the microscope. Observation and study of histological samples. Physical Bases: The students will attend a gait analysis session. They will first look at how reflective markers and EMG electrodes are placed on the body, how force plates are positioned, and how capture is performed. Next, you will see what results are obtained and what is the analysis of them. Subsequently, they must carry out, in groups, a report in which they explain what the gait analysis is, in their own words, taking internet resources, etc. |
| Problem solving | Problem resolution. The students take notes. |
| Supervised projects | Biological Bases: In groups, the students will make a presentation where they expose the cellular and genetic bases of a human pathology. Physical Bases: The students must carry out a work, in groups, in which some application of the gait analysis is shown. Later, work will be presented in class during one of the practical sessions. |
| Mixed objective/subjective test | Physical bases: consistent in solving problems. Biological bases: identification of structures in histological images, test questions with 3 options where only one of them is true and short questions. There will be a test in the middle of the first semester and a final test. |
| Guest lecture / keynote speech | The contents of the subject are exposed, with the help of digital media. Students must take notes and study the subject on their own, with the support of the teacher through tutorials. To determine the assimilation of the various concepts by the students, some brief tasks will be carried out during the master sessions and / or through moodle. |



Personalized attention

| Methodologies | Description |
|--|---|
| Laboratory practice Supervised projects | <p>Biological Bases: In the tissue study laboratory practices, the student will have the help of the teacher to handle the microscope and the rest of the material used, as well as to identify structures in the various samples analyzed. To raise questions about the development of supervised work or the theory of the biological bases of human movement, students can go to tutorials. The student may also attend tutorials to raise doubts about the contents exposed in the master classes.</p> <p>Physical Bases: In the gait analysis laboratory practice, the student will have the availability of the teacher to clarify any doubts that may arise, either during the practical session or later, for the preparation of the report. In the same way, you will have the availability of the teacher to answer your questions during the preparation of the supervised work. In both cases you can go to the tutorials. In addition, in these tutorials, the student will also be able to pose the doubts that have arisen during the study of the theory and the preparation of the problems.</p> <p>In the case of students with academic dispensation, the student will be provided with the necessary material to study the subject, and the teacher will attend to the student during the tutorials whenever the student requests it, or at other times if he/she cannot attend the tutoring.</p> |

Assessment

| Methodologies | Competencies | Description | Qualification |
|---------------------------------|---------------------------------------|---|---------------|
| Mixed objective/subjective test | A67 A69 A72 B23 C9 | <p>The student's responses to the exams will be evaluated, which will consist of two parts:</p> <p>Biological bases: test questions and short questions; identification of structures in histological images.</p> <p>Physical basis: problem solving.</p> <p>Each of the exams (biological bases + physical bases) represents 40% of the final grade.</p> | 80 |
| Laboratory practice | A67 A69 B39 C9 | The report and / or tasks to be delivered by the students to the teacher will be evaluated. | 10 |
| Supervised projects | A67 A69 A72 B23 B29 B35 B39 C9 C11 | The presentation will be evaluated. | 10 |

Assessment comments

The evaluation system will be the same in the first and in the second opportunity. In the second opportunity, the oral presentation can be replaced by written work.

In the advanced opportunity, a mixed exam will be carried out that covers all the contents of the subject.

In the case of students with part-time enrollment, the evaluation system will be the same. This is true for both the first and second opportunities.

Students with academic waivers may opt for exam-based grading. To pass the exam, students must pass both the Biological Bases and the Physical Bases parts. To pass the subject, it is necessary to obtain a grade of 5 or higher in each block of the subject.

It is also necessary to pass the Biological Bases exam/s. For the award "Matrícula de Honor", priority will be given to students who pass the subject at the first opportunity.

In the first opportunity, it is considered "Not presented" when the student does not take the mixed tests or the supervised works. In the second opportunity and advanced opportunity, it is considered "Not presented" if the student does not go for the exam.

Sources of information



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|----------------------|---|
| Basic | <p>- Biología Celular:- Curtis, H; Barnes, NS; Schnek, A; Massarini, A. (2008). Biología. Ed. Médica Panamericana. 7ª Edición.- Freeman, S. (2010). Fundamentos de Biología. Ed. Pearson Internacional. - Biología Celular e Histología:- Paniagua, R; Nistal, M; Sesma, P; Álvarez-Uria, M; Anadón, R; Fraile, B; Sáez, FJ. Citología e Histología Vegetal y Animal. Ed. Interamericana McGraw-Hill.- cualquier edición- Histología:- Geneser, F. Histología . Ed. Médica Panamericana.- cualquier edición. - Junqueira, LC; Carneiro, J. Histología Básica. Texto y atlas. Ed. Elsevier.- cualquier edición.- Ross, MH; Pawlina W. Histología. Texto y Atlas Color con Biología Celular y Molecular. Ed. Médica Panamericana.- cualquier edición.- Welsch, U Histología. Ed. Médica Panamericana. 3ª edición.- cualquier edición.- Young, B; Heath, JW. Wheater´s Histología Funcional. Texto y Atlas en color. Ed. Elsevier. 4ª Edición - cualquier edición.- Mecánica:- Beer, FP; Johnston, ER; Clausen, WE. Mecánica Vectorial para Ingenieros. Ed. McGraw-Hill. 7ª edición.- Meriam, JL; Kraige, LG. Mecánica para Ingenieros. Ed. Reverté. 3ª edición.- Análise de Marcha:- Whittle, MW. Gait Analysis, An Introduction. Ed. Elsevier. 4ª edición.</p> |
| Complementary | <p>- Biología General y Celular:- Campbell, NA; Reece, JB; Taylor, MR; Simor, EJ; Dickey JL. (2009). Biology. Concepts and connections. Ed. Pearson. 6ª Edición.- Mader, SS. (2007). ?Essentials of Biology?. Editorial McGraw Hill International.Welsch, U. (2008). Histología. Ed. Médica Panamericana.- Histología:- Cui, D (2012). Histología con correlaciones funcionales y clínicas. Ed. Wolters Kluwer. - Kierszenbaum, A (2008). Histología y Biología Celular. Introducción a la anatomía patológica. Ed. Elsevier Mosby. 2ª Edición - Sepúlveda Saavedra, J (2012). Texto Atlas de Histología, Biología Celular y Tisular. Ed. McGraw-Hill.</p> |

Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Subjects that continue the syllabus

Human Physiology/750G02101

Microbiology and Parasitology/750G02107

Biomechanics of the Lower Limb/750G02111

Other comments

To help achieve an immediate and sustained contour and comply with the objective of action 5: "Healthy and sustainable environmental and social teaching and research" of the "Green Campus Ferrol Action Plan":

A delivery of horses that are carried out in this matter:

- Request in virtual format and / or computer support.

- It will be done through the website of the subject, in digital format, without the need for printing.

- If necessary, make them on paper: no plastics will be used; double-sided prints will be made; take recycled paper; Avoid printing drafts.

A sustainable use must be made of two resources and the prevention of negative impacts on the natural environment.

(*)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.