



Universidad de Jaén

Facultad de Ciencias de la Salud

Exercise biology

2023-2024

Grado en Fisioterapia

CREA



Guías docentes UJA

Horarios de tutorías

Llamamientos PEvAU

Syllabus 2023-24 - 10112018 - Exercise Biology (Biología del ejercicio)

Caption

- Level 1: Tutorial support sessions, materials and exams in this language
- Level 2: Tutorial support sessions, materials, exams and seminars in this language
- Level 3: Tutorial support sessions, materials, exams, seminars and regular lectures in this language

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DEGREE: Grado en Fisioterapia
FACULTY: FACULTY OF HEALTH SCIENCES
ACADEMIC YEAR: 2023-24
COURSE: Exercise Biology

SYLLABUS

1. COURSE BASIC INFORMATION

NAME: Exercise Biology
CODE: 10112018 **ACADEMIC YEAR:** 2023-24
LANGUAGE: English **LEVEL:** 2
ECTS CREDITS: 6.0 **YEAR:** 3 **SEMESTER:** PC

2. LECTURER BASIC INFORMATION

NAME: CAÑUELO NAVARRO, ANA ROSA
DEPARTMENT: U103 - BIOLOGÍA EXPERIMENTAL
FIELD OF STUDY: 060 - BIOQUÍMICA Y BIOLOGÍA MOLECULAR
OFFICE NO.: B3 - 302 **E-MAIL:** acanuelo@ujaen.es **P:** 2767
WEBSITE: <http://www4.ujaen.es/~acanuelo/>
ORCID: <https://orcid.org/0000-0001-5626-4484>
LANGUAGE: - **LEVEL:** 2
NAME: BLANCO RUIZ, SANTOS
DEPARTMENT: U103 - BIOLOGÍA EXPERIMENTAL
FIELD OF STUDY: 050 - BIOLOGÍA CELULAR
OFFICE NO.: B3 - 303 **E-MAIL:** sblanco@ujaen.es **P:** 953213059
WEBSITE: <https://www.bio184.com/>
ORCID: <https://orcid.org/0000-0002-4686-5320>
LANGUAGE: - **LEVEL:** 2

3. CONTENT DESCRIPTION

THEORY PROGRAM:

- Introduction. Human cells and tissues.
- Organization and components of connective tissue. Cell biology and histology of blood.
- Cell biology and histology of the tendon and ligament.
- Cell biology and histology of cartilage, bone and joints. Degeneration, and bone regeneration: cell therapy.
- Cell biology and muscle histology. Muscle contraction. Degeneration and muscle regeneration: cell therapy.
- Cell biology and histology of nervous tissue. Relationship with muscle contraction.
- Energy sources for muscle contraction.
- Energy metabolism during exercise: carbohydrate metabolism and its regulation.
- Energy metabolism during exercise: lipid metabolism and its regulation.
- Protein metabolism.

11.- Metabolic response to different types of exercise and training.

PRACTICE PROGRAM:

1. Histological stains I
 2. Histological stains II
 3. Microscopic visualization and identification of tissues I
 4. Microscopic visualization and identification of tissues II
- 5.- Determination of lactate dehydrogenase activity.
- 6.- Glycolysis in cytoplasmic extracts of liver and muscle
GOD-POD method.
- 7.- Isolation of hepatic glycogen.
- 8.-Enzymatic hydrolysis of glycogen

SDA:

The contents of this subject, linked to the knowledge of the biological basis of exercise and therefore intrinsically related to the benefits that it brings to health individually and collectively, connect with the following Sustainable Development Goals (SDGs):

3. Health and well-being.
4. Quality education.
5. Gender equality.
11. Sustainable cities and communities.

4. COURSE DESCRIPTION AND TEACHING METHODOLOGY

Described previously

Students with special educational needs should contact the Student Attention Service (Servicio de Atención y Ayudas al Estudiante) in order to receive the appropriate academic support

5. ASSESSMENT METHODOLOGY

The theoretical contents of the subject will be evaluated by two partial tests. These tests will be taken into account as long as the score of 5 is exceeded in each one of them. Those who do not exceed this score will be required to submit to the final test in which they will need to pass the correspondent part.

To evaluate practical sessions, attendance at each and every session will be taken into account, and, where appropriate, the presentation of the corresponding results.

The seminars will be mandatory and will be graded according to the clarity of the presentation and / or the answers to the questions asked.

6. BOOKLIST

MAIN BOOKLIST:

- Exercise biochemistry. Edition: -. Author: Mougios, Vassilis, 1958-. Publisher: Champaign, IL : Human Kinetics, 2006 ([Library](#))
- Molecular and Cellular Regulation of Adaptation to Exercise . Edition: -. Author: -. Publisher: Amsterdam: Elsevier, 2015 ([Library](#))
- Fisiología del esfuerzo y del deporte. Edition: 6ª ed., rev. y aum. Author: Wilmore, Jack H.. Publisher: Barcelona: Paidotribo, cop. 2007 ([Library](#))

7. VIRTUAL / CLASSROOM TEACHING SCENARIO

Methodology:

Large group theory

classes: 36 sessions on the contents of the program. The present option would only be carried out at the proposal of the Faculty of Health Sciences and / or the Vice-Rector / s with competences if the necessary conditions exist. Sessions of 1 hour in synchronous format using the tools provided by the Virtual Teaching and Computer services of the UJA.

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Practical classes:

8 laboratory sessions.

Presentiality will be kept to the maximum if circumstances allow so.

The exact number of presential sessions will be established once the effective capacity of the laboratories by the Occupational Risk Prevention Service and the number of students enrolled are determined. 2,5-hour sessions in the laboratory. For those sessions that have to be taught online, a synchronous format will be used in combination with asynchronous activities such as video demonstrations and other virtual resources (histological atlases, virtual microscopes), tutored in small groups by videoconference.

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Seminars: 2

sessions. The presential option will be subject to the proposal of the Faculty of Health Sciences and / or the Vice-Rector / s with competences if the necessary conditions exist. 2 sessions of 2 h each, taught in synchronous format using the tools provided by the Virtual Teaching and Computer services of the UJA.

Evaluation system

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Theoretical concepts

exam: Online synchronous /face-to-face . The face-to-face option would be considered if the Faculty of Health Sciences and / or the Vice-rector / s with competencies give the go-ahead if the necessary conditions are met. Based on objective question forms (multiple choice test, numerical results, keywords, etc.) and short answer forms, based on the application and integration of the subject contents. Use of Google or similar forms for the online option. Percentage: 60%.

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Regular attendance at

theory classes (face-to-face / online) will be valued with up to 10% in the final grade.

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Practical

concepts: Face-to-face and / or Online asynchronous / synchronous. Assistance and resolution of exercises proposed in virtual practice sessions on the online stage. Percentage: 20%.

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Seminars:

synchronous online. Assistance and delivery of exercises. Percentage: 10%.

The final grade for the course will be obtained by adding the weighted scores obtained in each aspect (Theory, Practices, seminars and attendance). In the final Theory exam, it will be necessary to obtain a minimum score of 5 points out of 10, in order to compute with the practices, seminars and attendance grades. The grades from Practices, seminars and assistance will be saved only for the extraordinary call II (June-July).

Resources:

- ILIAS virtual teaching platform
- Google Meet
- On-line videos of master classes on theory and practice
- GBL online systems (game based learning: Kahoot, Socrative, etc.)
- UJA Interactive Histological Atlas

8. VIRTUAL TEACHING SCENARIO

Methodology

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Theory classes:

100% online. 36 sessions in synchronous format on the contents of the program using the tools provided by the Virtual Teaching and Computer services of the UJA.

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Practical classes:

100% online. Laboratory sessions will be replaced by video demonstrations and other virtual resources (histological atlases, virtual microscopes), tutored synchronously by videoconference. The videos will reflect the development of the experimental protocols proposed in the subject. The students will receive information and feasible results with the experimentation carried out in the demonstrations, which they will have to manage to respond to a series of exercises that must be handed over to the teachers for evaluation. The medium for the delivery of exercises will be the Virtual Teaching platform.

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Seminars: 100%

online. They will be held in a small group synchronously tutored by videoconference.

Evaluation system

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Exam of theoretical

concepts: 100% synchronous online. Consisting of objective question forms (multiple choice test, numerical results, keywords, etc.) and short answer forms, based on the application and integration of the subject contents. Use of Google or similar forms. Percentage: 60%.

- Regular attendance at theory classes will be valued with up to 10% in the final grade.

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Practical

concepts: 100% online asynchronous / synchronous. Attendance and resolution of exercises proposed in virtual practice sessions on the online format. Percentage: 20%.

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Seminars: 100%

synchronous online. Attendance and delivery of exercises. Percentage: 10%.

The final grade for the course will be obtained by adding the weighted scores obtained in each aspect (Theory, Practices, seminars and attendance). In the final theory exam it will be necessary to obtain a minimum score of 5 points out of 10, in order to mediate with the practices, seminars and attendance. If the

subject is not approved as a whole in the ordinary call I (January-February), the note of Practices, seminars and assistance will be saved only for the extraordinary call II (June-July).

Resources:

- ILIAS virtual teaching platform
- Google Meet
- On-line videos of master classes on theory and practice
- GBL online systems (game based learning: Kahoot, Socrative, etc.)
- UJA Interactive Histological Atlas

DATA PROTECTION CLAUSE (on line exams)

Institution in charge of data processing: Universidad de Jaén, Campus Las Lagunillas, s/n, 23071 Jaén

Data Protection Delegate: dpo@ujaen.es

Purpose: In accordance with the Universities Law and other national and regional regulations in force, carrying out exams and assessment tests corresponding to the courses students are registered in. In order to avoid frauds while sitting the exam, the exam will be answered using a videoconference system, being able the academic staff of the University of Jaén to compare and contrast the image of the person who is answering the exam with the student's photographic files. Likewise, in order to provide the exam with evidential content for revisions or claims, in accordance with current regulation frameworks, the exam will be recorded and stored.

Legitimacy: compliance with legal obligations (Universities Law) and other national and regional regulations currently in force.

Addressees: service providers who are the owners of the platforms where the exams are carried out and with whom the University of Jaén has signed the corresponding data access contracts.

Storage periods: those established in current in force regulations. In the specific case of exam videoconference recordings, not before the examination records and transcripts are closed or the exam can still be reviewed or challenged.

Rights: you can exercise your right of access, amendment, cancellation, opposition, suppression, limitation and portability by sending a letter to the postal or electronic address indicated above. In the event that you consider that your rights have been violated, you may submit a complaint to the Andalusian Council for Transparency and Data Protection www.ctpdandalucia.es

CLASS RECORDING CLAUSE PERSONAL DATA PROTECTION

Person in charge: Universidad de Jaén, Paraje Las Lagunillas, s/n; Tel.953 212121; www.ujaen.es

Data protection delegate (DPO): TELEFÓNICA, S.A.U. ; Email: dpo@ujaen.es

Procedure aim: To manage proper recordings of teaching sessions with the aim of facilitating learning process under a multimodal and/or online teaching

Period for record storage: Images will be kept during legal term according to regulations in force

Legitimacy: Data will be managed according to legal regulations (Organic Law 6/2001, December 21, on Universities) and given consent provided by selecting corresponding box in legal admission documents

Data recipients (transfers or assignments): Any person allowed to get access to every teaching modality

Rights: You may exercise your rights of access, rectification, cancellation, portability, limitation of processing, deletion or, where appropriate, opposition. To exercise these rights, you must submit a written request to the Information, Registration and Electronic Administration Service of the University of Jaen at the address above, or by e-mail to the address above. You must specify which of these rights you are requesting to be satisfied and, at the same time, you must attach a photocopy of your ID card or equivalent identification document. In case you act through a representative, legal or voluntary, you must also provide a document that proves this representation and identification. Likewise, if you consider that your right to personal data protection has been violated, you may file a complaint with the Andalusian Data Protection and Transparency Council www.ctpdandalucia.es

