



Universidad de Jaén

FACULTY OF EXPERIMENTAL SCIENCES

Development and regeneration biology

2024-2025
Grado en Biología



CREA



Acceso Mayores 40

Guías docentes UJA

Horarios de tutorías

Llamamientos PEvAU

Movilidad (Coordinador)

P.O.D.

Solicitud bilingüismo

Syllabus 2024-25 - 10213005 - Development and Regeneration Biology (Biología del desarrollo y regeneración)

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

Back

Full version (Spanish)

English

DEGREE:

Grado en Biología

FACULTY:

FACULTY OF EXPERIMENTAL SCIENCES

ACADEMIC YEAR:

2024-25

COURSE:

Development and Regeneration Biology

SYLLABUS

1. COURSE BASIC INFORMATION

NAME: Development and Regeneration Biology

CODE: 10213005

ACADEMIC YEAR: 2024-25

LANGUAGE: English

LEVEL: 1

ECTS CREDITS: 6.0

YEAR: 4

SEMESTER: PC

2. LECTURER BASIC INFORMATION

NAME: FRANCO JAIME, DIEGO

DEPARTMENT: U103 - BIOLOGÍA EXPERIMENTAL

FIELD OF STUDY: 050 - BIOLOGÍA CELULAR

OFFICE NO.: B3 - B3-362

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P: 212763

WEBSITE: -

ORCID: <https://orcid.org/0000-0002-5669-7164>

LANGUAGE: -

LEVEL: 1

3. CONTENT DESCRIPTION

Didactic Unit I: Initial phases of development in invertebrates: Introduction to the processes that drive the first phases of development in sea urchins, tunicate molluscs and nematodes. Initial stages of development in vertebrates: amphibians, fish, birds and mammals

Didactic unit II: Basic principles in Embryology: Mechanisms of cell specification. Morphogen gradients. Morphogenesis and cell adhesion. Cloning in mammals. transgenic organisms. Generation of genetically modified animals. Pluripotent embryonic cells. Induction phenomena. Paracrine factors. Cell surface receptors and their signal translation cascades. Principles of formation of the spatial pattern: Formation of the embryonic axes. Origin of the anterior-posterior polarity. Generation of dorso-ventral polarity.

Didactic unit III: Derivatives of the ectoderm: Central nervous system. neural crest. Development of the eye in vertebrates. Origin of the epidermis and skin appendages.

Didactic unit IV: Derivatives of the mesoderm: Paraaxial and intermediate mesoderm (The somites and their derivatives. Urogenital system). Lateral mesoderm (forms the heart and blood vessels)

Didactic unit V: Derivatives of the endoderm: Pharynx. Digestive tube and its derivatives. Respiratory system. extraembryonic membranes.

Didactic unit VI: Differentiated cells: their stability. Tissues with permanent cells. Tissues with cell renewal: adult stem cells.

Didactic unit VII: Regeneration: regeneration of limbs in Vertebrates. The blastema: dedifferentiation and redifferentiation processes.

Practical Activities: Analysis, observation and manipulation of the embryonic development of the chicken using different experimental techniques.

4. COURSE DESCRIPTION AND TEACHING METHODOLOGY

- Presentation of concepts in a large group

- Seminars (preparation of work by the students)
- Practical classes: Embryo management and marking of different tissues

Both in theory classes, in laboratory practices and seminars, as well as in assessment tests, the use of mobile devices by students may be limited depending on the criteria dictated by the teacher.

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

Class attendance (theories and practices) is mandatory and accounts for 20% of the final grade. Said evaluation will therefore be proportional to the degree of attendance by the student (eg attendance to all classes; 2 points; attendance to half of the classes; 1 point).

The oral presentation together with the work developed by the student in the seminar classes accounts for 30% of the final grade.

The written exam accounts for 50% of the final grade.

To obtain the GLOBAL GRADE of the subject, it is necessary to obtain a grade equal to or greater than 5 points in the exam on the theoretical concepts of the subject.

If the subject is not approved as a whole in the ordinary call II (May-June), the mark of the parts passed will be kept for the extraordinary call II (June-July) and, if applicable, also for the ordinary call I (January) of the following academic year.

6. BOOKLIST ([Access the bibliography in the Library catalog](#))

MAIN BOOKLIST:

- Advances in evolutionary developmental biology . Edition: -. Author: Streelman, J. Todd (Jeffrey Todd). Publisher: Wiley-Blackwell ([Library](#))
- Biología del desarrollo . Edition: 7ª ed. Author: Gilbert, Scott F.. Publisher: Editorial Médica Panamericana ([Library](#))

7. SUSTAINABLE DEVELOPMENT GOALS

Salud y bienestar

Educación de calidad

Industria, innovación e infraestructura

Vida de ecosistemas terrestres

DETAILED INFORMATION

3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least 12 per 1,000 live births, and mortality of children under 5 years of age at least up to 25 per 1,000 live births

4.3 By 2030, ensure equal access for all men and women to quality technical, vocational and higher education, including university education

9.a Facilitate the development of sustainable and resilient infrastructure in developing countries through increased financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States

9.b Support the development of domestic technologies, research and innovation in developing countries, including by ensuring a regulatory environment conducive to industrial diversification and value addition to commodities, among other things

15.5 Take urgent and significant measures to reduce the degradation of natural habitats, halt the loss of biological diversity and, by 2020, protect threatened species and prevent their extinction

8. VIRTUAL / CLASSROOM TEACHING SCENARIO

■ TEACHING METHODOLOGY AND TRAINING ACTIVITIES

Training activities	Format (in-person/online)*	Teaching methodology; Description
28 Theory classes in large group	In person*	28 expository classes in which the theoretical contents of the subject will be developed.

5 practical sessions in specialized laboratories	In-person*	Development of 5 practical sessions, lasting two hours each, in laboratories applying rotational small groups of 50%. Complementary online activities will be carried out for the remaining 10 hours
5 training activities/seminars	In-person*	Development of 5 seminars of two hours each, in theory classrooms.

* In-person attendance and the practical load will be adapted to allow the maximum attendance with the limitations of capacity of the laboratories and / or the classrooms that are determined in each case by the Occupational Risk Prevention Service and / or the Faculty of Experimental Sciences.

■ EVALUATION

Ordinary call

Assessment test	Format (in-person/online synchronous or asynchronous)	Description	Percentage
Class attendance	In-person*	Assistance and participation at class	10%
Final test	In-person*	Final exam based on very basic questions of the subject	50%
Oral presentation	In-person*	Seminar oral presentations	30%
Practices attendance	In-person*	Assistance and participation at practices	10%

Extraordinary call

Assessment test	Format (in-person/online synchronous or asynchronous)	Description	Percentage
Class attendance	In-person*	Assistance and participation at class	10%
Final test	In-person*	Final exam based on very basic questions of the subject	50%
Oral presentation	In-person*	Seminar oral presentations	30%
Practices attendance	In-person*	Assistance and participation at practices	10%

* In-person attendance and the practical load will be adapted to allow the maximum attendance with the limitations of capacity of the laboratories and / or the classrooms that are determined in each case by the Occupational Risk Prevention Service and / or the Faculty of Experimental Sciences.

■ RESOURCES

Teaching laboratories and Google tools, virtual teaching platform and any other tools that may be approved by the University of Jaén.

9. VIRTUAL TEACHING SCENARIO

■ TEACHING METHODOLOGY AND TRAINING ACTIVITIES

Training activities	Format (in-person/online)*	Teaching methodology; Description
28 Theory classes in large group	Online synchronous teaching	28 expository classes in which the theoretical contents of the subject will be developed.
10 practical sessions in specialized laboratories	Online teaching	Replacement of the 10 practical sessions for online training activities alternating synchronous and asynchronous sessions
5 training activities/seminars	Online teaching	Replacement of the 5 seminar sessions with online training activities alternating synchronous and asynchronous sessions

■ EVALUATION

Ordinary call

Assessment test	Format (in-person/online)	Description	Percentage

	synchronous or asynchronous)		
Final test	Online teaching	Final exam based on very basic questions of the subject	50%
Oral presentation	Online teaching	Seminar oral presentations	30%
Continuous assessment	Online teaching	Completion of partial exams or online continuous assessment work	20%

Extraordinary call

Prueba de evaluación	Formato (presencial/online sincrónico o asincrónico)	Descripción	Porcentaje
Final test	Online teaching	Final exam based on very basic questions of the subject	50%
Oral presentation	Online teaching	Seminar oral presentations	30%
Continuous assessment	Online teaching	Completion of partial exams or online continuous assessment work	20%

■ RESOURCES

Google tools, virtual teaching platform and any other tool that may be approved by the University of Jaén.

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 Jaén 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

Campus Las Lagunillas s/n | 23071 - Jaén

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