



POLITÉCNICA

INTERNATIONAL
CAMPUS OF
EXCELLENCE

COORDINATION PROCESS OF
LEARNING ACTIVITIES
PR/CL/001



Etsi Agronómica, Aliment. y
Biosistemas

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

203000039 - Scientific Seminars

DEGREE PROGRAMME

20BC - Master Universitario En Biología Computacional

ACADEMIC YEAR & SEMESTER

2025/26 - Semester 2

Index

Learning guide

1. Description.....	1
2. Faculty.....	1
3. Skills and learning outcomes	2
4. Brief description of the subject and syllabus.....	3
5. Schedule.....	4
6. Activities and assessment criteria.....	7
7. Teaching resources.....	9
8. Other information.....	9

1. Description

1.1. Subject details

Name of the subject	203000039 - Scientific Seminars
No of credits	3 ECTS
Type	Compulsory
Academic year of the programme	First year
Semester of tuition	Semester 2
Tuition period	February-June
Tuition languages	English
Degree programme	20BC - Master Universitario en Biología Computacional
Centre	20 - Etsi Agronómica, Aliment. Y Biosistemas
Academic year	2025-26

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Jesus Israel Pagan Muñoz (Subject coordinator)	231	jesusisrael.pagan@upm.es	Sin horario. Modificable bajo petición por email.

* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

3. Skills and learning outcomes *

3.1. Skills to be learned

CE03 - Analizar e interpretar bioinformáticamente los datos que se derivan de las tecnologías ómicas, y proponer soluciones bioinformáticas en relación a dichos datos.

CG04 - Que los estudiantes sean capaces de comunicar los fundamentos de sus líneas de trabajo en el área de la Biología Computacional, así como los resultados y conclusiones obtenidos, a públicos especializados y no especializados de un modo claro y sin ambigüedades.

CG06 - Que los estudiantes posean las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo para adaptarse a la rápida evolución prevista en el área de la Biología Computacional.

CT08 - Tener capacidad de análisis y síntesis para interpretar datos relevantes y abordar los problemas desde diferentes perspectivas.

3.2. Learning outcomes

RA73 - Conocer las principales áreas de investigación en el campo de la Biología Computacional a nivel nacional e internacional

RA74 - Ser capaz de extraer, valorar y sintetizar la información procedente de comunicaciones científicas del campo de la Biología Computacional

RA71 - Conocer las relaciones entre la ciencia y sus aplicaciones tecnológicas en el ámbito de la Biología Computacional

RA70 - Ser capaz de comunicar a la comunidad científica, en los formatos adecuados, las hipótesis de trabajo y los resultados experimentales obtenidos durante el trabajo de investigación y/o innovación

* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

The course aims at providing students with a general view of the areas of knowledge in which Computational Biology can be applied, both in the context of scientific research and for production of services and technological products. To achieve this goal, students will attend a series of seminars given by speakers invited by the course coordination. Speakers will be top professionals in their area of knowledge and will cover disciplines than span from medical applications of Computational Biology to bioinformatics technology applicable to the development of new marketable crop varieties.

The course contains a series of 10 seminars of 3 hours of duration. 2 hours will be devoted to the oral presentations of invites speakers and 1 hour will be for discussion of master students with the speaker.

4.2. Syllabus

1. Computational Biology in Human Health
2. Computational Biology in Ecology and Evolution
3. Computational Biology in Agriculture
4. Computational Biology in Animal Welfare
5. Computational Biology in Biotechnology
6. Computational Biology and entrepreneurship

5. Schedule

5.1. Subject schedule*

Week	Type 1 activities	Type 2 activities	Distant / On-line	Assessment activities
1	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
2	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
3	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
4	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
5	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>

6	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
7	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
8	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
9	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
10	<p>Seminar by a top professional in his/her area of knowledge Duration: 02:00 Lecture</p> <p>Participation and ability of the students to understand the seminars and make questions. Duration: 01:00 Additional activities</p>			<p>Participation and ability of the students to understand the seminars and make questions. Other assessment Progressive assessment Presential Duration: 01:00</p>
11				
12				
13				
14				

15				
16				
17				Exam with questions related to the seminar contents Written test Global examination Not Presential Duration: 03:00

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
1	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08
2	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08
3	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08
4	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CE03 CT08 CG04 CG06
5	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08
6	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG06 CE03 CG04 CT08
7	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08
8	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03
9	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08

10	Participation and ability of the students to understand the seminars and make questions.	Other assessment	Face-to-face	01:00	10%	5 / 10	CG04 CG06 CE03 CT08
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6.1.2. Global examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Exan with questions related to the seminar contents	Written test	No Presential	03:00	100%	5 / 10	CE03 CT08 CG04 CG06

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Exan with questions related to the seminar contents	Written test	Face-to-face	03:00	100%	5 / 10	CG04 CG06 CE03 CT08

6.2. Assessment criteria

Progressive evaluation: Participation and capacity to understand the seminars and make questions about their content will be evaluated. Attendance is mandatory. At least one question in at least four seminars must be made to pass the course.

Global evaluation: Written exam with questions about the content of the seminars.

Extraordinary evaluation: Written exam with questions about the content of the seminars.

The results will follow the scheme established by the UPM in 2012 as A: Excelent, B: Advanced, C: Satisfactory, D: Not satisfactory.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Master web page	Web resource	A full list of seminars and speakers will be available at the Master webpage.

8. Other information

8.1. Other information about the subject

The seminar course will give a broad view about the potential applications of Computational Biology to improve human, animal and plant welfare. Because of the transversal nature of computational biology, seminars will include speakers who are experts in quite diverse areas of knowledge such as human health, crop production, ecosystem preservation, climate change, biotechnology o veterinary sciences. Thus, the content of the seminars will be related to ODS #1 (End of Poverty), #2 (Zero Hunger), #3 (Health and Welfare), #12 (Sustainable Production), #13 (Actions for climate), #14 (Marine Life), #15 (Life in Terrestrial Ecosystems).