

Protistology

Code: 101024
ECTS Credits: 3

2025/2026

Degree	Type	Year
Microbiology	OB	2

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Teachers

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Teaching groups languages

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Prerequisites

There is no official prerequisite, but it is advisable for students to review the general concepts of cell biology studied in the previous course. It is also recommended to bear in mind the generic differences between the "prokaryotes - eukaryotic" and "plant - animal" dichotomies studied in subjects of the previous year, such as Cell Biology and Animal Histology, Plant Biology, Animal Biology and Microbiology.

It is also appropriate to study this subject with other subjects of the first semester of the second year of the degree of Microbiology, such as Molecular Biology of Eukaryotes or Physiology and Microbiological Metabolism.

Objectives and Contextualisation

This compulsory subject is a brief introduction to the knowledge of the protists, an eclectic and slightly artificial term, historically used to group a large diversity of groups that share the fact of being eukaryotes and unicellular (at least not reaching a complexity pluricellular).

As it is an introductory subject, it only establishes the bases to generate an overview of the characteristics of the main groups and their phylogenetic interrelations, as well as with other groups of prokaryotes and eukaryotes. Also of basic form they will give notions of the paper of these organisms in the nature and their relations with the human being.

Objectives of the subject:

1. Identify the different structures that make up the protists, paying special attention to the exclusive parts of the forms of unicellular eukaryotes.

2. Describe the diversity of the protists, distinguishing the characteristics that define the different groups.
3. Interpret the phylogenetic hypotheses that relate the protists to each other as well as with the rest of prokaryotes and eukaryotic organisms.
4. Explore the role of the different groups of protists in the different ecosystems, as well as the different habits and vital strategies.
5. Recognise the relationship between protists and human beings.

Learning Outcomes

1. CM09 (Competence) Critically review the scientific contributions of women to the study of microorganisms and other sciences related to microbiology.
2. CM10 (Competence) Integrate knowledge and skills from the field of microbiology, working individually and in groups to prepare and present in writing or orally and publicly a scientific work either in English or in one's own language.
3. KM14 (Knowledge) Indicate the structural characteristics of microorganisms, paying special attention to the differences between acellular entities, prokaryotic organisms and single-cell eukaryotes.
4. KM15 (Knowledge) Describe the metabolic and functional diversity of the microbial world, distinguishing the characteristics that define the different taxonomic groups.
5. KM16 (Knowledge) Identify the main relationships established by microorganisms with each other, with other living beings, with their environment and in general with the ecosystem, and the methods for studying these interactions.
6. SM13 (Skill) Relate the basic genetic components, structures and processes of replicative microorganisms and entities with their functions and the different ecophysiological mechanisms of adaptation to their environment.
7. SM14 (Skill) Discover the role of microorganisms as causative agents of diseases in humans, animals and plants and the processes used to control them.

Content

The contents of the subject are:

Origin and evolution of eukaryotes. Endosymbiosis Chloroplast and mitochondrial evolution.

Main phylogenetic groups that study protistology. Diversity.

Excavates. Discicrystals (Euglenoids, Quinetoplastids and Percozous) and Metamonadals (Diplomonads, Retortamonads, Parabasalid and Oximonads). Symbiotic relationships and pathological importance.

Heterokonta. Diatoms, ecological importance. Chrysophices. Opalines and Oomicets.

Archeplastida. Groups of interest Biotechnological applications.

Haptophyta. Cocolitophores, importance in marine phytoplankton.

Rizharia. Cercozoa (Chloracniophytes and Cercomonidides). Foraminifera and Radiolaria. Ecological and evolutionary importance.

Alveolata. Dinoflagellates, Apicomplexes and Ciliates. Ecology, outcrops, pathologies.

Amebozoa. Ameboid fungi and lobose amoebae, ecology and pathology.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	20	0.8	KM14, KM15, KM16, SM13, SM14, KM14
Seminars	5	0.2	CM10, KM16, SM14, CM10
Type: Autonomous			
Reading	8	0.32	CM09, CM10, CM09
Resolution of problems for the seminars	9	0.36	CM10, KM15, KM16, SM13, SM14, CM10
Study and self-learning assay	28	1.12	KM14, KM15, KM16, SM13, SM14, KM14

Teaching methodology and training activities:

The methodological approach of this subject aims to facilitate the active participation and construction of the learning process by the student, through different methodological strategies. In this sense, the sessions of this subject will be divided into master classes or lectures and seminars, which are programmed in an integrated way so that the student must relate throughout the course the content and the activities programmed to achieve the indicated competencies.

- Lectures: The student must acquire the scientific-technical knowledge of this subject by attending these classes, where explanations will be interspersed by the teachers with activities in the classroom and flipped classes, and complementing them with the personal study. At the beginning of the course, the student have a detailed calendar of the topics that will be dealt with throughout the course, as well as the bibliography that must be consulted to prepare each class and for the personal study. Before each session, the students will have at their disposal the materials to be worked on.

In the sessions of flipped classes, prior to each session, the students will have at their disposal a video of the topic to be discussed in each session, which they have to view before attending the session. Each session will begin with a small activity on the video (assessable) or online questionnaires. After this activity, different activities will be worked on to highlight the importance of each group of protists treated in the topic that corresponds to the session. These activities can be solved individually, in groups or as a whole, depending on the activity and can also be evaluable.

- Seminars: The seminar sessions will be carried out in small groups. Current and real problems related to protists and the environment and / or society and public health will be addressed, with the aim of giving students a space for reflection and self-learning. As a complement to the seminars, questions related to the subject will be raised that can be discussed by students and professors in the virtual campus forum.

For a good follow-up of the subject, the student will have all material in the Virtual Campus of the subject.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Partials and continuous assessment activities throughout the course	70%	5	0.2	KM14, KM15, KM16, SM13, SM14
Troubleshooting seminars	30%	0	0	CM09, CM10

The assessment of the subject will be individual and continuous:

Assessment of the master classes (70% of the global mark):

- There will be two partial tests. A mark of at least 5 out of 10 is required to successfully pass the partial test. The overall of both partial test has a total weight of at least 60% on the global mark, but each partial has a weight of 25-30% and 30-35%, respectively.

There will be a Re-assessment for students who failed one or both partial exams and for students who wish to improve the mark of one or both partial exams (be aware that in this case, previous mark will be lost). In the re-assessment, a mark of at least 4 of each partial test is mandatory to be able to make the average. To participate in recovery, students must have previously been evaluated in a set of activities, the weight of which is equivalent to a minimum of two-thirds of the total grade for the subject.

- Continuous assessable activities throughout the different master classes: the set of evidence collected during the master classes will have a total weight of 10% (maximum) on the global mark.

Evaluation of the seminars (30% of the overall mark): The follow-up of the different seminar sessions will be evaluated, as well as the presentation of the final works (content, capacity for synthesis, rigor in expression, quality of documentary sources and adaptation to the established time), participation and attendance at all seminars.

For this course, the use of Artificial Intelligence (AI) technologies is permitted exclusively during the bibliographic or information search and to format the presentation during the preparation of the seminar works. The student must clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how these have influenced the process and the final result of the activity. The lack of transparency of the use of AI in this assessable activity will be considered a lack of academic honesty and may lead to a partial or total penalty in the grade of the activity, or greater sanctions in serious cases.

It is mandatory to have a mark of at least 4 in each part (theory and seminars).

One-single assessment:

In the case of students with a one-single assessment for this course, the assessment will consist of a single common exam that will include both the contents of the entire theory program and those covered in seminars. The mark obtained in this synthesis test is 100% of the final mark of the course.

The one-single assessment test will coincide with the same date schedule in the calendar for the last continuous assessment test and the same re-take system will be applied as for the continuous assessment.

In this case, the students will also have to participate and present the corresponding group work in the seminar.

- Not assessable

Students will obtain the "Not assessable" qualification when the assessment activities carried out have a weighting of less than 67% in the final mark.

Bibliography

Books:

- ALBERTS B et al. 2022. Molecular Biology of the Cell. 7th Edition. WW Norton and Company. Ed. Garland Science.
- ALBERTS B, BRAY D, HOPKIN K, JOHNSON A, LEWIS J, RAFF M, ROBERTS K, WALTER P. 2021. Introducción a la Biología Celular. 5^a Edición. Ed. Editorial Médica Panamericana. Madrid.
- BOLD, H.C. et al. 1989. Morfología de las plantas y los hongos. Ed. Omega.
- BRUSCA, R. C. & BRUSCA, G. J. 2003. Invertebrados. 2^o Edición. Ed. McGraw-Hill.
- CARRIÓN, J. S. 2003. Evolución vegetal. Ed. DM.
- HAUSMANN, K. HULSMANN N., RADEK R. 2003. Protistology. 3rd edition. Ed. E. Schweizerbart'sche Buchhandlung.
- HICKMAN, C.P., KEENS, L., EISENHOURL, D.J., LARSON, A., L'ANSON, M., PARDOS MARTINEZ F. 2021. Principios integrales de Zoología. 18^o edición. Ed. Edra.
- HISTÒRIA NATURAL dels Països Catalans. Vol. 4. Ed. Enciclopèdia Catalana.
- HISTÒRIA NATURAL dels Països Catalans. Vol. 8. Ed. Enciclopèdia Catalana.
- IZCO, J. et al. 2004. Botánica. Ed. McGraw-Hill-Interamericana.
- MARGULIS, L., CORLISS, J.O., MELKONIAN, M, CHAPMAN, D.J. 1990. Handbook of Protocista. Ed. Jones & Barlett Publishers.
- MARGULIS, L., CHAPMAN, M. J. 2009. Kingdoms & domains: an illustrated guide to the phyla of life on earth. Ed. Elsevier, Academic Press.
- MAUSETH, J. D. 1998. Botany. An Introduction to Plant Biology, 2/e. Multimedia enhanced edition. Ed. Jones & Bartlett Publ.
- NABORS, W. 2006. Tratado de Botánica. Ed. Pearson.
- RAVEN, P.H., EVERET, R.F. & EICHHORN, S.E. 1991-1992. Biología de las plantas. Vols. 1 i 2. Ed. Reverté.
- SCAGEL, R.F. et al. 1987. El Reino Vegetal. Ed. Omega.
- SLEIGH, M. 1989. Protozoa and other Protists. Ed. Edward Arnold.
- SIMPSON, M.G. 2006. Plant Systematics. Ed. Elsevier, Academic Press.
- STRASBURGER, E. et al. 2004. Tratado de Botànica. Ed. Omega.

On-line books:

- Handbook of the Protists: <https://mirades.uab.cat/ebs/items/show/152980>

Websites:

<http://tolweb.org/tree>
<http://www.unex.es/botanica/LHB>
<http://blogs.uab.cat/herbari>
<http://www.protist.org.uk>
<http://megasun.bch.umontreal.ca/protists/protists.html>
<http://www.bch.umontreal.ca/protists/otherprodbs.html>
<http://www.nhm.ac.uk/jdsml/research-curation/research/projects/protistvideo>
<http://www.nhm.ac.uk/research-curation/research/projects/euk-extreme>
<http://www.dpd.cdc.gov>

Software

No specific software is used in this subject.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	721	Catalan	first semester	afternoon
(PAUL) Classroom practices	722	Catalan	first semester	afternoon
(TE) Theory	72	Catalan	first semester	morning-mixed