

Degree programme	Type	Course
Biochemistry	OB	3

Contact lecturer

Name : Marta Martin Flix

Email : marta.martin@uab.cat

Teaching staff

Xavier Vallve Sanchez

Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

There are no prerequisites for taking this course, but it is recommended that students have basic prior knowledge of research and basic and advanced techniques in the fields of biology, biosciences, and biomedicine. It is also important that students have a good level of English to enable them to take advantage of the bibliographies, websites, and reports provided in that language. Finally, it is important that students in this course demonstrate an open, participatory, communicative, respectful, and curious attitude during the learning activities.

Objectives

The subject Biochemistry: Legal and Social Aspects has a complementary character to the degree and is intended for students to acquire knowledge about the ethical and legal aspects related to Biochemistry, biosciences and associated research.

The educational objectives are that students, upon completing the subject, are able to:

- Know and apply the basic principles of bioethics.
- Apply legal principles in the context of the manipulation of biological systems and the application of molecular life sciences.
- Apply legal principles regarding the research and development of bioproducts.
- Apply the principles of intellectual and industrial property law in the research and development of bioproducts.
- Apply patent regulations.
- Explain the social perception of science and technology and their importance in adequately communicating the achievements and risks associated with biomedical advances, especially those related to biochemistry.
- Know how to communicate effectively both orally and in writing.

- Promote a critical attitude committed to gender equality and social justice in the bioethical field.
- Assume an ethical commitment.
- Identify the problems arising from the progress and application of technology in human beings, genetics, and the beginning and end of life.
- Create an appropriate discussion space to facilitate the adoption of well-founded personal positions and possible consensus that allow for an evaluation of existing social conventions and one's own moral convictions.

Learning outcomes

- CM34 (Integrate economic principles with corporate social responsibility and sustainable development.) Integrate economic principles with corporate social responsibility and sustainable development.
- KM35 (Describe the legal and ethical foundations of molecular life sciences.) Describe the legal and ethical foundations of molecular life sciences.
- KM36 (Describe the principles of intellectual and industrial property law in the development of biotechnological products.) Describe the principles of intellectual and industrial property law in the development of biotechnological products.
- SM36 (Perform a biotechnological risk analysis in the development of new foods, medicines, medical devices and genetically modified organisms (GMOs).) Perform a biotechnological risk analysis in the development of new foods, medicines, medical devices and genetically modified organisms (GMOs).
- SM37 (Apply the principles of bioethics and patent law to the research and development of new products in the field of biochemistry and biotechnology.) Apply the principles of bioethics and patent law to the research and development of new products in the field of biochemistry and biotechnology.
- SM38 (Analyse the principles of the organisation and management of the functional areas of a company in the field of biochemistry and biotechnology.) Analyse the principles of the organisation and management of the functional areas of a company in the field of biochemistry and biotechnology.

Contents

PART I. PRINCIPLES OF BIOETHICS

- Definition of Bioethics
- Fundamental Ethical Theories in Bioethics
- Analysis in Bioethics
- Basic Principles in Bioethics
- Other Relevant Principles in Bioethics

PART II. ETHICS IN RESEARCH

- Ethical Principles in Scientific Practice and Biomedical Research
- Obligations of Researchers
- Codes of Good Practice in Research

PART III. ETHICAL DESIGN OF ANIMAL TESTING

- Ethical Aspects of Animal Research
- Basic Principles: The 3Rs
- Legal Aspects of the Use of Experimental Animals: RD 53/2013

PART IV. ETHICAL DESIGN OF HUMAN EXPERIMENTATION

- Ethical principles of human research,
- The subjects
- Legal aspects of research on human subjects and human samples: Law 3/2018, RD 1716/2011, Law 14/2007 and 14/2006

PART V: ETHICAL ASPECTS OF NEW TECHNOLOGIES

- Genetics, genetic engineering and biotechnology, reproductive medicine, and gene editing.
- Bioethics and genetic and health data: databases and use of data. Law 3/2018, Regulation 2016/679, and Art. 5 of Law 14/2007.

PART VI: OTHER LEGAL ASPECTS

- Law 15/1999
- Law 9/2003

Part VII: PATENTS

- Intellectual and industrial property rights.
- Patents in chemistry, pharmacy, and biotechnology.
- Patent drafting and infringement.
- Patent documentation.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Case study: general discussion	15.5	0.62	CM34, KM35, KM36, SM37
Seminars	3	0.12	CM34, KM35, KM36, SM36, SM37, SM38
Theoretical sessions	19	0.76	CM34, KM35, KM36, SM36, SM37, SM38
Study	29	1.16	CM34, KM35, KM36, SM36, SM37, SM38
Case study: discussion preparation	3	0.12	CM34, KM35, KM36, SM37

The course consists of theoretical lectures and analysis and discussion of proposed cases in a seminar format.

THEORY: The content of the theoretical program will be taught primarily by the faculty in the form of lectures with audiovisual support. Some classes will use the flipped lessons methodology, in which the topics are prepared in advance by the students based on material provided by the faculty and subsequently worked through with practical cases in face-to-face sessions. The presentations used in class by the faculty will be previously available on the Virtual Campus for the course.

Although it is not essential to expand on the content of the classes taught by the faculty, unless specifically requested by the faculty, it is advisable that students regularly consult the documents referenced in the theoretical classes (which will be available on the Virtual Campus), as well as the bibliographic material recommended in this teaching guide, to consolidate and clarify the content explained.

Students should individually work on the content of the legal texts referenced in this guide. To facilitate this task, students will be provided with documents containing the full text and a copy of the regulatory text (Virtual Campus).

In addition to class attendance, the proper functioning of the course requires students to play an active role, participating in solving case studies and practical exercises related to the contents of the theoretical program. This type of work will be carried out in small groups to promote cooperative and thought-based learning.

SEMINARS: There will be three seminar sessions throughout the course, and half of the class will attend each session. At the beginning of the course, students will be required to form groups of four to six people. It is important that all group members attend the seminars on the same day, as collaborative and in-person activities will be carried out during the seminars. The cases discussed during the seminars will be previously available on the Virtual Campus.

ATTENTION: Attendance at the seminars is mandatory and essential to pass the course.

Bioethics Seminars (2 seminars): Each group will work on two bioethical cases throughout the course. These cases must be submitted in writing before the corresponding seminar date. During the seminar, the case will be graded and discussed jointly. Each group will receive two anonymized papers from other groups to grade.

The evaluation will be conducted using a common rubric and include a numerical grade and a justified commentary. This commentary will be reviewed by the faculty and included as part of the evaluating group's grade, with the aim of encouraging rigorous, critical, and constructive evaluation.

Patent Seminars (1 seminar): Each group will prepare a case related to legal issues and/or patents and submit it on the day of the seminar session. This will then be followed by a discussion between the groups, moderated and guided by the faculty.

USE OF AI: In this subject, the use of Artificial Intelligence (AI) technologies is permitted as an integral part of the assignment, provided that the final result reflects a significant contribution from the student in analysis and personal reflection. Students must clearly identify which sections were generated with this technology, specify the tools used, and include a critical reflection on how they influenced the process and final outcome of the assignment. Lack of transparency in the use of AI will be considered a breach of academic honesty and may result in a penalty on the assignment grade, or greater sanctions in serious cases.

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	Weight	Hours	ECTS	Learning outcomes
Theoretical content assessment: bioethics	28%	1	0.04	KM35, SM36, SM37
Bioethical practical case	15%	1	0.04	KM35, SM36, SM37
Theoretical content assessment: legal and patents	27%	1.5	0.06	CM34, KM35, KM36, SM37, SM38
Seminars assesment	30%	2	0.08	CM34, KM35, KM36, SM36, SM37, SM38

CONTINUOUS ASSESSMENT:

THEORY (55%): To assess the theoretical content of the course, a short-question and/or multiple-choice exam will be administered. There will be one test to assess bioethics content (28%) and another to assess patent content (27%). The grade obtained in these exams will account for 55% of the course grade. For the theory grades to be averaged among themselves and with the rest of the course grades, a minimum score of 3.5 points must be obtained in each theory test. Students who obtain a grade lower than 3.5 in any of the tests may retake the content on the day of the final retake exam.

To be eligible for retake, students must have submitted at least 67% (i.e., more than 3) of the scheduled assessment activities, considering the following as assessment activities: i) each theoretical content assessment test; ii) each seminar.

PRACTICAL CASE STUDIES (15%): In the case of the bioethics section, on the day of the theoretical exam, each student must individually solve a practical case in the field of bioethics. The grade obtained for solving the case will account for 15% of the course grade.

SEMINARS (30%): The evaluation of the seminars is based on prior preparation, the quality of the presented work, and active participation during the sessions. The three papers presented by each group will be evaluated. Compliance with the deadlines will be taken into account; papers submitted after the case discussions in the seminars will not be valid. All group members will receive the same grade.

Bioethics Seminars (20%): Each group must submit a written solution to two bioethical cases in advance. The cases will be anonymized and, on the day of the seminar, will be evaluated by two different groups using a

common rubric. Each evaluating group will issue a numerical grade and a justified comment, which will be reviewed by the faculty. This comment will be assessed as part of the evaluating group's grade to ensure rigorous and constructive peer assessment. Therefore, for each group, the seminar grade will be the numerical average of the grades received by the evaluating groups, weighted by the faculty's grade on the evaluations they gave to other groups.

Patent Seminar (10%): Each group will submit a case related to legal issues and/or patents, which will be discussed and commented on with the faculty, who will evaluate the work presented by each group. This seminar will be conducted in working groups of 4 to 6 people. Attendance on the day of the seminar is necessary and essential to complete and submit the work.

ATTENTION: Attendance at the seminars is compulsory and essential to pass the course. If a student has an unexcused absence from a seminar, it will count as a zero. In the event of a justified absence, the seminar will not be taken into account in the assessment.

The objective of these tests is to assess not only whether students have acquired conceptual knowledge but, more importantly, whether they have understood it and are able to integrate and relate it to each other. Furthermore, students will also be assessed for their use of appropriate terminology when addressing the questions posed during the assessment, as well as their ability to work in groups and critically and rationally argue and discuss the topics covered.

To pass the course, students must complete all theoretical content tests. Out of a total of 10 points, students must obtain a grade equal to or higher than 3.5 points in each of the three partial tests and an overall grade equal to or higher than 5 points for all the assessment tests for the course. Students who do not achieve the minimum grade of 3.5 points in any of the partial tests will not be able to pass the course and will receive a maximum final grade of 4 points.

SINGLE ASSESSMENT:

The single assessment consists of a single summary test in which the entire theoretical content of the course will be assessed. The exam will consist of multiple-choice questions, short questions, and a practical case study and a student-developed case study. The grade obtained in this summary test will account for 70% of the final grade for the course.

The summary test will be administered on the same date as the last continuous assessment test, and the same resit system will be applied as for the continuous assessment.

In order to use the grade obtained in this summary test as an average for the final grade for the course, a grade equal to or greater than 3.5 out of 10 is required.

Case submissions will follow the same procedure as for the continuous assessment. The grade obtained will account for 30% of the final grade for the course.

GENERAL CONSIDERATIONS:

- Students who are unable to attend an individual assessment test for a justified reason (such as a health problem, death of a relative up to the second degree, accident, elite athlete status and a compulsory competition or sporting activity, etc.) and who provide the corresponding official documentation to the subject faculty and explicitly state their inability to take an exam, a police report, justification from the competent sports organization, etc., to the subject coordinator will be entitled to take the test on another date. The degree coordinator will ensure this is arranged, after consulting with the subject faculty.
- Students who have passed the theory exams, the practical case, and the seminars may take the exam to IMPROVE THEIR MARK. They will be examined on the theory exam and will complete a new practical case. To be able to take the exam to improve their mark, they must renounce their previously obtained mark in writing (email), notifying the faculty responsible for the subject at least three days before the make-up exam. The grade taken will be the grade for the last exam/practical case completed.
- NON-ASSESSABLE: Students will receive a grade of non-assessable if they have attended less than 67% (i.e., 3 or fewer) of the scheduled assessment activities. Assessment activities include: i) each theoretical content assessment test; ii) each seminar.
- The occurrence of any irregularity in an assessment activity (academic fraud, plagiarism, or misuse of

AI, unless this use is expressly authorized in the course guide), which may lead to a significant variation in the grade, implies that this activity will be graded with a 0. In the event that the course guide stipulates that achieving a minimum grade in this assessment activity is an essential requirement to pass the course, or if multiple irregularities occur in the assessment activities of the same course, the final grade for this course will be 0. Aside from this, disciplinary proceedings may be initiated against any student who commits any of these irregularities.

Bibliography

1. Manuals and Textbooks (Essential Bibliography)

- Alonso, M. T. & Institut Borja de Bioètica. (2011). *Bioètica aplicada*. Cànoves: Ed. Proteus.
- Casado, M. (Ed.). (1996). *Materiales de Bioètica y Derecho*. Barcelona: Ed. Cedecs.
- Casado, M. (Ed.). (2009). *Sobre la dignidad y los principios. Análisis de la Declaración Universal sobre Bioètica y Derechos Humanos de la Unesco*. Cizur Menor: Editorial Aranzadi / Civitas Thomson Reuters.
- Casado, M. & López Baroni, M. J. (2018). *Handbook of secular bioethics (I): key issues*. Barcelona: Publicacions i Edicions de la Universitat de Barcelona. [[Disponible en línia](#)]
- Casado, M. & López Baroni, M. J. (2018). *Manual de bioètica laica (I): Cuestiones clave*. Barcelona: Edicions de la Universitat de Barcelona / Universitat de Barcelona Edicions. [[Disponible en línia](#)]
- Coughlin, S. S. (2009). *Case studies in public health ethics (2nd edition)*. Washington: American Public Health Association. [[Disponible en línia](#)]
- De Semir, V. (2010). *La ética, esencia de la comunicación científica y médica*. Barcelona: Cuadernos de la Fundació Víctor Grífols i Lucas nº 25. [[Disponible en línia](#)]
- García Manrique, R. (2008). *La medida de lo humano: ensayos de bioètica y cine*. Barcelona: Associació de Bioètica i Dret de la UB i Observatori de Bioètica i Dret.
- García Manrique, R. (Ed.) / Observatori de Bioètica i Dret & Igareda, N. (2018). *El cuerpo diseminado: estatuto, uso y disposición de los biomateriales humanos*. Navarra: Editorial Aranzadi / Civitas Thomson Reuters.
- Singer, P. & Kuhse, H. (2009/2012). *A Companion to Bioethics (2nd edition)*. Hong Kong: Wiley-Blackwell. [[Disponible en línia](#)]
- López Baroni, M. J. (2016). *El origen de la bioètica como problema*. Barcelona: Publicacions i Edicions de la Universitat de Barcelona / Observatori de Bioètica i Dret. [[Disponible en línia](#)]
- López Baroni, M. J. (2021). *Bioètica y tecnologías disruptivas (1st ed.)*. Barcelona: Herder Editorial. [[Disponible en línia](#)]
- Macklin, R. (2010). *La ética y la investigación clínica*. Barcelona: Cuadernos de la Fundació Víctor Grífols i Lucas nº 23. [[Disponible en línia](#)]
- Montero Delgado, F. & Morlans, M. (2009). *Para deliberar en los comités de ética*. Barcelona: Fundació Doctor Robert - Universitat Autònoma de Barcelona.
- Steinbock, B. (Ed.). (2007). *The Oxford Handbook of Bioethics*. Oxford: Oxford University Press.

2. Institutional and Consensus Documents (Cases and Debates)

- Carracedo, A., Casado, M. & González-Duarte, R. (Eds.). (2006). *Documento sobre pruebas genéticas de filiación*. Barcelona: Observatori de Bioètica i Dret (OBD).
- Casado, M., Llácer, M. R. & Buisan, L. (Eds.). (2015). *Documento sobre bioètica y big data: explotación y comercialización de los datos de los usuarios de la sanidad pública*. Barcelona: OBD. [[Disponible en línia](#)]
- Espanya. Ministerio de Sanidad y Consumo; Instituto de Salud Carlos III. (2005). *Las cuestiones ético-jurídicas más relevantes en relación con los biobancos...* Madrid: Instituto de Salud Carlos III.
- Observatori de Bioètica i Dret, Buxó Rey, M. J. & Casado, M. (2010). *Nanotecnologia i bioètica global*. Barcelona: OBD.
- Sánchez-Caro, J. [i altres]. (2007). *Investigación biomédica en España: aspectos bioéticos, jurídicos y científicos*. Granada: Fundación Salud 2000 y Editorial Comares.
- Santaló, J. & Casado, M. (Eds.). (2016). *Documento sobre bioètica y edición genómica en humanos*.

Barcelona: OBD.

3. Scientific Journal Articles

- López Baroni, M. J., Marfany, G., De Lecuona, I. [i altres]. (2017). *La edición genómica aplicada a seres humanos: aspectos éticos, jurídicos y sociales*. Revista de Derecho y Genoma Humano, 46, 317-340.
- Santaló, J. (2011). *Ethics and genetics. A quick view*. Revista de Bioética y Derecho, 21, 40-45.
- Santaló, J. & Berdasco, M. (2022). *Ethical implications of epigenetics in the era of personalized medicine*. Clinical Epigenetics.

4. Reference Encyclopedias

- Abramsky, S. & Zalta, E. N. (2003). *Stanford Encyclopedia of Philosophy*. Stanford University. [[Disponible en línia](#)]

5. Popular Science Books

- Montoliu, LI (2024). *No todo vale (¿qué hace un científico hablando de ética?)*. Ed. Next Door Publishers
- Montoliu, LI (2026). *Impostores de la ciència. Historias reales de fraude y engaño en la ciència*. Ed. Pinolia.
- Skloot, R (2024). *La vida inmortal de Henrietta Lacks*. Ed. Crítica.

6. Web Resources

- Boletín Oficial del Estado: <https://boe.es/>
- Comitè d'Ètica en la Recerca (CERec) UAB: <https://www.uab.cat/ca/etica-recerca>
- Observatori de Bioètica i Dret de Barcelona: <https://www.bioeticayderecho.ub.edu/ca>
- Fundació Grífols: <https://www.fundaciogrifols.org/es/home>
- Comité de Bioética de España: <https://comitedebioetica.isciii.es/>
- Council of Europe. Steering Committee for Human Rights in the fields of Biomedicine and Health (CDBIO): <https://www.coe.int/en/web/human-rights-and-biomedicine/cdbio>
- The European Group on Ethics in Science and New Technologies (EGE): <https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/scientific-support-eu-policies>
- UNESCO International Bioethics Committee (IBC): <https://www.unesco.org/en/ethics-science-technology/ibc>
- The Hastings Center for Bioethics: <https://www.thehastingscenter.org/>
- Johns Hopkins Berman Institute of Bioethics: <https://bioethics.jhu.edu/>
- The Hinxton Group: An International Consortium on Stem cells, Ethics & Law: <http://www.hinxtongroup.org/>
- EuroBioBank: <https://www.eurobiobank.org/>
- Clinical Trials: <https://clinicaltrials.gov/>
- Stanford Encyclopedia of Philosophy: <https://plato.stanford.edu/>

PATENTS:

- European Patent Academy: <https://www.epo.org/en/about-us/services-and-activities/academy>
- Oficina Espanyola de Patents i Marques (OEPM): <https://www.oepm.es/ca/>
- World Intellectual Property Organization (WIPO): <https://www.wipo.int/portal/en/index.html>

Software

Not applies

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TE) Theory	33	Catalan	second semester	morning-mixed
(SEM) Seminars	331	Catalan	second semester	morning-mixed
(SEM) Seminars	332	Catalan	second semester	morning-mixed