

Degree programme	Type	Course
Biotechnology	OB	3

Contact lecturer

Name : Josep Espluga Trenc

Email : josepluis.espluga@uab.cat

Prerequisites

There are no prerequisites to follow the course successfully.

Group languages

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

Objectives

The main objective of this course is to systematically reflect on some of the main social debates generated by the new biotechnologies and their applications. More specifically, it is intended to learn:

- Basic sociological concepts.
- Theorizing the type of society in which the biotechnologies appear and develop.
- Learning theoretical knowledge and analytical frames to interpret social responses to biotechnology.
- Analyzing the political, economic, social or cultural constraints that influence the development of biotechnologies.
- Reflecting on the relationship between science, technology and society.
- Basics of bioethics.

Other objectives of the course are:

- Sociological reasoning, discussion and exposition of ideas about social reality in a clear and precise way.
- Developing team work skills.

Learning outcomes

- CM26 (Carry out an analysis of biotechnological risks in the fields of new foods, medicines, health products and GMOs.) Carry out an analysis of biotechnological risks in the fields of new foods, medicines, health products and GMOs.
- CM27 (Discuss the basic principles of bioethics.) Discuss the basic principles of bioethics.
- KM28 (Explain the social context, the social structure and the main social factors involved with biotechnology and its applications.) Explain the social context, the social structure and the main social

factors involved with biotechnology and its applications.

- KM30 (Determine the environmental impact of biotechnological production.) Determine the environmental impact of biotechnological production.
- SM26 (Apply the principles of intellectual and industrial property law in the processes of research and development of biotechnological products.) Apply the principles of intellectual and industrial property law in the processes of research and development of biotechnological products.

Contents

The course will provide knowledge and learning on the following topics:

1- Basic concepts of sociology and characterization of contemporary society

1.1. Nature and society. Individual and society. Social structure, norms and values. Social inequality and power. Ideological paradigms and political systems.

1.2. From traditional society to industrial and post-industrial society. The risk society and the information society. Globalization and the emergence of new biotechnologies.

1.3. Social perception of new biotechnologies: Applications to health, reproduction, food, environment, military, arts, etc.

1.4. Map of social conflicts and biotech controversies

2- The social perception of risks of new biotechnologies

2.1. Risk, danger and uncertainty. Conceptual definitions.

2.2. Main 'actors' of conflicts around biotech risks.

2.3. The social perception of risk: dimensions of health, environment, economic, socio-cultural and political-institutional.

2.4. Science and policy in risk management: Risk assessment and the debate on the precautionary principle.

3- Proposals from bioethics

3.1. Technoscience and bioethics.

3.2. Religious bioethics and secular bioethics. Conceptions of life and society in dispute.

3.3. Principality, definitions and critiques. The principles of bioethics.

3.4. International conventions and regulation of bioethics.

4- Social conflicts around biotechnology: Human health and reproduction

4.1. Predictive medicine. Genetic testing and diagnosis. Genetic counselling and the debate on eugenics and social discrimination.

4.2. The debate on human nature (culture / upbringing). Perfection, genetic improvement, hyperpaternity and transhumanism.

4.3. Regenerative medicine. Stem cells, cloning and reprogramming. Impacts on family configuration and embryo status debate.

4.4. Replacement of human organs, cell banks and supernumerary embryos. Gene therapy.

5- Social conflicts around new biotechnologies: Agri-food system

4.1. Transgenic plants and seeds. Genetic engineering, recombinant DNA and genetic editing. The debate on coexistence.

4.2. Impacts on health and the environment vs socio-economic, political and cultural impacts.

4.3. Biopiracy and extractivism. Exploitation of individuals and groups. The debate over the patent system and the commercialization of life.

4.4. Controversies over agri-food models. Sustainability, agroecology and food sovereignty vs. export agro-industrial system.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Theoretical classes	15	0.6	
Team work	20	0.8	
Self-organized work of the student	30	1.2	
Seminars	4	0.16	
Public presentations	4	0.16	

The course will have the following teaching methodology:

1- Theoretical classes

Throughout the course, the teaching staff will make several presentations of the main concepts and theoretical proposals for each unit of study.

2- Seminars, debates and presentations

The seminars will consist of the discussion and debate of cases of biotechnological conflicts or controversies. At the beginning of the course the professor will provide the statement of the cases and readings in order to prepare the debates. The class will be divided into two parts and each part will have to carry out the debates and presentations on specific dates that will be announced at the beginning of the course.

3- Team work

Students will be organized in groups of 4 people to carry out various discussions of readings, search for information, participation in debates and public presentations throughout the course.

4- Autonomous work of the student

Each student will have to do an individual work based on the texts discussed in class, complemented with other sources obtained by the students.

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
Individual written reflection	30%	0	0	KM28, KM30, SM26
Group work synthesizing debates 3-4	30%	0	0	CM26, CM27, SM26
Debates and presentations in the classroom	10%	2	0.08	CM26, CM27
Group work synthesizing debates 1-2	30%	0	0	CM26, CM27, SM26

The evaluation of the subject will consist of:

- a) Participation in group debates and presentation of arguments (10% of the final mark)
- b) Group delivery of two written synthesis based on the readings and discussions (60%) (30%+30%)
- c) An individual work of theoretical reflection linked to the conferences (30%)

At the beginning of the course, the teacher will give detailed instructions on how to carry out each activity.

To participate in the recovery, students must have been previously evaluated in a set of activities whose weight is equivalent to a minimum of two thirds of the total mark for the subject. Therefore, students will obtain the grade "Not Assessable" when the evaluation activities carried out have a weighting of less than 67% in the final grade.

In accordance with article 117.2 of the UAB Academic Regulations, the evaluation of repeating students may consist of a single summary test. Repeating students who want to avail themselves of this possibility must contact the teaching staff at the beginning of the course.

Single evaluation:

The single evaluation consists of two parts:

- An exam on the whole syllabus of the subject (50% of the grade), which will be held on the date set in the calendar for the last continuous assessment test.
- An individual work of analysis of readings and theoretical reflection, as planned for continuous evaluation (50% of the mark), which must be delivered on the same date of the exam.

The same recovery system will be applied as for the continuous evaluation.

AI: In this subject, the use of Artificial Intelligence (AI) technologies is allowed as an integral part of the development of the work, provided that the final result reflects a significant contribution of the student in the analysis and personal reflection. 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 in the use of AI will be considered a lack of academic honesty and may lead to a penalty in the grade of the activity, or greater sanctions in serious cases.

Any irregularity in an assessment act (academic fraud, plagiarism or improper use of AI, unless this use is expressly authorized in the teaching guide), which may lead to a significant variation in the grade, means that this act will be graded with a 0. In the event that the teaching guide provides that in order to pass the subject it is an essential requirement to have obtained a minimum grade in this assessment act or that several irregularities occur in the assessment acts of the same subject, the final grade for this subject is 0. Apart from this, a disciplinary process may be initiated against the student who incurs any of these irregularities.

Bibliography

Main references:

Casado, M. & López Baroni, M.J. (2018) *Manual de bioética laica (I). Cuestiones clave*. Barcelona: Edicions de la Universitat de Barcelona.

Espluga, J. (2005) *Els debats socials de la biotecnologia*. Barcelona: Fundació R. Campalans.
https://fcampalans.cat/uploads/publicacions/pdf/paper_biotecnologia.pdf

Hubbard, R.; Wald, E. (1999) *El mito del gen*. Madrid: Alianza.

Jasanoff, S. (2021) *La arrogancia de la biología*. Madrid: Alianza.

Mukherjee, S. (2016) *El gen. Una historia personal*. Madrid: Debate.

Macip & Willmott (2015) *Jugar a ser Dios*. València: Publicacions de la Universitat de València.

Riechmann, J. & Tickner, J. (coords.) (2001) *El principio de precaución*. Barcelona: Icaria.

Rifkin, J. (1999) *El siglo de la biotecnología*. Barcelona: Crítica.

Stehr, N. (2017) *Biotechnology. Between Commerce and Civil Society*. New York: Routledge. (eBook)

Texts (articles and book chapters) necessary for following the course will be distributed through the virtual campus.

Complementary references:

Adam, B.; Beck, U.; Van Loon, J. (2000) *The Risk Society and Beyond*. London: Sage. [cap. 3, cap. 5, cap. 8]

Beck, U. (1998) *La sociedad del riesgo*. Barcelona: Paidós.

Bestard Camps, J. (2004) *Tras la biología: La moralidad del parentesco y las nuevas tecnologías de reproducción*. Barcelona: Universitat de Barcelona.

Capra, F. (2002) *Las conexiones ocultas. Implicaciones sociales, medioambientales, económicas y biológicas de una nueva visión del mundo*. Madrid: Anagrama.

Fenoll, C. & González Candelas, F. (eds.) *Transgénicos*. Madrid: CSIC-La Catarata.

Gómez-Heras, J.M. (coord.) (2002) *Dignidad de la vida y manipulación genética*. Madrid: Biblioteca Nueva.

González Valenzuela, J. (2005) *Genoma humano y dignidad humana*. Barcelona: Anthropos.

González Valenzuela, J. (2007) *Dilemas de bioética*. Madrid: Fondo de Cultura Económica.

Habermas, J. (2002) *El futuro de la naturaleza humana ¿Hacia una eugenesia liberal?*. Barcelona: Paidós.

Harris, J. (1998) *Supermán y la mujer maravillosa. Las dimensiones éticas de la biotecnología humana*. Madrid: Tecnos.

Herrera, R., Cazorla, M.J. (eds.) (2004) *Aspectos legales de la agricultura transgénica*. Almería: Universidad de Almería.

Horlick-Jones, T.; Walls, J.; Rowe, G.; Pidgeon, N.; Poortinga, W.; Murdock, G.; O'Riordan, T. (2006) *The GM Debate. Risk, politics and public engagement*. London: Routledge.

Lalueza-Fox, C. (2023) *Desigualdad. Una historia genética*. Barcelona: Crítica.

Lash, S.; Szerszynski, B.; Wynne, B. (eds.) (1996) *Risk, Environment and Modernity. Towards a New Ecology*. London: Sage. [cap. 2]

- Lewontin, R.C.; Rose, S.; Kamin, L.J. (1987) *No está en los genes. Racismo, genética e ideología*. Barcelona: Crítica.
- López Cerezo, J.A.; Luján, J.L. (2000) *Ciencia y política del riesgo*. Madrid: Alianza.
- Mosterín, J. (2006) *La naturaleza humana*. Madrid: Espasa Calpe.
- Muñoz, E. (2001) *Biotecnología y sociedad. Encuentros y desencuentros*. Madrid: Cambridge University Press.
- Murphy, T.F. (2004) *Case studies in biomedical research ethics*. Cambridge (Mass): MIT.
- Ocariz-Braña, J. (1988) *Historia sencilla del pensamiento político*. Madrid: Rialp.
- Osset, M. (2000) *Ingeniería genética y derechos humanos*. Barcelona: Icària.
- Parker, J. (ed.) (2003) *Social Theory. A basic Tool Kit*. Basingstoke, Hampshire: Palgrave Macmillan.
- PEALS (2003) *The People's report on GM crops*. Newcastle-upon-Tyne: Policy Ethics and Life Sciences Research Institute. [www.gmjury.org]
- Petersen, A. & Bunton, R. (2002) *The new genetics and the public's health*. London: Routledge.
- Puyol, A. (2019) *Political Fraternity: Democracy Beyond Freedom and Equality*. London: Routledge.
- Ramírez, S. (2006) *La sociología*. Barcelona: UOC.
- Resnik, D.B. (2004) *Owning the Genome. A moral analysis of DNA patenting*. Albany: State University of New York Press.
- Riechmann, J. (2004) *Transgénicos: el haz y el envés. Una perspectiva crítica*. Madrid: La Catarata.
- Robin, M.M. (2008) *El mundo según Monsanto*. Barcelona: Península.
- Sàdaba, J. (2004) *Principios de bioética laica*. Barcelona: Gedisa.
- Sandel, M. (2007) *Contra la perfección*. Barcelona: Marbot.
- Sapolsky, R.M. (2007) *El mono enamorado*. Barcelona: Paidós.
- Shiva, V. (2001) *Biopiratería. El saqueo de la naturaleza y del conocimiento*. Barcelona: Icària.
- Shiva, V. (2003) *Cosecha robada. El secuestro del suministro mundial de alimentos*. Barcelona: Paidós.
- Thompson, P. B. (2015) *From Field to Fork. Food Ethics for Everyone*. Oxford University Press.
- Valls, R. (2003) *Ética para la bioética*. Barcelona: Gedisa.
- Vallverdú, J. (2009) *Bioética computacional. E-Biotecnología: simbiosis de valores*. Madrid: Fondo de Cultura Económica.

Software

Not necessary

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	43	Catalan	first semester	morning-mixed
(SEM) Seminars	431	Catalan	first semester	morning-mixed