

## History of Genetics

Code: 101962  
ECTS Credits: 3

Degree	Type	Year	Semester
2500890 Genetics	OT	4	0
2504235 Science, Technology and Humanities	OT	4	0

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

### Contact

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### Use of Languages

Principal working language: spanish (spa)  
Some groups entirely in English: No  
Some groups entirely in Catalan: No  
Some groups entirely in Spanish: No

### Other comments on languages

Besides Catalan, Spanish and English are also used.

### Prerequisites

None.

### Objectives and Contextualisation

Objectives and contextualization

History of Genetics is taken in the 4<sup>th</sup> year of the Degree of Genetics and is part of the group of optional subjects.

The main objectives are:

Introduce the student to the consideration and experimentation of history as a vehicle for reflection and cultural construction, as an instrument of research, documentation and popularization, and as a pedagogical tool in the field of science.

Within the specific scope of the history of genetics, give the student the necessary tools to identify and critically analyze the main historiographical currents related to genetics.

Introduce the student to the knowledge of the processes of generation, circulation, communication and management of scientific (genetic) knowledge, as well as his impact on socio-cultural transformations throughout history.

Introduce the student to the analysis of the role and the situation of genetics and their social relations today and throughout history.

Consider the social, cultural, strategic and economic importance of genetics and genomics in the life sciences, health and society.

And thus, give the student the necessary tools to synthesise, from the historical consideration of genetics, a perspective of the current and future reach of this science.

## Competences

### Genetics

- Be able to analyse and synthesise.
- Be able to communicate effectively, orally and in writing.
- Develop self-directed learning.
- Perceive the strategic, industrial and economic importance of genetics and genomics to life sciences, health and society.
- Reason critically.
- Use and manage bibliographic information or computer or Internet resources in the field of study, in ones own languages and in English.

## Learning Outcomes

1. Be able to analyse and synthesise.
2. Be able to communicate effectively, orally and in writing.
3. Develop self-directed learning.
4. Explain that in the past genetics was used unlawfully to foster racist ideologies.
5. Reason critically.
6. Synthesise, based on historical progress in genetics, a perspective of the current and future scope of this science.
7. Use and manage bibliographic information or computer or Internet resources in the field of study, in ones own languages and in English.

## Content

### Blocks

- A. Introduction to the history of genetics and the field of the history of sci
- B. Inheritance throughout history. Concepts and sociocultural relations (u
- C. The two cultures and the pillars of contemporary biology (19th century
- D. From Mendel to the Synthetic Theory of Evolution. Genetics and the h
- E. The development of molecular biology: individuals, society and inform
- F. Genetics, genomics, sociobiology: debates and challenges.

## Methodology

Directed activities (26.7% = 20 hours): Theoretical classes / discussion sessions with ICT support.

Supervised activities (15% = 11.25 hours): Individual problem solving and participation in the discussions.

Autonomous activities (53.3% = 40 hours): Individual study, bibliography consultation and performance of works.

Description (directed and supervised activities: theoretical classes and discussion sessions; problem solving):

Block A. Introduction to the history of genetics within the scope of the history of science and, in particular, of biology: 1 class of 2 hours.

Bloc B. Inheritance throughout history. Concepts and socio-cultural relationships (until the 18th century): 2 classes of 2 hours.

Bloc C. The two cultures and the pillars of contemporary biology (nineteenth century): 2 classes of 2 hours.

Bloc D. From Mendel to the Synthetic Theory of Evolution. Genetics and the historical vision of life: 2 classes of 2 hours.

Bloc E. The development of molecular biology: individual, society and information: 2 classes of 2 hours.

Bloc F. Genetics, genomics, sociobiology: debates and challenges: 1 class of 2 hours.

Deliveries: Final written essay in relation to a specific topic integrated in the contents and competences of the subject, to be delivered on the exam date via virtual campus or email.

In the event that activities and tests or exams cannot be taken onsite, they will be adapted to an online format made available through the UAB's virtual tools (original weighting will be maintained). Homework, activities and class participation will be carried out through forums, wikis and/or discussion on TEAMS, etc. Lecturers will ensure that students are able to access these virtual tools, or will offer them feasible alternatives.

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.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Theoretical classes / Discussion sessions with TIC support	20.25	0.81	4, 6
Type: Supervised			
Solving problems and tasks autonomously, participation in discussions	11.25	0.45	3, 4, 5, 2, 6, 1, 7
Type: Autonomous			
Independent study, consultation of bibliography and realization of works	39.75	1.59	3, 4, 5, 2, 6, 1, 7

## Assessment

The course evaluation is continued in relation to:

Active participation in class discussions, which may include presentations of one or two short essays to be assigned during the semester (40% of the final grade: written essays; 20% of the final grade: presentation and participation).

A final and brief essay preparation (40% of final grade) about some concrete topic of the course's themes and competences, in which the students have to evidence their capacity of historically locating and critically analyzing any issue related with the history of genetics.

To the effectiveness of evaluation, the students have to approve each one of the proves separately.

The student who has not approve the course could present a recuperation prove. To that the student should be previously evaluated minimums to the three quarters of the total evaluation of the course. Additionally, the student must obtain, at least, 3.5 in the total evaluation of the course.

The student will be graded as "Non assessable" if the weighth in of all conducted evaluation activities is less than 67% of the final score.

In the event that activities and tests or exams cannot be taken onsite, they will be adapted to an online format made available through the UAB's virtual tools (original weighting will be maintained). Homework, activities and class participation will be carried out through forums, wikis and/or discussion on TEAMS, etc. Lecturers will ensure that students are able to access these virtual tools, or will offer them feasible alternatives.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Active participation in the course (presentation of two brief essays)	40%	1.5	0.06	4, 5, 6, 1, 7
Final essay	40%	1.5	0.06	3, 4, 5, 2, 6, 1, 7
Oral presentation	20%	0.75	0.03	3, 4, 5, 2, 6, 1, 7

## Bibliography

Bibliographic sources of digital access will be provided during the semester. However, below are reference works

Essential references

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Additional references (1)

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DARWIN, Charles (1985) *The Origin of Species*. London: Penguin Classics (1859).

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- DOBZHANSKY, T., AYALA, F.J., STEBBINS, G.L., VALENTINE, J.W. (1983) *Evolución*. Barcelona: Omega
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- DE CHADAREVIAN, Soraya. (2002) *Designs for Life: Molecular Biology after World War II*. Cambridge: Cambridge University Press.
- FABIAN, A.C. (ed.) (2001) *Evolución: sociedad, ciencia y universo*. Barcelona: Tusquets (Metatemas) (1ª ed. 1998).
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- KEVLES, Daniel; HOOD, Leroy (eds) (1992) *The code of codes. Scientific and social issues in the Human Genome Project*. Cambridge, MA: Harvard University Press.
- MONOD, Jacques (2000) *El Azar y la Necesidad*. Barcelona, Tusquets (Metatemas) (1ª ed. 1970).
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- ELENA, Alberto. (2002) *Ciencia, Cine e Historia: de Méliès a 2001*. Madrid: Alianza
- FONT-AGUSTÍ, Jordi (coord.) (2002) *Entre la Por i l'Esperança: Percepció de la Tecnociència en la Literatura i el Cinema*. Barcelona: Proa.
- NIETO GALAN, Agustí (2011) *Los públicos de la ciencia. Expertos y profanos a través de la historia*. Madrid: Marcial Pons.
- SECORD, James (2004) Knowledge in Transit, *Isis* 95, 654-672
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Cittadino, Eugene. *Nature as the laboratory. Darwinian plant ecology in the German empire, 1880-1900*. Dordrecht (Holland): Reidel publishing company; 1990.

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Bowler, Peter J. *Theories of human evolution. A century of debate, 1844-1944*. Baltimore: The Johns Hopkins University Press; 1986.

Kay, Lily E. *Who wrote the book of life? A history of the genetic code*. Stanford, California: Stanford University Press; 1993

Worster, Donald. *Nature's economy. A history of ecological ideas*. 2nd edition. Cambridge: Cambridge University Press; 1994.

Bud, Robert. *The uses of life. A history of biotechnology*. Cambridge: Cambridge University

Weindling, Paul. *Health, race and German politics between national unifications and Nazism, 1870-1945*. Cambridge: Cambridge University Press; 1989.

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## Software

In addition to web and Office tools, such as the campus online, email, Google docs, word, powerpoint and excel, tools such as wetransfer, dropbox or the VLC audiovisual file reader will be used.