

COURSE GUIDE

2022/23

Faculty 125 - Faculty of Pharmacy

Cycle Not Applicable

Degree GCAMBI10 - Bachelor's Degree in Environmental Sciences

Year Third year

COURSE

25239 - Sustainable Economics

Credits, ECTS: 6

COURSE DESCRIPTION

Sustainable Economy is a compulsory subject, located in the module of Social, Economic and Legal Sciences, and it is taught during the first four-month period of the third year. This subject studies the economic foundations from the perspective of sustainability. This perspective is fundamental in the Degree in Environmental Sciences, but it is more specific and complete in this subject.

Within its module, Sustainable Economy is preceded by two subjects of the second year, one dedicated to the legislative field (Administration and Environmental Legislation) and the other specifically to sociological aspects (Environment and Society). Both subjects develop an interesting base for Sustainable Economy, since in this one also administrative and social aspects are contemplated although tangentially. Likewise, its content is also related to subjects of the Conservation, Planning and Management of the Natural, Rural and Urban Environment module, especially with the subject Territorial Planning and the Environment.

To take this subject, you do not need any previous knowledge of Economics, even if they are useful. However, it is advisable to have prior training as solid as possible in sustainability addressed from different disciplines both in previous subjects as well as in other complementary training. These premises, together with the specific contents acquired in Sustainable Economy, contribute to the student's acquisition of a transdisciplinary vision on sustainability, which makes it possible to develop tasks in a wide range of professional fields.

COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

GENERAL COMPETENCES:

G001 To Acquire basic knowledge of science and use its results, integrating them with the social, economic, legal and ethical spheres for the identification of environmental problems.

G003 To Join work teams that develop professional tasks, including teachers and researchers, in the environmental field.

G007 To Evaluate the environmental impact of projects, plans and programs.

TRANSVERSAL COMPETENCES:

G009 To Be able to use information from various sources on an applied topic, interpret it properly, draw significant conclusions and present them publicly.

SPECIFIC COMPETENCES:

M03CM03 To Understand the conceptual approaches and instruments of environmental economics and ecological or sustainable economics.

M03CM04 To Understand what is meant by sustainability and know how to apply this concept to production and consumption models and the use of the territory.

M03CM06 To Understand the interrelation of the different dimensions (social, historical, technological, political ...) that trigger, in each time and place, diverse ways of understanding and building the environment.

LEARNING OUTCOMES:

1. Discusses the various ways in which the economy, society and nature are related in different contexts.
2. Evaluates the socio-economic causes of environmental problems and develop alternative solutions to these problems.
3. Criticizes the various views on sustainability and sustainable development and argues the interrelationships between social, ecological and economic dimensions
4. Evaluates the economic system and the current development model based on the concept of sustainability; and uses statistical information and indicators from different sources for this.
5. Applies the basic techniques of environmental valuation of the economy and recognizes its limitations.
6. Interprets in a global way and from different perspectives what is understood by a sustainable economy, and uses concepts of ecological economics and environmental economics for this.
7. Lists and describes the essential principles and instruments for building sustainability.
8. Explains the material depletion process of a fossil fuel based economy and the current challenges in undertaking a transition.
9. Describes the bases of sustainable production and consumption, using circular economy criteria.

CONTENIDOS TEÓRICO-PRÁCTICOS

1. Introduction to Economics and Sustainability.
 - 1.1. What do we know about economics? Definitions and interests.
 - 1.2. Macroeconomic indicators: GDP, employment, inflation, rates.

- 1.3. Basic economic concepts.
- 1.4. What do we know about sustainability? Environmental problems.
- 1.5. The scope of relationships between economics and ecology.

2. Socio-economic and sustainability indicators
 - 2.1. Economic and development indicators
 - 2.2. Multidimensional indicators
 - 2.3. Biophysical indicators of sustainability

3. Economic thinking about the environment
 - 3.1. The environment and sustainability in the economic thought
 - 3.2. Environmental Economics and Ecological Economics
 - 3.3. Valuation Methods
 - 3.4. An example on Natural Spaces

4. Development and Sustainability
 - 4.1. Different perspectives on development
 - 4.2. Strong and weak sustainability
 - 4.3. Interpretations of the Sustainable Development concept
 - 4.4. Other systemic perspectives on sustainability
 - 4.5. Towards a sustainability paradigm

5. Principles and instruments for a Sustainable Economy
 - 5.1. Adaptive Complex Systems and Transformability
 - 5.2. Biotic and abiotic principles for a sustainable economy
 - 5.3. Science and Technology
 - 5.4. Planning and Sustainable Development Strategies
 - 5.5. Environmental taxes and Ecological tax reform
 - 5.6. Land Planning

6. Circular Economy
 - 6.1. Material consumption
 - 6.2. Concepts and principles for a Circular Economy
 - 6.3. Bases for a Circular Economy Strategy
 - 6.4. Material Flow Analysis

TEACHING METHODS

In this subject different methodologies are used. The contents of the program will be developed mainly through the explanations of the teacher during the lectures. But at the same time we will use IKD methodology (active and cooperative learning) through different practices and activities.

We will encourage the active participation and debates during school hours, either in the master classes or as a result of the academic work exhibited in class by the students. Besides, the students will do some practices following active learning techniques, combining elements from problem based learning and the case method, or flipped classroom and peer instruction. The details about these methodologies and the premises to follow are explained in the student's guide.

Autonomous work will be promoted through the practices, which develop the practical application of the contents of the subject. Practices will revolve around specific questions of the topics worked in class, test questions, explanatory videos, articles and texts of interest, etc. The students will do these practices both in classroom or outside of it, as well as individually or in groups.

Students will do a short oral presentation in class which is mandatory, and it will be based on the academic work carried out previously. The subject of the work and the sources (bibliography, statistical sources, Internet pages, etc.) should be discussed with the teacher in advance; so as to permit that the elaboration process itself is also supervised by the teacher, reinforcing the feedback to the students and their formative evaluation.

The students will have at their disposal the materials handled in the explanations given in class through the e-Gela platform (<https://egela.ehu.es/>). Likewise, any other material necessary for the preparation of practices or exhibitions of the work will be posted on said platform. The teacher will inform of this in a timely manner.

Besides, the teaching methodology could be adapted applying a bimodal format, including online and telematic methods in distance. Essentially, activities and contents would be very similar, but adapted to the virtual media and environment.

TYPES OF TEACHING

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	50		10						
Horas de Actividad No Presencial del Alumno/a	45		45						

Legend: M: Lecture-based S: Seminar GA: Applied classroom-based groups
 GL: Applied laboratory-based groups GO: Applied computer-based groups GCL: Applied clinical-based groups
 TA: Workshop TI: Industrial workshop GCA: Applied fieldwork groups

Evaluation methods

- Continuous evaluation
- End-of-course evaluation

Evaluation tools and percentages of final mark

- Written test, open questions 35%
- Multiple choice test 15%
- Exercises, cases or problem sets 20%
- Individual assignments 10%
- Teamwork assignments (problem solving, Project design) 10%
- Oral presentation of assigned tasks, Reading 10%

ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

The usual system will be the continuous evaluation, which consists of the progressive evaluation during the four months of classes and the realization of a written exam at the end. Class attendance is mandatory and the proactive and participative attitude will be positively valued, since it is necessary to implement IKD methodologies. Assistance to classes will be compulsory.

The final grade of the subject will be obtained as follows:

1. Continuous evaluation: 50%, distributed as follows: practices, 20%; academic work (both in groups and individually), 20%; exhibition of works and readings 10%.
2. Individual final exam, 50% (including both written questions and test questions).

To pass the subject it is necessary to approve both, the exam and the continuous evaluation's practices and academic works. Besides, within the exam the test questions will be eliminatory. The specific evaluation criteria of the practices and academic works will be available in the student's guide.

In order to renounce to the ordinary call in the continuous evaluation system it will be enough not to attend the final written exam.

Students who prefer to renounce to the continuous evaluation and opt for a final evaluation just need to communicate it to the teacher by email during the first nine weeks of class. In this case the students will be allowed to have an evaluation based on a single final exam (both written exam and test questions, and it also may include the delivery of some works). In that case, the qualification of the exam will be 100% of the final grade.

The evaluation could be adapted to virtual and distance formats. In this case, evaluation practices, exercises and exams will be very similar to the previous ones, but adapted to the online environment. Under these circumstances, evaluation periods and deadlines, and also evaluation marks and percentages could be modified and adapted. If the sanitary circumstances impede to do the final exam presentially, the specific protocol available in egela will be activated.

EXTRAORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

The students who choose not to attend the ordinary call or have suspended it, in view of the extraordinary call may keep the qualifications of the internships (20% of the final grade) and the group academic work, and the expositions in class (30% of the final grade). The written exam note of the extraordinary call will constitute 50% of the final grade.

The student who has opted for the final evaluation, will continue to choose a single test for 100% of the grade.

If the sanitary circumstances impede to do the final exam presentially, the specific protocol available in egela will be activated.

MANDATORY MATERIALS

Materials hung on the e-Gela platform (<https://egela.ehu.es/>).

BIBLIOGRAFÍA

Basic bibliography

- Bermejo, R. (2011): Manual para una economía sostenible. Los libros de la Catarata, Madrid.
- Bermejo, R.; Arto, I.; Hoyos, D.; Garmendia, E. (2010): Menos es más: del desarrollo sostenible al decrecimiento sostenible. Cuadernos de Trabajo Hegoa, nº 52. Hegoa. UPV/EHU, Bilbao.
- Etxano, I. (2015): Economía eta iraunkortasuna: Oinarriak eta aplikazioak. UEU, Bilbao.
- Martínez Alier, J.; Roca, J. (2013): Economía Ecológica y política ambiental. 3ª ed., Fondo de Cultura Económica, México D.F
- Leonard A. (2010) La historia de las cosas. De cómo nuestra obsesión por las cosas está destruyendo el planeta, nuestras comunidades y nuestra salud. Capítulo 1. Fondo de Cultura Económica.

Detailed bibliography

- Arto, I. (2009): "El metabolismo social del País Vasco desde el análisis del flujo de materiales". Revista de Economía Crítica, 8, 43-80.
- Bermejo, R. (2005): La gran transición hacia la sostenibilidad. Los libros de la Catarata, Madrid.
- Carpintero, O. (2006): La bioeconomía de Georgescu-Roegen. Montesinos, Madrid.
- Common, M.; Stagl, S. (2008): Introducción a la Economía Ecológica. Reverté, Barcelona.
- Daly, H.E.; Farber, J. (2011): Ecological economics: Principles and applications. 2ª ed., Island Press, Washington DC.
- Demaria F., Schneider F., Sekulova F., Martínez-Alier J. (2018) ¿Qué es el decrecimiento? De un lema activista a un movimiento social. Revista de Economía Crítica, 25:147-169.
- Hickel & Kallis (2019) Is green growth possible? New political economy.
- IHOBE (2019) La Huella Ecológica de Euskadi 2019. IHOBE, Gobierno Vasco.
- Infante, J. (2014): "La desmaterialización de la economía mundial a debate. Consumo de recursos y crecimiento económico (1980-2008)". Revista de Economía Crítica, 18, 60-81.
- Martínez-Alier, J.; Muradian, R. (ed.) (2015): Handbook of Ecological Economics. Edward Elgar, Cheltenham (Inglaterra), Northampton, MA (USA).
- Naredo, J.M. (2010): Raíces económicas del deterioro ecológico y social. 2ª ed., Siglo XXI, Madrid.
- PNUD: Informe de Desarrollo Humano. Varios años.
- Riera, P.; García, D.; Kriström, B.; Brännlund, R. (2016): Manual de economía ambiental y de los recursos naturales. 3ª ed., Paraninfo, Madrid
- Steffen W., Richardson K., Rocström J., Cornell S., et al. (2015) Planetary Boundaries: guiding human development on a changing planet. Science, 347(6223).
- Torres J. (2016) Economía para no dejarse engañar por los economistas. Deusto Editores.

Journals

- Ecological Economics
- Ecologista
- International Journal of Sustainable Development and World Ecology
- Journal of Cleaner Production
- Sustainability
- Sustainable Development
- Sustainability Science

Web sites of interest

- ASPO (The Association for the Study of Peak Oil and gas): www.peakoil.net
- Center for Advancement of the Steady State Economy: www.steadystate.org
- Ecologistas en Acción: <https://www.ecologistasenaccion.org/>
- EUROSTAT: <http://www.europa.eu/eurostat>
- EUSTAT: www.eustat.es
- Global Footprint Network: <http://www.footprintnetwork.org>
- IHOBE: <https://www.ihobe.eus/inicio>
- INE: www.ine.es
- PNUD: <http://www.undp.org>
- Programa de Naciones Unidas para el Medio Ambiente (PNUMA): <http://www.pnuma.org>
- Sustainable Goal Index: <https://sdgindex.org/>
- The Oil Crash: <https://crashoil.blogspot.com/>
- WEO (World Energy Outlook): www.worldenergyoutlook.org

OBSERVATIONS

To copy all or part of considerable fragments, both in the written exam and in the academic papers (or in the practical

exercises), will suppose to suspend the subject.