



Universitat de Lleida

# DEGREE CURRICULUM **ECONOMY FOR BIOCOMPANIES**

Coordination: VILADRICH GRAU, MONTSERRAT

Academic year 2022-23

## Subject's general information

Subject name	ECONOMY FOR BIOCOMPANIES			
Code	101637			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Biotechnology	4	OPTIONAL	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	TEORIA		
	Number of credits	6		
	Number of groups	1		
Coordination	VILADRICH GRAU, MONTSERRAT			
Department	BUSINESS ADMINISTRATION			
Teaching load distribution between lectures and independent student work	Number of classroom hours: 60 Number of hours of student autonomous work:90			
Important information on data processing	Consult <a href="#">this link</a> for more information.			
Language	Catalan 70% Spanish 30%			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
CLOP GALLART, MARIA MERCE	mariamerce.clop@udl.cat	2	
JUAREZ RUBIO, FRANCISCO	francisco.juarez@udl.cat	2	
VILADRICH GRAU, MONTSE	montse.viladrich@udl.cat	2	

## Learning objectives

Students who pass the subject must: ( Knowledge objectives )

1. To know the main tools and concepts that allow the understanding of the functioning of the economy.
2. Know and interpret the structure of the sector and the market of biotechnology and pharmaceutical companies.
3. To become familiar with the basic principles of business administration and management of productive activities organized as projects.

The student who passes the subject must be able to: (Capacity objectives)

1. Organize and direct productive activities organized as projects
2. Administer or direct technical departments in biotechnology companies.

## Competences

CG1 Be able to selectively search and use sources of information necessary to achieve the training objectives.

CG2 Interpret scientific-technical information with a critical sense, and be able to make presentations based on this information.

CG3 Work as a team, with a multidisciplinary vision and with the ability to make a rational and efficient distribution of tasks among team members.

CG4 Know and properly use the scientific and technical vocabulary of the different areas of Biotechnology.

CG10 Transmitting strategies and technological applications to the company, based on the general foundations of business economics.

CE34 Being able to design the protocol of a specific biotechnological process with the practical requirements necessary to carry it out and its evaluation parameters.

CE36 Have an integrated vision of the development process of a biotechnological product or application, which incorporates the socio-economic and market aspects of the process.

CE37 Know and know how to use production management, quality management and project management in a biotechnology company

CE41 Know how to design a prospective market research for a certain biotechnological product. CE42 Know the mechanisms and particularities of the creation of bio-companies

CE42 Know the mechanisms and peculiarities of the creation of bio-companies

CE44 Know the main fields of application of Biotechnology and acquire basic training in some of them

## Subject contents

### **Economics of the Biotechnological Firm**

#### **Degree in Biotechnology**

#### **Course 2022-23**

#### **Topic 1. Biotechnology companies and various types of markets.**

1.1. Perfect competition. The characteristics and behavior of competitive companies in the market.

1.2. The maximization of benefits.

1.3. Characteristics of competitive industries.

#### **Topic 2. Market power.**

2.1. The monopoly Characteristics of a monopoly market.

2.1.1 Why do monopolies appear? Patents

2.2. The strategic behavior and the oligopolistic market. Tho oligopolies in the pharmaceutical sector.

2.2.1. The different concepts of strategy.

2.2.2. The Nash Equilibrium..

2.2.3. Games and strategies: The prisoner's dilemma. In economics and in biology.

2.3 What is the market structure of the biotechnology sector?

2.3.1 Monopoly competition

2.3.2 Features of monopolistic competition.

2.3.3 Product differentiation.

#### **Topic 3. Biotechnology companies: Sources of funding, externalities and risk**

3.1. Sources of financing for biotechnology companies. The capital market.

3.2 Financing fund for innovative companies.

3.3 Biotechnology companies and regional innovation systems.

3.4 The externalities of "knowledge".

3.5. Uncertainty, risk and private information.

3.6. The situation of companies and the biotechnology industry in Catalonia, Spain and the World.

**Parts 2 and 3 Professors: M. Mercè Clop and Francisco Juárez**

**Topic 4. Business planning.**

- 4.1. Nature of planning and goals.
- 4.2. Strategies, policies and premises of the planning.
- 4.3. Decision making.

**Topic 5. Direction.**

- 5.1. Human factors and motivation.
- 5.2. Leadership.
- 5.3. Committees, Teams and group decision making.
- 5.4. Communication

**Topic 6. Selection of projects.**

- 6.1. Criteria and models of project selection.
- 6.2. The nature of the project selection models.
- 6.3. Types of project selection models.
- 6.4. The problem of uncertainty.

**Topic 7. Projects in organizations.**

- 7.1. The development of projects in functional organizations.
- 7.2. Development of projects in pure project organizations.
- 7.3. Development of projects in matrix organizations.
- 7.4. Mixed organizational systems.

**Topic 8. Project planning.**

- 8.1. Initial coordination of the project.
- 8.2. Integration of systems.
- 8.3. Execution of the project.
- 8.4. The WBS system and responsibility maps.

**Topic 9. Temporary planning ("Scheduling").**

- 9.1. Techniques PERT, CPM and ROY.
- 9.2. Gantt Graphics.
- 9.3. Critical path
- 9.4. Practices with MS Project.

**Topic 10. Assignment of Resources.**

- 10.1. Assignment of resources to activities.

10.2. Leveling of resources.

10.3. Practices with MS Project.

## **Topic 11. Features of project managers.**

11.1. Project management and project manager.

11.2. Requirements of the project director.

11.3. Selection of the project director.

## **Topic 12. Negotiation and Resolution of conflicts.**

12.1. The nature of the negotiation.

12.2. "Partnering", "Chartering", and Change.

12.3. Conflicts and life cycle of the project.

12.4. Negotiation principles.

## **Topic 13. Project control.**

13.1. Essential elements of control.

13.2. Type of process control.

13.3. "The Earned Value Chart".

## **Topic 14. Completion of the project.**

14.1. Types of project completion.

14.2. When to finish a project.

14.3. The process of finalizing a project.

14.4. The final report.

## **Methodology**

To facilitate the students' learning process we will apply the following methodologies:

1. An expository methodology through the master class lesson.
2. An interrogative methodology encouraging the students to ask questions to the teacher and vice versa by asking questions from the teacher to the students through classroom exercises and practices.
3. A methodology aimed at the application of the knowledge treated in class through the realization of reports by the student. Reports that will be directed by the teacher.

## **Evaluation**

The evaluation will be continuous. "According to the Regulation of the evaluation and the qualification of students in the undergraduated and masters degrees in the UdL, of February of 2014.

Therefore, if the final grade of the subject obtained by continuous evaluation is suspended, the student will NOT be able to take a final recovery exam.

This subject consists of three parts, each of these parts will be independently evaluated.

## Part 1

Part 1 represents 34% of the final grade. The of Part 1 will be calculated as follows:

- Written evaluation that will represent 24% of the final grade or what is the same 70.5 of the final grade of Part 1.
- Problem list solution 10% of the final grade or what matiex is 29.5% of the grade of Part 1.

## Part 2

Part 2 of the subject represents 33% of the final grade. The final grade will be calculated as follows: His improvement includes:

- Daily brief controls, which represent 23% of the final grade or what is the same 69.7% of the grade of Part 2.
- Completion of proposed activities and class attendance, which represents 10% of the final grade or what is the same 30.3% of the grade of Part 2.

## Part 3

Part 3 of the subject represents 33% of the final grade. The students grade ncludes the realization and evaluation of a project.

## Bibliography

### Basic References

- Bradley, R; Myers, S.; Allen F. (2006). Principios de Finanzas corporativas. McGrawHill.
- Dawkins, R (1976) The Selfish Gene. Oxford Univeristy Press, Oxford
- DuBrin, A. (2009), Essentials of Management. South Western, Canada.
- Koontz, H.; Weihrich, H.; Cannice, M. (2008), Administración: una perspectiva global y empresarial. McGraw-Hill.
- Krugman, P. I Wells, R (2007). Introducción a la Economía. Microeconomía, Ed. Reverté.
- Meredith, J.R.; Mantel, S.J. (2010) Project Management. A Managerial Approach. Johnn Wiley and Sons, New York.

### Additional References

-Carlton D.W. and Perloff, J.M. (2005). *Modern industrial organization*, 4th edition, Pearson, Boston, Massachusetts.

-Ernst & Young (2011). Catalonia Life Sciences Report 2011.

-Genoma España (2011). La relevancia de la biotecnología en España.

-Interbio (2012). *From research to market: Key issues of technology transfer from public research centers to businesses*. Barcelona.