COURSE DATA

Data Subject

Code	42595
Name	Applications and trends in bioinformatics
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
2116 - M.U. en Bioinformática 12-V.1	School of Engineering	2	First term

Subject-matter

Degree	Subject-matter	Character
2116 - M.U. en Bioinformática 12-V.1	10 - Applications and trends in bioinformatics	Obligatory

Coordination

Name	Department
ARNAU LLOMBART, VICENTE	240 - Computer Science

SUMMARY

This course aims to look at the relationship between Bioinformatics and Enterprise.
They know the legal aspects of data management, research and the pharmaceutical industry.
It currently analyzing the professional future of bioinformatics in the research environment, the clinic and the company. Related technological trends and expectations of bioinformatics, as well as its limitations.
It is important to know the Spanish legislation on privacy and intellectual property, as well as the legal aspects of software licenses.

PREVIOUS KNOWLEDGE

VNIVERSITAT ĬD VALÈNCIA

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

None.

OUTCOMES

2116 - M.U. en Bioinformática 12-V.1

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

- Students should demonstrate self-directed learning skills for continued academic growth.

- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.

- Students should possess and understand foundational knowledge that enables original thinking and research in the field.

- Be able to access to information tools in other areas of knowledge and use them properly.

- To be able to assess the need to complete the scientific, historical, language, informatics, literature, ethics, social and human background in general, attending conferences, courses or doing complementary activities, self-assessing the contribution of these activities towards a comprehensive development.

- Desarrollar la iniciativa personal y ser capaces de realizar una toma rápida y eficaz de decisiones en su labor profesional y/o investigadora.

- Trabajar en equipo con eficiencia en su labor profesional y/o investigadora y con personas de diferente procedencia.

- Conocer los aspectos legales del manejo de datos, la investigación y la industria farmacéutica.

- Conocer las nuevas tendencias y expectativas tecnológicas de la bioinformática. así como sus limitaciones.

LEARNING OUTCOMES

Know the legal aspects of data management, research and the pharmaceutical industry.
Analyzing today's professional future of bioinformatics in the research environment, the clinic and the company.
Describe new trends and technological expectations of bioinformatics. well as its limitations.
Knowing Spanish legislation on privacy and intellectual property, as well as the legal aspects of software licenses.

DESCRIPTION OF CONTENTS

1. Bioinformatics applications in the pharmaceutical industry

Present and future of bioinformatics in pharmaceutical company:
Current Implementation of bioinformatics in the R & D of pharmaceutical companies.
Development of products and services based on bioinformatics.

2. Computational Biology: constraints and challenges

Current limitations of modeling complex biological systems and prospects for overcoming these limitations.

3. The integrative bioinformatics as a tool in experimental research

Methods and tools for improving the management of research resources.
New trends in research collaboration.

4. Application of bioinformatics in the area of health

Present and future of omics data in the medical history of patients

5. Bioinformatics companies and external services and clinical research.

Bioinformatics business models that serve researchers and hospitals.

6. Bioinformatics and emerging sector. Expectations in professional development

Need skilled bioinformaticians future labor market.

7. Intellectual property and copyright

Introduction to European regulations on state and the rights of intellectual property, copyrights and patents.

8. Data Protection Act

Standards and best practices for data protection and personal and confidential information.

9. Drug law

Regulations and European state regulation and the development and marketing of medicines

10. The Science Act

Practice and regulations governing research and technology development in companies and public research centers.

11. The law research

Practice and regulations governing research and technology development in companies and public research centers.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	15,00	100
Development of group work	5,00	0
Development of individual work	10,00	0
Study and independent work	15,00	0
Readings supplementary material	10,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	5,00	0
Preparation of practical classes and problem	5,00	0
TOTAL	75,00	

TEACHING METHODOLOGY

MD1 - Task training of the teaching-learning environment interaction in the classroom through expository sessions. Previous assignments include preparation (information search, reading texts supplied by teachers), teaching sessions themselves and the later work of deepening.

MD2 - Learning through problem solving and case studies, through which it is acquiring skills on different aspects of materials and subjects.

MD4 - Cross-disciplinary skills. Include attendance at courses, conferences or round tables organized by the CEC of the Master and / or conduct of a bibliographic work on issues that contribute to the integral. It produces a report of activities

EVALUATION

In the two calls:

SE1 Continuous assessment: minimum 5 and maximum 15.

SE2 Activities: minimum 10 and maximum 40.

SE3 Laboratory: minimum 25 and maximum 50.

SE4 Exams: minimum 0 and maximum 50.

REFERENCES

Basic

- Lo esencial en Farmacología. Elisabetta Battista.
  Pharmacology. Crash Course. CHURCHILL LIVINGSTONE. 2013

- A PHARMACOLOGY PRIMER. Theory, Application And Methods
  Terry Kenakin. ISBN: 9780123745859. AÑO: 2009

- Conceptos de salud pública y estrategias preventivas
  Martínez González, Miguel Ángel. Ed. Elsevier. 2013.