



Visiting Professor Program Academic Year 2023/2024

TEACHING COMMITMENT: 12 hours

COURSE TITLE

Metabolomics in Chemistry: Applications in Clinical Mycotoxicology, Foodomics and Exposomics

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Chemistry

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

This course covers the application of metabolomics, a branch of chemistry, in three areas: clinical mycotoxicology, foodomics, and exposomics. In clinical mycotoxicology, the course will examine the use of metabolomics to identify and quantify mycotoxins in several types of samples. In foodomics, the course will explore the use of metabolomics to study the composition and quality of food products. Finally, in exposomics, the course will focus on how metabolomics can be used to study the effects of environmental exposures on human health. The goal of the course is to provide a comprehensive understanding of the role of metabolomics in these areas and how it can contribute to the advancement of research in each field.

LEARNING OBJECTIVES

The learning objectives for this course are as follows:

- To understand the principles of metabolomics and its applications in chemistry.
- To appreciate the role of metabolomics in the study of mycotoxins and the identification of their presence in human biological samples.
- To become proficient in the use of metabolomics techniques for the analysis of food products, including their composition and quality.
- To gain a thorough understanding of the application of metabolomics in exposomics, including the study of environmental exposures and their impact on human health.
- To develop the skills necessary to interpret and analyze metabolomic data and to present the results in a clear and concise manner.
- To understand the limitations and potential of metabolomics in each of the three areas and to critically evaluate its use in real-world scenarios.
- To develop the ability to apply metabolomics to address real-world problems in clinical mycotoxicology, foodomics, and exposomics.

TUTORSHIP ACTIVITIES

N/A

LAB ACTIVITIES

N/A

OTHER ACTIVITIES BESIDES THE COURSE

N/A

ADDITIONAL COURSE

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VISITING PROFESSOR PROFILE

The VP has to be an expert in the fields of metabolomics, foodomics and exposomics. His/her main research should involve scientific fields such as clinical and exposomics metabolomics to assess the impact of potential factors (such as, for instance, mycotoxins) contributing to human carcinomas and other adverse health effects.

The VP would give 12 hours of lecture during the "Chemometrics with Python" course (Master's Degree in Clinical, Forensic and Sports Chemistry). Additionally, 4 hours of lecture could also or instead be given during the "Metabolomics by Machine Learning Algorithms" course of the Doctorate in Pharmaceutical and Biomolecular Sciences, in presence with Professor Marco Vincenti (course recently approved).

FURTHER INFORMATION

ADDITIONAL COURSES:

- Chemiometria con Python (8 hours) - in the framework of Master Degree Chimica Clinica, Forense e dello Sport
- Metabolomics by Machine Learning Algorithms (4 hours) - In the framework of PhD in Scienze Farmaceutiche e Biomolecolari

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CONTACT REFERENT

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