



## DOCTORATE IN PHARMACEUTICAL SCIENCES

Course Program (XXXV cycle)

[...ut civitas Perusii sapientia valeat elucere...]

Partner of the European Pharmacoinformatic Initiative Partner of the Paul Ehrlich Euro-PhD Network

DOCTORATE IN PHARMACEUTICAL SCIENCES
COORDINATOR: PROF. ANTONIO MACCHIARULO
VICE COORDINATOR: PROF. FRANCESCA MARINI
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## AA 2018-2019

January 16-17, 24-25 2019 Prof. Andrea Temperini, University of Perugia

Introduzione all'analisi retro sintetica e sua applicazione per la sintesi di farmaci (2 CFU, 12h)

March 18-25, 2019

Prof. Daniela Lanari, University of Perugia Prof. Elena Petricci, University of Siena

New sustainable methodologies for the synthesis of pharmaceuticals (2 CFU)

May 15-17, 2019
Dr. Valerio Mammoli, PhD, Aptuit Srl, Evotec Company
Introduction to DMPK (2 CFU)

May 21-22, 2019

Prof. Anna Waszkielewicz, Jagiellonian University Medical College, Krakow, Poland

Intellectual property basics in drug discovery projects (1 CFU)

Room and timetable, as well as any change, will be communicated to PhD students by e-mail and published on the website.

June 3-7, 2019

Prof. Jordi Manes, Universidad de Valencia, Spain Risk evaluation of micotoxins in food (1 CFU)

Prof. Lina Cossignani, University of Perugia

Recent advances in antioxidant compounds of nutraceutical interest (1 CFU)

July 5,11,12, 2019

Prof. Stefano Giovagnoli, University of Perugia

Dr. Michele Panzitta, Menarini Industrie Farmaceutiche Riunite S.r.l.)

Dr. Maurizio Valleri, Menarini Industrie Farmaceutiche Riunite S.r.l.)

Manufacturing technology: basic regulatory aspects and production as a R&D step.

Theoretical and general aspects of Raman and NIR Spectroscopy

Raman/NIR spectroscopy for process and quality control in the pharmaceutical industry (1 CFU)

## AA 2019-2020

April 14-17, 2020

Prof. Serge van Calenbergh, University of Gent

New approaches in medicinal chemistry (2 CFU)

The course has been canceled

May 8,15, 2020

Dr. Andrea Capotorti University of Perugia

Precourses of statistics

May 22 – June 26, 2020 Dr. Paolo Cerea, Olon Spa

Design of Experiments (DoE) in the development of new processes (2 CFU)

(Pre-courses of Statistics are mandatory)

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June 3-10, 2020 Prof. Vittorio Pace, University of Wien

Advanced Methods for Chemical Synthesis (2 CFU)

The course has been postponed to November 18 - December 16, 2020.

September 23-25, 2020 Dr. Andrea Astolfi, University of Perugia

In silico drug discovery: from theory to practice (2 CFU)

## AA 2020-2021

January 11-18, 2021 Dr. Luca Sancineto, University of Perugia

Catalytic approaches in the synthesis of biologically relevant molecules (2 CFU, 12h)

In the era of a green new deal and given the importance of catalysis for the development of sustainable synthetic processes, the aim of the course is to provide an overview of the most recent advancements regarding biomimetic and metal-based approaches. Particular emphasis will be devoted to biomimetic approaches in oxidative transformations, and metal catalysts employed in C-C bond formation and activation of otherwise unreactive C-H groups..

February 5-19, 2021 Prof. Emidio Camaioni, University of Perugia Dr. Remo Simonetti, Janssen

Process Analytical Technology and Chemometrics in the Pharmaceutical Industry (2 CFU, 12h)

The course will show some recent PAT (Process Analytical Technology) implementations in the drug oral solid pharmaceutical industry. Examples of spectroscopic and nonspectroscopic applications will be discussed such as:

- PAT for the real-time evaluation of the particle size distribution during fluidized bed granulation;
- PAT for real-time evaluation of blending uniformity;
- PAT for real-time evaluation of the API content uniformity in the tablets.

June 18,25-July 2,9, 2021 Dr. Luisa Mattoli, Aboca

Concepts in Metabolomic Analysis. Applications to the analysis of medicinal plants and complex natural products (2 CFU, 12h)

Natural substances and plant metabolites. Mass spectrometry in the Metabolomic Analysis. Identification of metabolites. Targeted and untargeted metabolomics. Identification of metabolites and their quantitative determination. Regulatory implications and study of biological activity. Analysis of metabolites by phytochemical class: the case of alkaloids and phenols. Research applications and examples for quality control.

April 12-16, 2021 Prof. Riccardo Vivani, University of Perugia

X-Ray powder diffraction for pharmaceutical applications in drug discovery (2 CFU, 12h)

Focusing on novel aspects of method and instrumentation development, applications in emerging fields and new techniques and technologies, the course will illustrate the main relevant advances in the field of NMR. The aim is to facilitate greater understanding and encourage wider use of NMR techniques in structural elucidation of small and macromolecules as well as in metabolomics and host-guest interactions. Particular enphasis will be given on the relevance of this techniques in the early phase drug discovery.

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