

BIO-478

Pharmacology and pharmacokinetics

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Cursus	Sem.	Type
Bioengineering	MA2, MA4	Opt.
Life Sciences Engineering	MA2, MA4	Opt.
Sciences du vivant	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	Written
Workload	120h
Weeks	14
Hours	4 weekly
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

This course introduces the student to the fundamentals in pharmacology, pharmacokinetics, drug-receptor interactions. Pharmacogenetics and chronopharmacology are presented in a practical context in order to exemplify the current issues in the domain to develop personalized medicine

Content

- Introduction to Pharmacology and general topics of pharmacology
- Pharmacodynamics: Drug-target interaction, quantitative description of ligand binding, relationship between ligand binding and functional effect, antagonism; exercises
- Classes of drug targets: functional and structural aspects, strategies of drug targeting; examples
- Pharmacokinetics: principal models and parameters, Drug Absorption, Distribution, Metabolism and Excretion (ADME)
- Chronopharmacology: effect of circadian rhythm on drug action.
- Pharmacogenetics: candidate genes for variable drug response.
- Selected topics related to recent developments in pharmacology.
- Submission of a term paper

Learning Prerequisites**Required courses**

General human physiology

Recommended courses

Cellular and molecular physiology
 Biochemistry
 Maths

Important concepts to start the course

Bachelor in Life Sciences and Technology or equivalent, i.e. physiology, cell and molecular biology, maths

Teaching methods

Ex Cathedra and E-learning

Assessment methods

Written exam

Supervision

Office hours	Yes
Assistants	No
Forum	No

Resources

Bibliography

Handouts will be placed on the moodle site of the course.

Most of the topics are covered in the following reference textbooks:

- "Rang and Dale's pharmacology " by H.P. Rang et al., Elsevier/Churchill Livingstone, 2011
- "Principles of Pharmacology" by DE Golan et al., Lippincott Williams & Wilkins, 2008.