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

<table>
<thead>
<tr>
<th>Office hours</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistants</td>
<td>No</td>
</tr>
<tr>
<td>Forum</td>
<td>No</td>
</tr>
</tbody>
</table>

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.