
COURSE: Organic Chemistry of Bioactive Compounds

ACADEMIC YEAR: 2018-2019

TYPE OF EDUCATIONAL ACTIVITY: Free Choice

TEACHER: Prof. Maria Funicello

e-mail: maria.funicello@unibas.it

website: scienze.unibas.it/site/home.html

phone: +39 0971205490

mobile (optional): **+39 3204371612**

Language: Italian

ECTS: 6

n. of hours: 48
(Theoretical lessons)Campus: **Potenza**
Dept./School: **Dipartimento
di Scienze**
Program: **Chemical Science
(LM54)**Semester: I

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The aim is to provide the fundamentals of a chemical approach for the drug discovery and developments. Furthermore, it has also the aim to know the most common targets in medicinal chemistry either in research than in production. A particular attention will be done to formulation chemistry

PRE-REQUIREMENTS

Knowledge of basic contents of organic chemistry.

SYLLABUS

1. Natural and synthetic drugs; research team for the discovery of new active molecules; biological assays; pre-clinical and clinical phases; patents, SAR studies; importance of relative and absolute configuration.
 2. How is possible the change of structure of a lead compound. Principal synthetic approaches. Combinatorial chemistry
 3. Main chemotherapeutic agents; cellular membranes; antiviral, antifungine and antibacterial drugs. HIV -1: life cycle of the virus and therapies.
 4. Antitumoral drugs and antioxidants. Peptidomimetics and pseudopeptides; Anti-Alzheimer and anti-Parkinson drugs; neurofibrillar aggregation; BACE-1 and HIV-PR: considerations.
 5. Prodrugs: characteristics and application. ADEPT, ADAPT, GDEPT, VDEPT. Activation
 6. "From bench to market": what is the PRDG, atom economy, environmental impact, catalysis, scale-up. Acyclovir: history and perspectives.
 7. Formulation chemistry
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TEACHING METHODS

Theoretical lessons, Technical visits.

EVALUATION METHODS

Oral examination and discussion of a project work on Prodrugs

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Carey. R.J. Sundberg, "Advanced Organic Chemistry"- Part A, Plenum Press London

F.A. Miller, P.H. Solomon., "Writing Reaction Mechanism in Organic Chemistry", Academic Press, II ed.

I. Fleming, "Frontier Orbitals and Organic Chemical Reactions", J. Wiley and Sons, 2005

T. L. Gilchrist, R. C. Storr. "Organic Reactions and orbital symmetry", Cambridge University Press.

INTERACTION WITH STUDENTS

Contact by mail and receiving by appointment on every day

EXAMINATION SESSIONS (FORECAST)¹

20/2/2019; 20/3/2019; 14/5/2019; 19/6/2019; 16/7/2019;15/10/2019; 13/12/2019

SEMINARS BY EXTERNAL EXPERTS YES X

FURTHER INFORMATION

¹Subject to possible changes: check the web site of the Teacher or the Department/School for updates.