
COURSE: ORGANIC CHEMISTRY 2

ACADEMIC YEAR: 2019-2020

TYPE OF EDUCATIONAL ACTIVITY: Characterizing

TEACHER: Prof. Stefano Superchi

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Language: Italian

ECTS: 6 (lessons)

n. of hours: **48** (48 h lessons)Campus: Potenza
Dept. **Science**Semester: 2nd
**Semester: from
March 2nd 2020 to
May 31st-June 20th
2020**

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES*The goals of the course are:**Main educational goals (knowledge):*

- Structure synthesis and reactivity of aromatic polynuclear compounds.
- Structure synthesis and reactivity of main aromatic heterocyclic compounds.
- Carbanions and aldol reactions.
- Structure synthesis and reactivity of organic poly- and difunctional compounds (mono- and di-carbonyls, α,β -unsaturated carbonyls).

The main learning outcomes will be:

- To project multi-step syntheses to obtain medium complexity organic molecules.
 - Propose possible mechanisms for simple organic transformations.
 - Foresee the reactivity of polyfunctional organic compounds.
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PRE-REQUIREMENTS*Knowledge of topics of "General and Inorganic Chemistry" and "Organic Chemistry I" courses*

- *Basic concepts on atomic structure*
 - *Basic concepts on acidity and basicity (Brønsted and Lewis)*
 - *Structure and hybridation of Carbon atom*
 - *Reactivity of main organic functional groups (alkanes, alkenes, alkynes, halides, alcohols, amines, acids and derivatives)*
 - *Mechanisms of main organic reactions (substitutions, additions, eliminations, radical reactions)*
 - *Skill in the project of simple organic syntheses*
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SYLLABUS*Lessons topics:*

- 1) *Aromaticity, Aromatic Electrophilic Substitution (SEAr), Aromatic Nucleophilic Substitution (SNAr), Diazo compounds (10h)*
 - 2) *Aromatic polycyclic compounds (6h): Synthesis and reactivity of Naphthalene, Anthracene, and Phenanthrene*
 - 3) *Heteroaromatic compounds (14h): Synthesis and reactivity of penta- and hexa-cyclic heteroaromatics. Synthesis and reactivity of Pyridine, Quinoline, Isoquinoline, Pyrrole, Furan, Thiophene, Indole.*
 - 4) *Reactions of H-active compounds (18h): Enols and Enolates; Enols and Enolate as nucleophiles; Esters condensations (Claisen); Dicarbonyls condensations; Others enolates and carbanions: Nitroalkanes, dithians and vinyl ethers; Wittig reactions; Conjugate additions.*
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TEACHING METHODS*Theoretical lessons*

EVALUATION METHODSWritten and Oral examination together with course of Organic Chemistry Laboratory.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

The teacher will provide didactic material through the e-learning platform.

- *P. C. Vollhardt, N. E. Schore "Chimica Organica (3rd Ed)" Zanichelli, 2005.*
 - *J. Mc Murry "Chimica Organica (6th Ed)", Piccin, 2005.*
 - *J. Clayden, N. Greeves, S. Warren, P. Wothers "Fondamenti di Chimica Organica" Zanichelli, 2006*
 - *M. Sainsbury "Aromatic Chemistry" Oxford Chemistry Primers 1992*
 - *D. T. Davies "Aromatic Heterocyclic Chemistry" Oxford Chemistry Primers 1992*
 - *G. A. Pagani, A. Abbotto "Chimica Eterociclica" Piccin, 1995.*
 - *J. A. Joule, K. Mills "Heterocyclic Chemistry 4th Ed." Blackwell 2000*
 - *J. Clayden, N. Greeves, S. Warren "Organic Chemistry 2nd Ed." Oxford University Press 2012*
 - *F. A. Carey, R. J. Sundberg "Advanced Organic Chemistry - Part B 5th Ed" Springer 2007*
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INTERACTION WITH STUDENTS*The teacher will receive the students on Monday 10.00- 12.00 and Thursday 10.00-12.00 in his room (3A128, Science Department)*

EXAMINATION SESSIONS (FORECAST)¹

21/01/2020, 18/02/2020, 10/03/2020, 16/06/2020, 21/07/2020, 22/09/2020, 13/10/2020, 02/12/2020

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

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