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**COURSE: Complement of organic chemistry**

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**ACADEMIC YEAR: 2018-2019**

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**TYPE OF EDUCATIONAL ACTIVITY: optional**

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**TEACHER: Lucia CHIUMMIENTO**

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phone: +39 0971 205492

mobile (optional):

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Language: **italian**

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ECTS: **6** (lessons e  
tutorials/practice)n. of hours: **48** (lessons e  
tutorials/practice)Campus: **Potenza**  
Dept./School: **Dipartimento di  
Scienze**  
Program:

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Semester: II  
(date): **from 01.03.2019  
to 31.05-30.06.2019**

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**EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES**

Main topics of the course deal briefly with the advanced organic chemistry and asymmetric synthesis.

At the end of the course students would be able to plan synthetical strategies for organic compounds, both cyclic and acyclic ones, with care for eventually present chirality.

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**PRE-REQUIREMENTS**

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**SYLLABUS**

The course deals with topics of advanced organic chemistry and asymmetric synthesis.

Organic synthesis: retrosynthetic analysis. Selectivity: chemo-, regio-, diastereo- and enantioselectivity.

Stereospecific reactions. Main protective groups.

Symmetry and stereogenic structures:

Stereochemical control: Controlling stereochemistry in cyclic compounds.

Fused and condensated rings. Diastereoselectivity in acyclic systems.

Additions to carbonyl groups: Cram rules and Felkin-Ahn model

Enolates: Stereoselective enolization, boron enolates and Zimmerman-Traxler transition state.

Asymmetric synthesis: resolution, chiral reagents: Brown's allylation and crotylation. Biocatalysis: enzymes.

Chiral auxiliaries: oxazolidinones, chiral catalysts: catalytic hydrogenation. Advantages and disadvantages.

Kinetic resolution and dynamic kinetic resolution.

Strategy for the synthesis of saturated heterocyclic steric and stereoelectronic effects. Baldwin rules. Thorpe- Ingold effect.

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**TEACHING METHODS**

Theoretical lessons, Classroom tutorials.

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**EVALUATION METHODS**

Oral examination.

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**TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL**

- *J. Clayden, N. Greeves, S. Warren, P. Wothers: **Organic Chemistry**, Oxford press*
  - *P. Wyatt, S. Warren: **Organic synthesis: strategy and control**, John Wiley& Sons Ltd*
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**INTERACTION WITH STUDENTS**

*Teacher meets students for details about items of the course in own office each Monday: from 11:30 to 13:30.*

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**EXAMINATION SESSIONS (FORECAST)**

21/06/2019/, 19/07/2019, 13/09/2019, 25/10/2019, 20/12/2019, 03/02/2020, 02/03/2020

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**SEMINARS BY EXTERNAL EXPERTS**    YES X    NO 

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**FURTHER INFORMATION**

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