

60620 - Advanced organic chemistry

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	542 - Master's in Chemical Research
ECTS	6.0
Course	1
Period	First semester
Subject Type	Compulsory
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

5.2. Learning activities

5.3. Program

1. Pericyclic reactions and rearrangements. Concerted and stepwise cycloaddition
2. Transition metal-mediated Organic Synthesis. Cross coupling reactions catalyzed by Pd (Heck, Stille, Suzuki, Negishi, Sonogashira, Buchwald-Hartwig, etc.)- Allylic Nucleophilic substitution. Metathesis.
3. Reaction Mechanisms in Organic Chemistry. Curtin-Hammett's principle. Hammond's postulate. Kinetic and thermodynamic control. Computational methods

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4. Organocatalysis. Basics. Covalent and non-covalent. Amines. Lewis acids and bases. Phase-transfer catalysis. H-bond activation
5. Retrosynthetic analysis. C-C bond formation. Functional groups transformation. Protecting groups in Organic Synthesis
6. Advanced techniques in Nuclear Magnetic Resonance
7. New trends in Organic Chemistry

5.4.Planning and scheduling

5.5.Bibliography and recommended resources

Bibliography

BIBLIOGRAPHY

1. Organic Synthesis. The disconnection approach (2nd edition). S. Warren, P. Wyatt. Ed. John Wiley & sons. 2008
2. Reaction mechanisms in organic synthesis. R. K. Parashar. Ed. Blackwell. 2009
3. Protecting groups (3rd edition). P. J. Kocienski. Ed. Thieme. 2005

SPECIALISED BIBLIOGRAPHY

1. Organic Synthesis. M. B. Smith. Ed. MacGraw Hill.
2. Organic syntheses based on name reactions and unnamed reactions. A. Hassner, C. Stummer. Ed. Pergamon. 1994
3. Organic synthesis with carbohydrates. G.-J. Boons, K. J. Hale. Ed. Sheffield Academic Press. 2000
4. Chemical Synthesis of nucleoside analogues. P. Merino. Ed. John Wiley & sons. 2013
5. Protective groups in organic synthesis (4th edition). P. G. M. Wuts, T. W. Greene. Ed. John Wiley & sons. 2006
6. Catalytic asymmetric synthesis (3rd edition). I. Ojima. Ed. John Wiley & sons. 2010
7. Catalytic methods in asymmetric synthesis. M. Gruttadauria, F. Giacalone. John Wiley & sons. 2011
8. Advanced Organic Chemistry (4th edition). F. A. Carey and R. J. Sundberg. Ed. Springer. 2000
9. Introduction to the strategies for Organic Synthesis. L. S. Starkey. Ed. John Wiley & sons. 2012

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WEB SITES

1. Organic Synthesis. <http://www.orgsyn.org/>