60622 - New organic materials

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	542 - Master's in Chemical Research
ECTS	3.0
Course	1
Period	First semester
Subject Type	Optional
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

- Concepts of Chemistry and Macromolecular Chemistry Supramolecular to design organic materials.
- Materials characterization techniques.
- Advanced Polymers: synthetic bases of Macromolecular Engineering. Living polymerization. Controlled radical polymerization techniques applied to advanced design of macromolecules.
- Processing materials: from the molecule to the material: Materials preparation methods. Crystal engineering. Gels.

Liquid crystals.
- Molecular and Macromolecular Electronics:Organic semiconductors and its applications. OLEDs. Plastic Electronics. synthetic methodologies.
- Organic materials for the energy sector: Solar cells. Types of solar cells. Properties and synthetic strategies of organic compounds for photovoltaic cells. Other materials.
- Organic biomaterials: Organic materials for health. Controlled release systems. Scaffolds for tissue growing. Diagnostic applications.
- Organic materials for Nanotechnology: Functionalization of nanoparticles. Self-assembled organic nanoparticles.
- Other applications and material: Materials for optical applications. Other functional materials.

5.4.Planning and scheduling

5.5.Bibliography and recomended resources

Bibliography

General bibliography:

- Supramolecular Chemistry: Fundamentals and applications. Springer. 2006.

- Functional organic materials : syntheses, strategies and applications . Wiley-VCH. 2007.

- Handbook of Liquid Crystals, 8 volúmenes. Wiley-VCH. 2013.

- Molecular gels: Materials with Self-assembled fibrilar Networks. Springer. 2006.

- Molecular Electronics From Principles to Practice. Wiley-VCH. 2007.

- Nanostructured materials for solar energy conversion . Elsevier. 2006.

- Advanced Biomaterials: Fundamentals, Processing, and Applications. Wiley-VCH. 2009.

- Organic Nanostructures. Wiley-VCH. 2008.

- Functional hybrid materials. Gómez-Romero, P.; Sanchez, C.; Wiley-VCH. 2004.