

## Chim/03 Chemical Science

Academic year: 2016-2017

Faculty/Department: Department of Chemistry

Study courses: L27 Chemical Science

Study plans/Curricula:

Type:

Total Credits: 5

Didactic Methods: Lectures

Didactic Period: 1<sup>st</sup> semester

Exam type: oral

Professor in charge: Dibenedetto Angela

### **Training objectives**

Knowledge of alternative energy sources. Type, application and production of biofuels.

Energy biomass content.

### **Prerequisites**

Basic knowledge of Inorganic Chemistry

### **Didactic Methods**

Provide students with the required theoretical knowledge

### **Course programme**

PROGRAMME: Biorefineries and Carbon recycle

Lectures: (24 h)

1. Transition from linear C economy to circular (2h).
2. The natural carbon cycle (2h).
3. Energy use from fossil sources and CO<sub>2</sub> emissions: climate change (2h).
4. Use of perennial and renewable energy (2h).
5. Use of biomass (4h).
6. The biorefinery concept (2h).
7. Application of the biorefinery concept to different biomass (4h).
8. Use of renewable and CO<sub>2</sub>: towards a circular C economy (4h).
9. Processes that mimic photosynthesis (2h).

Numerical applications (30 h)

### **Reference Texts**

#### **Biorefineries: An Introduction (2015)**

Ed. by Aresta Michele, Dibenedetto Angela, Dumeignil Franck

ISBN 978-3-11-033158-5