

Chim/02 fundamental didactic activity

Academic year: 2016-2017

Faculty: : Department of Chemistry

Study courses: **ADVANCED PHYSICAL CHEMISTRY**

Study plans/Curricula: Master Degree in Chemical Sciences

Type: fundamental didactic activity with integrated final examination

Total Credits: 4

Didactic Methods: frontal lessons (3 credits) laboratory sessions (1 credits)

Didactic Period: Third Semester (October-January)

Exam type: oral examination integrated by reports on laboratory sessions

Professor in charge: Catucci Lucia

Training objectives

Acquisition of the principles of thermodynamics of irreversible processes and environmental physical chemistry as well as the study of kinetics of complex reactions.

Prerequisites

Basic knowledge of physical chemistry and kinetics and molecular dynamics

Course programme

PROGRAMME:

Lectures: (24 h)

1. Thermodynamics of irreversible processes
2. Self-organization, energy and transformity
3. Adsorption
4. Models for the transport and the processing of chemical compounds in the soil
5. Biomass. alternative energy, sustainability indicators

Laboratory experiences (15 h)

- Determination of adsorption isotherm of I₂ on activated carbon
- Complex systems: numerical integration methods of logistic equations.

Reference Texts

- 1) "Appunti sulla Termodinamica dei Processi Irreversibili" V. Vitagliano – Liguori Editore
- 2) "Chimica Fisica per le Scienze Ambientali" C. Dejak, D. Pitea, C. Rossi, E. Tiezzi, Etaslibri
- 3) "Chimica Fisica" Terza edizione italiana, Peter W. Atkins – Zanichelli