



| PHYSICAL CHEMISTRY II | |
|-----------------------|--|
| Enrollment year | 2014/2015 |
| Academic year | 2016/2017 |
| Regulations | DM270 |
| Academic discipline | CHIM/02 (PHYSICAL CHEMISTRY) |
| Department | DEPARTMENT OF CHEMISTRY |
| Course | CHEMISTRY |
| Curriculum | SCIENTIFICO-METODOLOGICO |
| Year of study | 3° |
| Period | 1st semester (01/10/2016 - 20/01/2017) |
| ECTS | 9 |
| Lesson hours | 72 lesson hours |
| Language | ITALIAN |
| Activity type | ORAL TEST |
| Teacher | SPINOLO GIORGIO (titolare) - 9 ECTS |
| Prerequisites | To efficiently follow this course, the student must previously know the basic topics concerning classical thermodynamics, quantum chemistry and statistical thermodynamics as provided by Chimica Fisica I (Physical Chemistry I). |
| Learning outcomes | At the end of the course the student should be able to discuss the main results of the following program. |
| Course contents | After a short presentation and deepening of the basic aspects of quantum theory and statistical thermodynamics (as provided by Physical Chemistry I), the first part of the course discusses the translational (rotational, vibrational) and electronic degrees of freedom of atoms and molecules, by treating in a parallel way the mechanical, spectroscopic and statistical (ideal gas) aspects, and ends with resonance (NMR, EPR) and photoelectron spectroscopies. |

| | |
|--|---|
| | <p>The second part deals with electronic states in crystalline solids, metals / insulators / semiconductors, the quasichemical approach to point defects in solids, a short presentation of adsorption and surface phenomena, including the basic aspects of nanosystems.</p> |
| Teaching methods | <p>Lectures</p> <p>A few hours of numerical exercises in the classroom on selected topics.</p> |
| Reccomended or required readings | <p>Any standard textbook on Physical Chemistry (for Chemistry students) may be used (see: P Atkins and J. De Paula, Physical Chemistry, W. H. Freeman and Company, or G. K. Vemulapally, Physical Chemistry, Prentice-Hall or similar books)</p> <p>For a few topics not discussed in standard textbooks there are text notes written by the teacher.</p> <p>These notes, as well as the the slides used by the teacher during the lectures, are freely available upon request through email or lownload.</p> |
| Assessment methods | <p>Oral exam (written exam upon request by the student)</p> |
| Further information | <p>Oral exam (written exam upon request by the student)</p> |
| Sustainable development goals - Agenda 2030 | <p>\$lbl_legenda_sviluppo_sostenibile</p> |