

<b>COURSE: Physical Chemistry I</b>			
ACADEMIC YEAR: <b>2016-2017</b>			
TYPE OF EDUCATIONAL ACTIVITY: <b>Basic</b>			
TEACHER: <b>Prof. Roberto Teghil</b>			
e-mail: <b>roberto.teghil@unibas.it</b>		website: <a href="http://scienze.unibas.it/site/home.html">scienze.unibas.it/site/home.html</a> .	
phone: <b>0971205768</b>		mobile (optional):	
Language: <b>ITALIAN</b>			
ECTS: (lessons e tutorials/practice) <b>6</b>	n. of hours: (lessons e tutorials/practice) <b>48</b>	Campus: <b>Potenza</b> Dept./School: <b>Dipartimento di Scienze</b> Program: <b>CHEMISTRY (L27)</b>	Semester: <b>I</b> <b>(02/10/2017, 15-31/01/2018)</b>
<b>EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES</b>			
<i>The main goal of the course is to allow a basic knowledge of energy exchanges in equilibrium systems. The learning outcomes will be:</i>			
<ul style="list-style-type: none"> <li>○ <i>Knowledge of the thermodynamic laws concerning energy exchanges among the chemical systems and energy conversion.</i></li> <li>○ <i>Knowledge of the relation between molecular properties and macroscopic systems.</i></li> <li>○ <i>Knowledge of the chemical equilibrium in multi-components systems in the presence of different phases. Interpretation of phase diagrams for systems containing two, three, and four components.</i></li> </ul>			
<b>PRE-REQUIREMENTS</b>			
<i>Grounding in general chemistry.</i>			
<i>Mathematical background on differentiation and integration.</i>			
<b>SYLLABUS</b>			
<i>Block 1: Gases (10 hours)</i>			
<i>The properties of gases. The kinetic model of gases.</i>			
<i>Block 2: Laws of thermodynamics and thermodynamic functions (18 hours)</i>			
<i>Work, heat, and energy. The laws of thermodynamics. The Helmholtz and Gibbs energies.</i>			
<i>Block 3: Mixtures and chemical equilibrium (8 hours)</i>			
<i>The thermodynamic description of simple mixtures. Chemical equilibrium.</i>			
<i>Block 4: Phase diagrams (12 hours)</i>			
<i>Phase diagrams of binary systems. Liquid vapor phase diagrams. Liquid-liquid phase diagrams. Liquid solid phase diagrams. Phase diagrams of ternary systems. Phase diagrams of quaternary systems.</i>			
<b>TEACHING METHODS</b>			
<i>Theoretical lessons.</i>			
<b>EVALUATION METHODS</b>			
<i>Oral examination.</i>			
<b>TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL</b>			
○ <i>P.W. ATKINS, J. DE PAULA, CHIMICA FISICA, ZANICHELLI 2012.</i>			
○ <i>P.W. ATKINS, J. DE PAULA, PHYSICAL CHEMISTRY, OXFORD UNIVERSITY PRESS 2014.</i>			
<b>INTERACTION WITH STUDENTS</b>			
<i>Office Hours: 14-15 from Monday to Wednesday at the Laser Chemical Physics Laboratory. The teacher can be also contacted by e:mail.</i>			
<b>EXAMINATION SESSIONS (FORECAST)<sup>1</sup></b>			
<i>20/02/2018, 20/03/2018, 17/04/2018, 22/05/2018, 19/06/2018, 17/07/2018, 18/09/2018, 16/10/2018, 20/11/2018, 18/12/2018.</i>			
<b>SEMINARS BY EXTERNAL EXPERTS</b> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			

<sup>1</sup>Subject to possible changes: check the web site of the Teacher or the Department/School for updates.

LOGO DELLA STRUTTURA PRIMARIA

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FURTHER INFORMATION

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