

## Syllabus 2020/21

Teacher (name and affiliation)	Luca Bertini, Claudio Greco, Antonio Papagni
Title	Introduction to photochemistry
Language	English
CFU	2
Hours	16
Program	<p>Photophysics:</p> <ul style="list-style-type: none"> <li>- light-matter interaction and photostimulation processes</li> <li>- Interactions between atoms and molecules and photographic processes</li> <li>- Frank-Condon's Principle</li> <li>- Dynamics and time scale for decaying an excited state (fluorescence, phosphorescence)</li> </ul> <p>Photochemistry:</p> <ul style="list-style-type: none"> <li>- Organic photochemistry and photochemical processes</li> <li>- Organic photochemistry: Photostimulate organic reactions</li> <li>- Radical or ionic dissociation</li> <li>- Intramolecular rearrangements and photoisomers</li> <li>- Hydrogen atom abstraction</li> <li>- Photodimerization, photoaddition, photoionisation reactions</li> <li>- Photochemical activity of aromatic compounds</li> <li>- photochemistry of diazo- and azide compounds</li> <li>- Photo-removable protective groups</li> <li>- Chemiluminescence</li> </ul> <p>Technical and experimental aspects of organic photochemistry</p> <ul style="list-style-type: none"> <li>- Inorganic photochemistry and coordination compounds</li> <li>- Characterization of the inorganic and coordinated electron spectra</li> <li>- Decay and Lifetime kinetics of an excited state</li> <li>- Energy transfer: Förster and Dexter mechanism</li> <li>- Electron transfer: Marcus theory and quantum approach</li> <li>- Proton-coupled electron transfer</li> <li>- Redox properties of excited states of coordination compounds: the case of <math>[\text{Ru}(\text{bpy})_3]^{2+}</math>;</li> </ul> <p>Objective of the program: The mini-course of photochemistry is an introduction to a selection of general, organic, inorganic, biological, solid state and theoretical photochemical themes with the aim of providing to phd students knowledge in basic principles and application of photochemistry.</p>

Evaluation: YES/NO	No
Calendar	2 <sup>nd</sup> semester