

**Kafr El-Sheikh University**  
**Faculty of Science**  
**Chemistry Department**



**Suggested research topics**  
**Winter semester of the academic year 2019/2020**

<b>Course name: Photochemistry, Principle and applications</b>
<b>Professor Dr.: Shaban Y. Shaban</b>
<b>Level: Second</b>
<b>Program: Chemistry</b>

### 1. Title: UV and visible Spectrum

- Visible Spectrum
  - Light Absorption and the Origin of Colour
  - Visual Pigments: Chromophore
  - Absorption and Emission of light
  - Spin multiplicity
  - Selection rules,
  - Beer-Lambert Law and its limitations
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### 2. Title: UV spectrum and its parameters

- Presentation of Spectra
  - How to choose a solvent.
  - Polar and nonpolar Solvents
  - What is Chromophore with examples?
  - What is Auxochroms and their effect?
  - The Effect of Conjugation
  - Effect of lone pair of electron
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### 3. Title: Spectrometers

- Spectrophotometer; fundamentals and applications
  - Fluorimeter; fundamentals and applications
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### 4. Title: Electronic Transitions

- Discuss the different types of electronic transition in details with diagrams.
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### 5. Title: Interaction of Light with Matter

- Physical Interaction of Light with Matter
  - Chemical Interaction of Light with Matter
  - Electromagnetic spectrum and detailed effect of its regions (Short note on regions and its applications Starting from Cosmic ray to radio)
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Name: Professor Dr. Shaban Y. Shaban

Signature:

