

Chem 502 Advanced Analytical Chemistry  
 2017-18 Spring - Course Scheduling  
 Prof. Dr. S. Yalcin

Date	SUBJECT
21-02-2018	Classification of Analytical Methods
28-02-2018	Spectrochemical Information
07-03-2018	Optical Components of Spectrometers
14-02-2018	Sources, Wavelength selectors, transducers
21-02-2018	Atomic Spectroscopy
28-02-2018	Molecular Spectroscopy
04-04-2018	STUDENT PRESENTATIONS
	1- 2- 3- 4- 5-
11-04-2018	MID TERM I
18-04-2018	Introduction to Surface Analysis Techniques
25-04-2018	Surface Characterization by Spectroscopy, XPS, UPS
02-05-2018	Surface Characterization by Spectroscopy, Laser Based Techniques
09-05-2018	Surface Characterization by Microscopy, SEM
16-05-2018	Surface Characterization by Microscopy, AFM
23-05-2018	STUDENT PRESENTATIONS
	1- 2- 3- 4- 5-

BULK ANALYSIS TECHNIQUES
Theory, Principles and Applications of;
- Atomic Mass Spectrometry
- Molecular Mass Spectrometry (I) -Gas Phase Ionization: EI, CI, FI
- Molecular Mass Spectrometry (II)- Desorption Ionization: FD, MALDI, ESI
- Mid-IR Reflection Spectrometry, Diffuse Reflectance and Attenuated Total Reflectance Spectrometry, DRIFT-ATR ”
- Raman Spectroscopy
- X-Ray Fluorescence and Diffraction Spectrometry
- Laser Induced Breakdown Spectroscopy
SURFACE ANALYSIS TECHNIQUES
Theory, Principles and Applications of;
- SEM with Energy Dispersive X-ray Analysis (EDX)
- Laser Microprobe Mass Spectrometry
- Ion Scattering and Rutherford Backscattering Spectroscopy
- Surface Plasmon Resonance
- Laser Induced Breakdown Spectroscopy ( chemical imaging surfaces)

\*Presentation Reports are due on presentation days.

\*Please prepare a power point presentation for 30 minutes long. You are also required to submit a full report of your study.

\*Your Report and Presentation should include,

- 1- The principles of the spectroscopic/microscopic technique,
- 2- The physical and chemical considerations and limitations,
- 3- Optical, Mechanical and Electronic Instrumentation,
- 4- Applications ( from at least 5 different study from the recent literature )
- 5- References