



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Special topics in analytical chemistry
2	Course number	0353411
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	12.00 noon-1:00 ppm
4	Prerequisites/corequisites	Electroanalytical chemistry
5	Program title	B.SC in chemistry
6	Program code	03
7	Awarding institution	The University of Jordan
8	Faculty	Science
9	Department	Chemistry
10	Level of course	Forth year
11	Year of study and semester (s)	summer semester 2017
12	Final Qualification	Awarded
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	19/7/2017

16. Course Coordinator: Dr. Sharif Arar

Office numbers, office hours, phone numbers, and email addresses should be listed.

Chem 203 , 10.00 am-11:00 am, Ext 22150, s.arar@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

18. Course Description:

As stated in the approved study plan.

Chem (411)(3 credit hours) Prerequisite: Electroanalytical chemistry.
 optional undergraduate course that covers certain areas in analytical chemistry which are chosen by the course instructor or departmental policy where it discusses and presents the following topics:
 Introduction to toxicology ,forensic analytical toxicology, and analytical pharmaceutical chemistry,
 Drugs and other chemical substances identification and qunatitation review, Mass spectrometry,
 Drugs classification, extraction, and analysis by hyphenated mass spectrometry, Forensic toxicology,
 Trace analysis, and gunshot residue by ICP/AES and ICP/MS, Food analysis (toxic substances,
 phytochemicals & nutrients) (GC-MS and LC-MS).

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Introduction to toxicology , forensic analytical toxicology and analytical pharmaceutical chemistry	1-2	Dr. Sharif Arar	Learn basic concepts in toxicology, and toxic material classification	Interacting with students in lecture in solving problems and examples	Principles of instrumental Analysis, D. Skoog and Leary, Saunders College, 6 th edition
Drugs and other chemical substances identification and qunatitation review	3	Dr. Sharif Arar	Refresh students' memory of advanced instrumental techniques employed for analysis	Interacting with students in lecture in solving problems and examples	The Detection of Poisons and Strong Drugs, by Wihelm Autenrieth
Mass spectrometry	4-7	Dr. Sharif Arar	The will better understanding of different mass techniques of how they work and what data is gained from it.	Interacting with students in lecture in solving problems and examples	Introduction to Mass Spectrometry: Instrumentation , Applications, and Strategies for Data Interpretation, 4th Edition, by J. Throck Watson
Drugs classification, extraction, and analysis by hyphenated mass spectrometry	8-9	Dr. Sharif Arar	To know classification of abuse drugs and how they are analyzed by hyphenated mass spectrometry	Interacting with students in lecture in solving problems and examples	Analytical methods in toxicology, by H.M. Stahar.
Trace analysis, and gunshot residue by ICP/AES and ICP/MS	10	Dr. Sharif Arar	Trace determination of metals by advanced instrumentation Like ICP-MS	Interacting with students in lecture in solving problems and examples	Principles of instrumental Analysis, D. Skoog and Leary, Saunders College, 6 th edition

Food analysis (toxic substances, phytochemicals & nutrients) (GC-MS and LC-MS).	11-13	Dr. Sharif Arar	Food quality, ingredients, micronutrients, degradable substances, and toxic substances trace determination is based on advanced mass spectrometry.	Interacting with students in lecture in solving problems and examples	Principles of instrumental Analysis, D. Skoog and Leary, Saunders College, 6 th edition 2004.
Visiting industrial and analytical laboratories outside The university of Jordan	14	Dr. Sharif Arar	Real life applications in the industry and companies	Writing report about the visit	-----

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Material is presented as lectures using PowerPoint , where student- lecturer interaction as accomplished at each class. Also Students are required to present analytical topic of their choice for 20 minutes.

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

- Oral discussion and evaluation
- Course examinations
- Feedback from graduates who took the course of how it was beneficial to their career

23. Course Policies:

A- Attendance policies:

Student are allowed for 7 absences

B- Absences from exams and handing in assignments on time:

Assignments should be handed on time where no excuses are accepted. Any absence from any exam, student are requested to provide course instructor of acceptable excuse within one week, otherwise their exam mark will be considered zero.

C- Health and safety procedures:

Very sick students are excused for few days to rest at home or for M.D.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Cheating, and plagiarism cases are moved into investigation committees at deanship

E- Grading policy:

For each exam a key is prepared with detailed distribution of marks of each question

F- Available university services that support achievement in the course:

The university E-learning website, face book, and department committees for following up Alumni

24. Required equipment:

Laptop and data show

25. References:**A- Required book (s), assigned reading and audio-visuals:**

- 1-** Principles of Instrumental Analysis, D. Skoog and Leary, Saunders College, 6th edition.
- 2-** Introduction to Mass Spectrometry: Instrumentation, Applications, and Strategies for Data Interpretation, 4th Edition, by J. Throck Watson.
- 3-** The Detection of Poisons and Strong Drugs, by Wilhelm Autenrieth

B- Recommended books, materials, and media:

None

26. Additional information:

None

Name of Course Coordinator: Dr. Sharif Arar----Signature: ----- Date:19/7/2017 -----

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File