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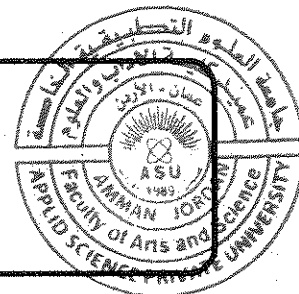


AMMAN - JORDAN

المستوى الذهبي

جامعة كل العرب

Faculty of Arts and Science
Course Syllabus
Semester: Second
Academic Year 2020 / 2021



Course Title: General Chemistry for Pharmacy Students
Course No.: 1501132
Prerequisite: -
Concurrent: -
Department: Basic Science and Humanities
Coordinator: Dr. Ahmed Abu-Rayyan

*** Instructor:**

Name	Office Number	Office Phone	Office Hours	E-mail
Dr. Ahmed Abu-Rayyan	2020	1410	(11-12) Sun., Tue., Thu. (9-10) Mon., Wed.	a_aburayyan@asu.edu.jo
Dr. Waed Alahmad	221	1414	(11-12) Sun., Tue., Thu. (9-12) Mon., Wed.	walahmad@hotmail.com
Dr. Dima Khater	224	1283	(12-1) Sun., Tue., Thu.	d_khater@asu.edu.jo

*** Course Description:**

General Chemistry for pharmacy students covers fundamentals of chemistry including Matter and Classification, atoms and Molecules, Measurements, SI units, and the mole, reactions in aqueous solutions, redox reactions, stoichiometry, chemical equations and metathesis reactions, atomic structure, chemical bonding, molecular structure, and chemical equilibrium. Lecture sessions are designed to clarify the concepts covered in this course and to study example problems which must be learnt to solve. Attendance is expected and students are responsible for being denied from the final exam if the absence exceeds 15% of the lecture sessions. They will be provided with partial outlines of the course material via Blackboard.

The course shall be given via Microsoft Teams, the E-learning platform.

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* Learning Outcomes :

Successful completion of this course should lead to the following learning outcomes:

A-Knowledge and Understanding:

- A1) Be able to understand the basic concepts of *atomic structure*
- A2) Be able to understand the basic concepts of *chemical bonding*
- A3) Be able to understand the basic concepts of *molecular structure*
- A4) Understand concepts of chemical reactions.

B-Intellectual Skills:

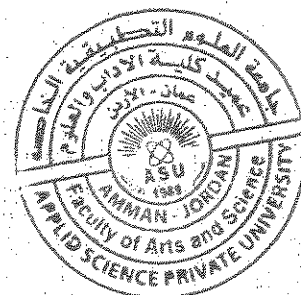
- B1) Distinguish chemical applications needs and requirements
- B2) Analyze and compare the different applications requirements

C-Subject Specific Skills:

- C1) Implement solution of acid-base reactions.
- C2) Implement solution of redox reactions.
- C3) Learn how to implement different applications of chemistry.

D-Transferable Skills:

- D1) Home works and quizzes
- D2) Case study.
- D3) Assignments.



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رمز النموذج: UF 28 / 1

رقم القرار: 24 / 233

تاريخ الاعتماد: 2017/9/18



*** Course Contents and Schedule:**

Semester Weeks	Subject
First	2.1 Physical and chemical properties,30 2.2 Measurement of physical and chemical properties, 32 2.3 The Uncertainty of measurements, 41 2.4 Dimensional Analysis, 45 2.5 Density and specific gravity, 51
Second	3.2 The periodic table,72 3.4 Ionic Compounds,78 3.5 Nomenclature of Ionic Compounds, 85
Third	3.6 Molecular Compounds, 90 3.7 Nomenclature of Molecular Compounds 94
Fourth	4.1 The Molecular Scale versus the Laboratory Scale 107 4.2 Chemical Formulas and Stoichiometry 113 4.3 Determining Empirical and Molecular Formulas 119
Fifth	4.4 The Mole and Chemical Reactions 128 4.5 Limiting Reactants 135 4.6 Theoretical Yield and Percentage 139
Sixth	5.1 Describing Solutions,156 5.2 Electrolytes, weak electrolytes,, and nonelectrolytes,157 5.3 Acids and Bases,164 5.4 Acids-Base nomenclature,173 5.5 Double replacement (metathesis)Reactions,175
Seventh	5.6 Molarity,185 5.7 solutions stoichiometry,190 5.8 Titrations and chemical analysis196
Eighth	8.5 Quantum Numbers of Electrons in Atoms 324 8.6 Electron Spin 326 8.7 Energy Levels and Ground State Electron Configuration
Ninth	8.8 Periodic Table and Ground State Electron Configuration 8.9 Atomic Orbitals: Shapes and Orientations 337 8.10 Periodic Table and Properties of the Elements
Tenth	9.2 Ionic Bonding 358 9.4 Lewis Symbols Keeping Track of Valence Electrons 366 9.5 Covalent Bonds 368
Eleventh	9.7 Bond Polarity and Electrogativity 377 9.8 Lewis Structures 382 9.9 Resonance Structures 394



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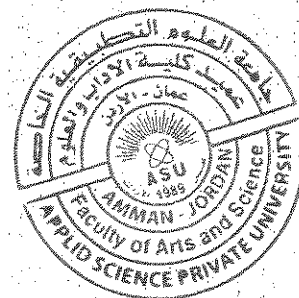
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Twelfth	10.1 Five Basic Molecular Geometry 10.2 Molecular shape an the VSPER model 10.3 Molecular structure and dipole moment 10.5 Hybrid Orbitals and Molecular Geometry 427 10.6 Hybrid Orbitals and Multiple Bonds 439 10.7 Molecular Orbitals Theory Basics 445 10.8 Delocalized Molecular Orbitals 452 10.10 Atomic Size and the Tendency towards Multiple Bond Formation 456
Thirteenth	6.1 Oxidation-Reduction Reactions 214 6.2 Balancing Redox Equations 222 6.4 Redox Reactions of Metals 231 6.6 Stoichiometry of Redox Reactions 239
Fourteenth	15.1 Dynamic Equilibrium in Chemical System 696 15.2 Equilibrium Laws 698 15.3 Equilibrium Laws Based on Pressures or Concentration 15.4 Equilibrium Laws for Heterogeneous Reactions 706 15.5 Position of Equilibrium and the Equilibrium Constant 7 15.6 Equilibrium and Le Chatelier's Principle 710
Fifteenth	Review
Sixteen	Final

*** Teaching Methods:**

- Inter active lectures
- Group discussions
- Self reading
- Written assignments



*** Evaluation:**

Midterm Exam	30%	(18/4/2021) {Microsoft teams}
Assignment	20%	
Final Exam	50%	
Total	100%	

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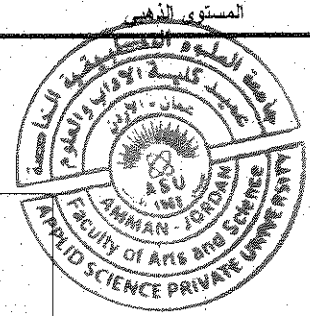


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*** Written Assignment:**

Ch	End of Chapter Questions from the Text
1	5,9,11,32,45,52
2	26, 32, 38, 40, 56, 62, 78, 87
3	19,25,45,89,97,101
4	33, 35, 39, 45, 51, 61, 77, 83, 87, 95, 105, 115
5	51,54,57,63,67,73,82
6	25, 35, 37, (a,f,i), 43, 73, 79, 99, (a,c)
8	73, 79, 83, 87, 94, 107, 109, 129, 131, 153, 157
9	66, 76, 86, 88, 98, 408, 120, 124, 132
10	78, 82, 88, 98, 108, 120
15	23, 25, 27, 33, 35, 45, 47, 51, 55, 59, 89, 92



*** Textbook :**

Chemistry, Brady, Jeverson and Hyslop, 6th.ed, Wiley 2015".

*** References :**

- 1-Chemistry, Matter and Its Changes; By : Brady, Russell & Holum, 3E, J.W., 2000
- 2-Chemistry, The Study of Matter and Its Changes by: Brady & Holum 2nd. E. 1996.
- 3-General Chemistry by Zumdal 5th E. McGraw Hill. 2000

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Subject Coordinator

Dr. Ahmed abu-Rayyan

Head of Curriculum

Dr. Hussam Miqdad

Department Head

Dr. Hussam Miqdad

Dean Faculty

Dr. Hadeel Ali Saed

Signature:

د. أحمد أبوريان

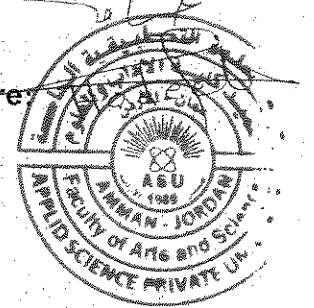
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Copy to:

- Department Head.
- Head of Curriculum Committee.
- Course File.

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