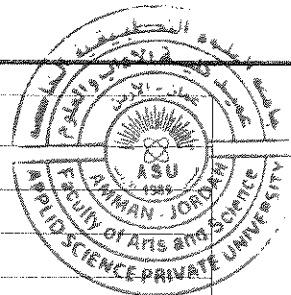




**Faculty of Arts and Science**  
**Course Syllabus**  
**Semester: Second**  
**Academic Year 2020/ 2021**

<b>Course Title:</b>	General Chemistry (1)
<b>Course No.:</b>	1501130
<b>Prerequisite:</b>	-
<b>Department:</b>	Basic Science and humanities
<b>Coordinator:</b>	Dr. Dima Khater



Instructor Name	Office Number	Office Phone	Office Hours	E-mail
Ahmad AbuRayyan	220	1410	S, T, Th: 9-10 mon wed 10-11	a_aburayyan@asu.edu.jo
Dima Khater	224	1283	S, T, Th: 10-11 wed 11-1	d_khater@asu.edu.jo
Nawal Hassan Bahtiti	223	1282	S, T, Th: 12-2 Mon 11-12	nawal_h@asu.edu.jo

**\* Course Description:**

General Chemistry (1). The course covers fundamentals of chemistry including states of matter, atomic structure, bonding and molecular structure, chemical reaction. Reaction stoichiometry, rate of chemical reactions, equilibria, thermodynamics and thermochemistry. The e-learning platform (Microsoft Teams) will be used for teaching.

**\* Learning Outcomes :**

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

*A-Knowledge and Understanding:*



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- A1) be able to understand the basic concepts of stoichiometry  
A2) be able to understand the basic concepts of energy .  
A3) be able to understand the basic concepts of chemical equilibrium  
A4) understand concepts of atomic structure

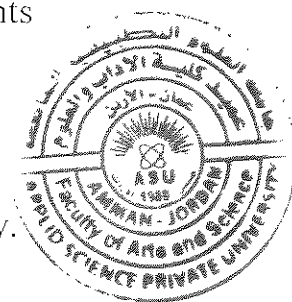
**B-Intellectual Skills:**

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

**C-Subject Specific Skills:**

- C1) Implement solution of reactions rate  
C2) Implement solution of thermo chemistry.  
C3) Learn how to implement different applications in chemistry.

**\* Course Contents and Schedule:**



Week	Topics	Topic Details	Reference	Assessment
1	Scientific Measurements +	2.2 SI units, non SI units Decimal Multipliers, laboratory Measurements. 2.3 Uncertainty, Significant figures. Accuracy & Precision 2.4 Factor-Label method 2.5 Density and specific gravity.	Ch.2	.
2	Nomenclature of chemical compounds	3.2 The periodic table 3.3 Formula of ionic compound 3.5, 3.7 Nomenclature of ionic and molecular compounds.	Ch.3	
2+3+4	The Mole Stoichiometry	4.1 Molecular and formula masses, The mole concept, 4.2 Percentage composition, Chemical formulas, 4.3 Determining Empirical and Molecular Formulas 4.4 Balancing chemical equations, Stoichiometry, 4.5 Limiting reactant, 4.6 Yield	Ch.4	
5+6	Gases	11.2 Measurement of Pressure 11.3 gas law (Pressure, Pressure- volume-temperature relationships) 11.4 Stoichiometry of reactions 11.5 Ideal gas laws, between gases, 11.6 Dalton's law, Graham's law, 11.7 Kinetic theory, 11.8 Real gases	Ch.11 Exclude 11.1	

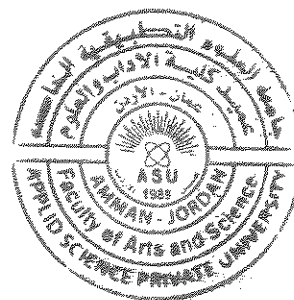


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7+8	Basic Concepts of Chemical Equilibria	15.1 Dynamic equilibrium in chemical systems, 15.2 Equilibrium law for chemical reactions, 15.3 Equilibrium Laws Based on Pressures or Concentrations , Relationship between $K_c$ and $K_p$ , 15.4 Heterogeneous equilibria, 15.6 Le Chatelier's principle, 15.7, 15.8 Equilibrium calculations.	Ch.15	Midterm
9+10	Rates of Chemical Reactions	14.1 Rate of reaction. Factors that affect reaction rates, 14.2 Measuring rate of reaction, 14.3 Rate Law, 14.4 Integrated Rate Law 14.5 Molecular Basis of Collision Theory 14.7 Activation energy, 14.9 Catalysts	Ch.14 Exclude 14.8	
11+12	Thermo-chemistry	7.1 Energy, 7.3 heat and Calorimetry., P-V work, 7.4 Energy changes in chemical reactions 7.5 First, laws of thermodynamics, 7.6 Enthalpy, 7.7 thermochemical equation 7.8 Hess's law, 7.9 Standard heat of formation.	Ch.7	
13+14+15	Thermo-dynamics	19.2 spontaneity, 19.3 Entropy 19.4 The second law of thermodynamics, 19.5 The third law of thermodynamics 19.6 Gibbs free energy, 19.7 Free energy and maximum work. 19.8 Free energy and equilibrium	Ch.19 Exclude 19.10	
16	Final Exam			

**\* Teaching Methods:**

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





**\* Evaluation: --**

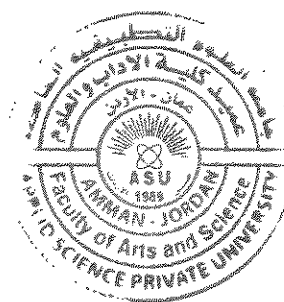
Midterm Exam	30% (18-4-2021)( microsoft teams)
Assignments	20%
Final Exam	50%
Total	100%

**\* Textbook :**

- Brady, J.; Senese, F., *Chemistry: The Study of Matter and Its Changes*, 6<sup>th</sup> Ed

**\* References :**

- Silberberg, M.; Amateis, P., *Chemistry: The Molecular Nature of Matter and Change*, 7<sup>th</sup> Ed., 2015, McGraw-Hill.
- Ebbing, D. D.; Gammon, S. D., *General Chemistry*, 8<sup>th</sup> Ed., Houghton Mifflin Co.





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المستوى الذهبي

جامعة لكل العرب

Subject Coordinator

Dr. Dima Khater

Signature:

د. ديمة خاطر

Head of Curriculum Committee

Dr. Hussam Miqdad

Signature:

حسام ميقداد

Department Head

Dr. Hussam Miqdad

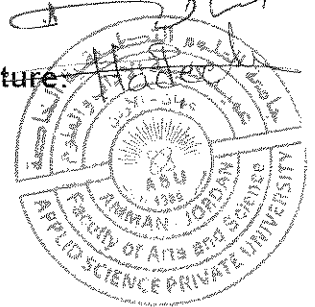
Signature:

حسام ميقداد

Dean Faculty

Dr. Hadeel Alsaad

Signature:



Copy to:

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