



## Academic Course Specification Form

### استمارة توصيف المقرر الأكاديمي

#### القسم الخاص بالطالب Section Concerning the Student

1. Course Code:	CHEMY 102	1. رمز المقرر:
2. Course Title	General Chemistry II	2. اسم المقرر:
3. College:	Science	3. الكلية:
4. Department:	Chemistry	4. القسم:
5. Academic Program:	Bachelor of Science in Chemistry	5. البرنامج الأكاديمي:
6. Course Credits:	3-2-4	6. عدد الساعات المعتمدة:
7. Course NQF Level:	5	7. مستوى المقرر وفقاً للإطار الوطني للمؤهلات:
8. Notional Hours:	170	8. عدد الساعات الافتراضية:
9. NQF Credits:	17	9. عدد الساعات المعتمدة للمقرر وفقاً للإطار الوطني للمؤهلات:
10. Prerequisite:	CHEMY 101	10. المتطلب السابق للمقرر:
11. Lectures Timing & Location:		11. وقت المحاضرة ومكانها:
12. General Mode of Teaching and Learning	تقليدي Traditional	12. النمط العام للتعليم والتعلم:

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May 2024

Changing any elements of the form is strictly prohibited.  
يرجى عدم تغيير أي عنصر من عناصر الاستمارة

13. Course Coordinator:		13. منسق المقرر:
14. Course Instructor:		14. مدرّس المقرر:
15. Office Hours and Location:		15. الساعات المكتبية ومكانها:
16. Instructor's Email:		16. البريد الإلكتروني لمدرّس المقرر:
17. Academic Year:		17. السنة الأكاديمية:
18. Semester:		18. الفصل الدراسي:
19. Textbook(s):		19. الكتب الدراسية للمقرر:
CHEMISTRY, Steven S. Zumdahl, Susan A. Zumdahl, and Donald J. Decoste, 10th Edition, CENGAGE Learning, 2018.		
20. References:		20. المراجع:
<a href="http://www.ac-knowledge.net/uobv3/">http://www.ac-knowledge.net/uobv3/</a> Chemistry, 14th Edition, McGraw Hill. By: Raymond Chang / Jason Overby, 2022 Chemistry Principles and Reactions, 8th Edition, CENGAGE, By: Masterton and Hurley, 2016. Chemistry: A Molecular Approach, Pearson, 2008. By: Tro		
21. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):		21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....)
22. Course Description (as published in the College Catalogue):		22. توصيف المقرر (حسب ما ورد في دليل الكلية):
Molecular orbitals of homonuclear diatomic molecules; thermochemistry: calorimetry, enthalpy, thermochemical equations, heats of formation; chemical kinetics: rate and concentration, concentration and time, activation energy, rate and temperature, catalysis; chemical equilibria: gaseous and aqueous equilibria, the equilibrium constant and the factors affecting an equilibrium system, solubility equilibrium; acids and bases: pH of acidic and basic solutions, hydrolysis of salts; acid-base neutralization: buffers, acid-base titration curves, indicators; entropy and Gibb's energy; introduction to electrochemistry: balancing redox equations, galvanic cells, standard cell potentials; organic Chemistry: IUPAC nomenclature of aliphatic and aromatic hydrocarbons, common functional groups. Related practical work.		
23. Course Intended Learning Outcomes (3 to 5 CILOs):		23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية):
1. Explain main concepts of hybridization, molecularorbital theory, and organic Chemistry.		
2. Identify the main principles of thermochemistry.		
3. Use basic skills to apply the basic fundamentals of reaction rate and chemical equilibrium for gaseous chemical reactions.		

4. Use quantitative measures of solution concentration in describing acid-base, solubility, and electrochemical principles of aqueous solutions.			
5. Use basic skills to compose a scientific report by collecting, interpreting, and reporting data in the laboratory.			
<b>24. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):</b>		24. أساليب التقييم ونسبها المنوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):	
Assessment التقييم	Type النوع	Percentage النسبة	Assessment Date تاريخ التقييم
Midterm I	Individual فردى	60%	
Midterm II	Individual فردى		
Quizzes	Individual فردى		
Lab reports	Individual فردى		
Lab exam	individual		
Final Exam	individual	40%	
<b>Total</b>	<b>100%</b>		
<b>25. Description of Topics Covered</b>		25. وصف الموضوعات التي ينبغي تناولها:	
<i>Topic Title</i> (e.g. chapter/experiment title) الموضوع		<i>Description</i> التفصيل	
Ch.9: Covalent Bonding: Orbitals		Hybridization and the Localised Electron Model, Molecular orbital model, and Bonding in Homonuclear diatomic Molecules. (9.1,9.2, and 9.3)	
<i>Ch. 6: Thermochemistry</i>		Internal Energy, Enthalpy, Calorimetry, Bond Enthalpy. (6.1,6.2, 6.3, 6.4, and 8.8.)	
<i>Ch.12: Chemical Kinetics</i>		Reaction Rates, Rate law, Integrated Rate Law, Activation energy and temperature dependence of rate constants, Catalysis (12.1, 12.2, 12.3, 12.4, 12.6, and 12.7)	
<i>Ch.13: Gaseous Chemical Equilibrium</i>		Equilibrium condition, Equilibrium constant, Application of Equilibrium constant, Le Chatelier's Principle. (13.1, 13.2, 13.3, 13.4, 13.5, 13.6, and 13.7)	
<i>Ch. 14: Acids and Bases</i>		Nature of Acids and Bases, Strength of acids and bases, pH Scale, Weak acids and bases and their ionization constants Polyprotic Acids, Acid-Base properties of Salts. (14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7, and 14.8)	

Ch.15: Equilibria in Acid-Base Solutions		Buffer solutions, Acid-base titrations and pH Curves, Acid -base indicators. (15.2, 15.3, 15.4, and 15.5)		
Ch.16: Solubility and Complex ion Equilibria		Solubility Equilibria and solubility Product. (16.1)		
Ch. 17: Spontaneity of Reaction		Spontaneous processes, Entropy and free energy, Standard free energy change. (17.1, 17.2, 17.3, and 17.4)		
Ch. 18: Electrochemistry		18.1, 18.2, 4.10.		
Ch.22.Organic Chemistry		Introduction to organic chemistry and functional groups. (22.1,22.2,22.4)		
26. Weekly Schedule		26. الجدول الأسبوعي		
Week الأسبوع	Date التاريخ	Topics Covered الموضوعات المتناولة	CILOs مخرجات التعلم للمقرر (CILOs)	Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم
1		<b>Ch.9:</b> Hybridization, Molecular orbital theory.	1	Traditional تقليدي
2		<b>Ch.6:</b> Internal Energy, Enthalpy, Calorimetry, Bond Enthalpy.	2	Traditional تقليدي
3		<b>Ch.6:</b> Internal Energy, Enthalpy, Calorimetry, Bond Enthalpy.	2	Traditional تقليدي
4		<b>Ch.12:</b> Reaction Rates, Rate law, Integrated Rate Law, Activation energy and temperature dependence of rate constants, Catalysis.	3	Traditional تقليدي
5		<b>Ch.12:</b> Reaction	3	Traditional تقليدي

		Rates, Rate law, Integrated Rate Law, Activation energy and temperature dependence of rate constants, Catalysis.		
6		<b>CH13:</b> Equilibrium conditions and constants	3	Traditional تقليدي
7		<b>CH13:</b> Equilibrium conditions and constants	3	Traditional تقليدي
89		<b>Ch.14:</b> Nature of Acids and Bases, Strength of acids and bases, pH Scale, Weak acids and bases and their ionization constants Polyprotic Acids, Acid-Base properties of Salts.	4	Traditional تقليدي
9		<b>Ch.15:</b> Buffer solutions, Acid-base titrations, and pH Curves	4	Traditional تقليدي
10		<b>Ch.15:</b> Buffer solutions, Acid-base titrations, and pH Curves	4	Traditional تقليدي
11		<b>CH16: Acid and bases</b>	4	Traditional تقليدي
12		<b>Ch:17.</b> Spontaneous processes, Entropy and free energy, Standard free energy change	4	Traditional تقليدي
13		<b>Ch:17.</b> Spontaneous processes, Entropy and free energy, Standard free energy change	4	Traditional تقليدي
14		<b>Ch.22.</b> Introduction to organic chemistry and functional groups	1	Traditional تقليدي
15		<b>Ch.18.</b> Galvanic	4	Traditional تقليدي

		cells, Standard voltages, Balancing Oxidation-Reduction Reactions.		
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<b>27. Academic Integrity Statement</b>			<b>27. بيان النزاهة الأكاديمية</b>	
Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, <a href="#">Anti-plagiarism Policies</a> , and <a href="#">Students' Rights and Responsibilities Handbook</a> . The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.			يتعين على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقاً للوائح سلوك الطلاب والنزاهة الأكاديمية، <a href="#">سياسات مكافحة الانتحال</a> ، <a href="#">ودليل حقوق الطلبة وواجباتهم</a> ، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقاً للسياسات واللوائح المذكورة آنفاً.	
<b>28. Attendance and Absence Regulations</b>			<b>28. نظام الحضور والغياب</b>	
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of <a href="#">Study and Examination at the University of Bahrain</a> .			يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقاً للمادة (33) من <a href="#">نظام الدراسة والامتحانات في جامعة البحرين</a> .	