

EASTERN MEDITERRANEAN UNIVERSITY
DEPARTMENT OF CHEMISTRY

COURSE CODE	<i>CHEM103</i>	COURSE LEVEL	<i>Freshman</i>
COURSE TITLE	General Chemistry	COURSE TYPE	Faculty Core
CREDIT VALUE	(3,1) 3	ECTS VALUE	4
PREREQUISITES	None	COREQUISITES	None
DURATION OF COURSE	One semester	Semester and year	SPRING 2019-20

	Group(s)	Name	Office Hours	e-mail	Office	Telephone
<i>Instructors*</i>	1	Tuğçe Arkan	See the web page	tugce.arkan@emu.edu.tr	AS230	630-2408
<i>Responsible Assistants</i>	1	Selma Ustürk Arwa Abou Rajab Pelin Karşılı	See the web page	selma.usturk@emu.edu.tr arwa.abourajab@emu.edu.tr pekin.karsili@emu.edu.tr	AS231	630-2091

COURSE WEB PAGE	http://opencourses.emu.edu.tr/course/ follow the link for General Chemistry (CHEM103) - The password (if any) for the web page will be provided by your instructor in class. - Following information/tools will be provided to the students all-over the semester through Chem103 web page: 1. Downloadable files of: - An updated copy of this course outline in pdf format - Lecture presentation slides (Lecture notes) - Answer keys of exams - Sample exam papers (past exam papers) - Printable Periodic table of elements 2. Links to Connect+ system and other pages with useful chemistry learning tools (movies, wikies etc) 3. Important dates, exam schedules and announcements
	PERSONAL e-MAILS All important news and announcements are published on the course web page. Usually a copy of the news and announcements are also sent to your e-mail address indicated in your student portal. It is your responsibility to make sure that this e-mail address you provided during your registration is an active address and you check it regularly.

CATALOGUE DESCRIPTION

Matter and measurements; Atoms, Molecules and Ions; Mass Relations in Chemistry-stoichiometry; Reactions in Aqueous Solution; Gasses; Thermochemistry; Quantum Theory and the Electronic Structure; Periodic Relationships among Elements; Acids and Bases.

AIMS & OBJECTIVES**(Relationship of Course to Program Outcomes)**

This course is designed as a one-semester for general chemistry courses designed for freshman students of health sciences. It offers the opportunity to the student to develop:

- an adequate background in fundamentals of general chemistry.
- systematic problem solving skills through numerous conceptual and numerical problems requiring critical and analytical thinking skills in addition to a good grasp of chemical concepts.
- scientific literacy and awareness to become an informed citizen
- basic laboratory skills.

LEARNING OUTCOMES

- Identify the classes, constituents and properties of matter
- Understand the atomic and molecular structure
- Understand and use the mole concept
- Identify and name the substances
- Distinguish between types of substances
- Represent molecules and compounds using empirical, chemical and structural formulae
- Understand mass relations in chemistry
- Be able to write and balance chemical equations
- Carry out stoichiometric calculations
- Calculate solution concentration
- Identify types of reactions
- Identify acids and bases
- Comprehend simple gas laws, ideal gas behaviour and kinetic theory of gases
- Understand the role of acids and bases
- Interpret system of units used in physical sciences
- Use symbols and units correctly; and formulate appropriate mathematical and chemical equations for solving problems
- Apply the theoretical concepts and methods of chemistry covered in this course to solve problems
- Use dimensional analysis method for solving numerical problems
- Use efficiently and effectively a variety of printed and electronic text, material (including the textbook) relevant to the course
- Handle chemicals properly, performing experiments as a team safely, and writing lab reports
- Use good scientific English for written and oral communication

PLEASE KEEP THIS COURSE SYLLABUS FOR FUTURE REFERENCE AS IT CONTAINS IMPORTANT INFORMATION

ASSESSMENT (Exams & Home-works) (See also Grading Criteria)

Exams:

- There will be **one quiz, one midterm exam, and one final exam**. Final exam will include questions from all topics covered in the whole semester. There will be no questions from the lab experiments in midterm and final exams.
- All students should have a **non-programmable scientific calculator**, which can be used in exams. Mobile phones and tablets are not allowed in the exams. You may not use them as calculator.
- Students can see their papers in the first 10 days following the announcement of results, but not later than that.
- All assessment (including lab report and lab exams) marks will be announced via the student portal; they will not be announced on notice boards or elsewhere.
- Exams regarding the lab sessions are explained in the Laboratory section of this course outline.

Make-up Exams:

Caution:

- We strongly recommend the students not to miss exams on the regularly scheduled dates.
 - Students having not attended the **Midterm** and/or **Final** exams are entitled to enter the Make up Exam. One **CAN NOT** sit for the make-up exam to improve his/her already existing regular exam mark.
 - There will be a **single make-up session** with different question sets for midterm and final exams.
 - The date will be right after the "Final Exams" period. It will be announced on the course web page.
 - There will be no make-up exam for lab final.
 - No medical report is needed for the make-up exam.
 - No application is needed to sit in the make-up exam.
 - There will be no make-up of make-up exams.
- Not attending any two exams (midterm and final), including make-up exams will result with an NG grade.

Resit Exams

Those with a letter grade of D- or F can sit in resit exams. Also, those having an academic standing of "Warning" (irrespective of letter grade) can also sit in the resit exam. Online application is necessary. Resit exam mark replaces the sum of the marks of midterm and final exams (85% in Chem103). Students with an NG grade are not allowed to take resit exams.

Revision/Inspection of Exam Papers and Objections to Exam Grading:

Students may revise/inspect their marked exam papers. According to the by-laws, these requests should be made within 10 days of announcement of marks, after which the instructor may refuse paper inspection requests. Objections to any grade must first be made to the instructor. If still unsatisfied students may petition the head of department (Department of Chemistry, Faculty of Arts & Sciences).

Method of Assessment:

Quiz	10%
Midterm	30 %
Laboratory work	15 % (Lab reports: 6/15; Lab quizzes: 4/15; Lab Final: 5/15)
Final	45%

Passing **old lab marks (6/15)** of repeating students (on the condition that they attended at least 2 lab sessions) are transferrable; therefore, they don't have to repeat the lab work.

ATTENDANCE POLICY

Lectures:

- The students are strongly advised to attend all the lectures for best performance. More than 50% absence might result with failure with an "NG" grade. (See the Grading Criteria).
- Attendance check is done in every class. The instructor may check the attendance in the first or the second hour or in both hours of a two-hour session.
- Each student can follow his/her attendance records from the on-line attendance tracking system in portal.

Lab sessions:

Missing 3 or more lab sessions results in failure from Chem103 with an NG grade.

LABORATORY

- Laboratory work is compulsory.
- Five experiments will be done during the semester. Missing three or more experiments will result in failure in CHEM103 with an NG grade.
- Students are expected to own a copy of Chem103 Lab Manual, which is available in the bookstore (Deniz Shop) in the campus.
- Students who are late by 10 or more minutes will **NOT BE ALLOWED** in to the LAB.
- Students must attend lab only on the dates allocated to their group.
- Calculators are allowed and necessary.
- Students are allowed to the lab after signing a statement of confirmation that they have read and understood the lab safety rules.
- Students are not allowed to the lab without a lab coat. Lab coats must be worn at all times in the lab. Lab coats are available in the bookstore or in the shops around the Campus.
- Long hair must be neatly tied up.
- Eating, drinking chewing gum and smoking are hazardous and **NOT ALLOWED** in the LAB.
- Mobile phones are strictly forbidden and must be turned off.
- There will be a quiz about the experiment to be performed at the beginning of each lab session. Sharing of calculator, pencil or eraser during a lab quiz is **NOT ALLOWED**. A student caught cheating in the Quiz will have his/her quiz cancelled and receive **ZERO** marks!
- Each student is expected to submit a lab report after the experiment. No excuses are accepted for late submission.
- Do not leave the lab during lab sessions without informing the Lab teachers.
- There will be a lab final exam at the end of the semester.
- Students can make-up only one missed experiment at the end of the semester (See the schedule below). Only Experiment 1 can be taken as an additional lab make-up.
- Report and final marks will be announced via the student portal.
- Rules and regulations are summarised in more detail in the lab manual. Lab assistants will provide further information and guidance.

GRADING CRITERIA	
A to F	Letter grades are determined by a "curve system". No fixed letter-grade templates apply.
NG nil grade	Conditions that will lead to NG grade. i) Not attending 50% of classes. ii) Not attending 2 or more lab sessions. iii) Not attending any two exams (midterm and final), including make-up exams.
Important notice to all students repeating the course for a better grade: Whatever grade you receive at the end of this semester will replace your previous grade.	
TEXTBOOK CHEMISTRY FOR TODAY: GENERAL, ORGANIC, AND BIOCHEMISTRY BY SEGER/SLABAUGH/HANSEN, 9th EDITION	
Important Note: - Students buying this book from the authorised bookstore (Deniz Shop) will be eligible to use the following on-line resources via the Connect + internet system of the publisher: downloading the electronic copy of chapters, use self-test utilities, see the animations/videos and other useful material. This system will allow the students to attend on-line quizzes or homeworks. Thus, each student buying the book will be provided with a unique registration-code. Students who do not have this code will not be able to use this system and they will not be allowed to take the on-line exams. - A "Connect Plus with LearnSmart 360 Days Card" will be provided within each textbook purchased. PLEASE DO NOT THROW AWAY THIS CARD. It includes the registration code for the connect+ system. Renewing the code is possible with additional cost. - A registration code can be used by only one student. Never give this code to others. A detailed explanation of the Connect + system is available on the web page of the course.	
LEARNING / TEACHING METHOD - Regular classroom lectures - Biweekly regular lab sessions	

COURSE CONTENT AND LECTURE SCHEDULE		
Week	Date	Topics
1	20-21 February	Matter, Measurements and Calculations
2	27-28 February	Atoms, Molecules
3	05-06 March	Electronic Structure and the Periodic Law
4	12-13 March	Forces between Particles
5	19-20 March	Chemical Reactions
6	26-27 March	The States of Matter
7	02-03 April	The States of Matter
8	06-17 April	Midterm Week
9, 10	23-24 April	Solutions and Colloids
11	30 April - 01 May	Reaction Rates and Equilibrium
12	07-08 May	Reaction Rates and Equilibrium
13	14-15 May	Acids and bases
14	21-22 May	Acids and bases
15	27 May – 13 June	FINAL EXAM PERIOD

CHEM103 - Spring 2019-20 (Group-1)	
THURSDAY 14:30-16:20	
EXPERIMENT	LAB SCHEDULE
Lab Rules and Regulations	05 March
Experiment-2	19 March
Experiment-3	02 April
Experiment-4	30 April
Experiment-5	07 May
Lab Make-up Week 11-15 May Make-up for Experiment-2 and/or only one missed other experiment is allowed.	
Lab Final Exam 18-22 May Date to be announced	
NOTE: Lab sessions are carried out in General Chemistry Lab (ASG 07) which is in the basement of the Faculty of Arts & Sciences Building	

REPEATING STUDENTS:**Students repeating the course for a better grade (to improve CGPA):**

- Whatever grade you receive at the end of this semester will replace your previous grade. This may result with a lower grade. In such instances no appeals will be accepted to keep the old mark.

Exemption from the lab:

- Passing old lab marks (6/10) of repeating students (with the condition that they attended at least 2 lab sessions) are transferrable; therefore they don't have to repeat the lab work.

Names of students who have passing old lab grade (names of exempted students) will be posted on the course web page before the beginning of experiments. It is the students' responsibility to check that they are exempted from the LAB. Students who are not in the exemption list and do not attend Lab sessions will fail the whole CHEM103 course and will receive an NG grade.

ACADEMIC HONESTY – PLAGIARISM

Cheating is copying from others or providing information, written or oral, to others. Plagiarism is copying without acknowledgement from other people's work. According to university by laws cheating and plagiarism are serious offences punishable by disciplinary committee ranging from simple failure from the exam or project, to more serious action (letter of official warning, suspension from the university for up to one semester). Disciplinary action is written in student records and may appear in student transcripts.

Periodic Table of Elements

	1 1A																			18 8A	
1	1 H 1.008	2 2A																			2 He 4.003
2	3 Li 6.94	4 Be 9.01											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18			
3	11 Na 22.99	12 Mg 24.30	3 3B	4 4B	5 5B	6 6B	7 7B	8 8B	9 8B	10 8B	11 1B	12 2B	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95			
4	19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.54	30 Zn 65.39	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80			
5	37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc 98.91	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.75	52 Te 127.6	53 I 126.90	54 Xe 131.29			
6	55 Cs 132.91	56 Ba 137.33	57 La 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.85	75 Re 186.2	76 Os 190.2	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.2	83 Bi 208.98	84 Po 208.98	85 At 209.99	86 Rn 222.02			
7	87 Fr 223.02	88 Ra 226.03	89 Ac 227.03	104 Rf 261.1	105 Db 262.1	106 Sg 263.1	107 Bh 264.1	108 Hs 265.1	109 Mt 266.1	110 Ds 271	111 Rg 272	112 Cn 285	113 Uut 284	114 Ff 289	115 Uup 288	116 Lv 292	117 Uus	118 Uuo 294			
			Lanthanides	58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm 146.92	62 Sm 150.36	63 Eu 151.97	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97				
			Actinides	90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np 237.05	94 Pu 244.06	95 Am 243.06	96 Cm 247.07	97 Bk 247.07	98 Cf 251.08	99 Es 252.08	100 Fm 257.10	101 Md 258.10	102 No 259.10	103 Lr 260.11				

Useful Constants

$R = 0.0821 \text{ (L.atm)/(mol.K)}$ or	8.314 J/mol.K	$N_A = 6.022 \times 10^{23} \text{ items/mol}$	$h = 6.63 \times 10^{-34} \text{ J.s}$
$c = 3.00 \times 10^8 \text{ m/s}$	$1 \text{ atm} = 760 \text{ mmHg}$	$1 \text{ in} = 2.54 \text{ cm}$	$1 \text{ cal} = 4.184 \text{ J}$