AL AKHAWAYN UNIVERSITY
School of Science and Engineering (SSE)

General Chemistry II (CHE 1402 01)

Fall 2011

Instructor: **Dr. Samir El Hajjaji** (s.elhajjaji@aui.ma)

Office Location: Room 104, Building 5
Phone ext.: 3394

Office Hours: M, W, F: 10:00 – 12:00
R: 14:30 - 17:30

Students are also welcome to appoint for meetings during other time slots

Meeting Times:			
	Lectures (Building 6, room 8)		M,W, F: 08:00 to 08:50
	Lab sessions (Building 6, Chemistry lab)	section L02 ➢	R: 17:40 to 19:30

GENERAL INFORMATION:

Prerequisite	**None**	
Co-requisite	**None**	
Credit Hours	**4 Hrs**	
Contact Hours	**Lectures**	**2 hours 30 minutes per week per section**
	Lab sessions	**1 hour 50 minutes per week per section**

CATALOGUE DESCRIPTION

This is the second semester of a year-long course intended primarily for Engineering Management Science, General Engineering, and other students who require a one-year course.
This course is composed of two parts:

- The first part focuses on the physical properties of substances. It deals with the states of matter and changes among them. It also covers the physical properties of solutions and relates these properties to the nature of the solvent and solute.
- In the second part, the spotlight is on factors that determine whether reactions can occur (thermodynamics), what the fate of a chemical system is (equilibrium), and the factors that determine how fast a reaction gets where it is going (kinetics). A chapter of electrochemistry is also embodied in this part. The laboratory sessions are designed to reinforce the lecture material and to allow students to become familiar with the experimental procedures used in chemistry.

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TEXTBOOK/REFERENCES

Course Text: T. L. Brown, H. E. LeMay, B. E. Bursten, *Chemistry: The Central Science*. 11th Edition. NJ: Prentice-Hall International, Inc., 2006. (ISBN 0-13-235848-4)

INTENDED LEARNING OUTCOMES

After completing this course, the student should get a deeper understanding of:

1. the physical properties of matter and solutions
2. the speed of chemical reactions
3. the chemical equilibria in gaseous systems and in aqueous solutions
4. the properties of acids and bases
5. the relation between energy and chemical reactions
6. how to conduct appropriate chemistry experiments in the laboratory, generate data and draw relevant scientific conclusions

TOPICAL OUTLINES

Week	Date	SCHEDULED	REAL
1	Fri. 2 September	*Chapter 10:* Gases	
	Sat. 3 September	**Make up class for Thu. 1 September**	
2	Mon. 5 September	*Chapter 10:* Gases	
3	Mon. 12 September	*Chapter 11:* Intermolecular Forces	
4	Mon. 19 September	*Chapter 11:* Intermolecular Forces	19 Sep. : Quiz 1
5	Mon. 26 September	*Chapter13:* Properties of Solutions	
6	Mon. 3 October	*Chapter14 :* Chemical Kinetics	5 Oct. : Quiz 2
7	Mon. 10 October	*Chapter14 :* Chemical Kinetics	
	Examination I (Chapters 10-11-13)		
8	Mon. 17 October	*Chapter 15:* Chemical Equilibrium	17 Oct. : Quiz 3
9	Mon. 24 October	*Chapter 15:* Chemical Equilibrium	26 Oct. : MIDTERM 1
10	Mon. 31 October	*Chapter 16:* Acid Base Equilibria	
11	Mon. 7 November	*Chapter 16:* Acid Base Equilibria	
	7-9 November	**Aid Al Adha**	
	Sat. 12 November	**Make up class for Wed. 9 November**	
12	Mon. 14 November	*Chapter 16:* Acid Base Equilibria *Chapter 17:* Additional Aspects of the Equilibria	
	Fri. 18 November	**Holiday: Independence Day**	
13	Mon. 21 November	*Chapter 17:* Additional Aspects of the Equilibria	
14	Mon. 28 November	*Chapter 17:* Additional Aspects of the Equilibria	
15	Mon. 5 December	*Chapter 19:* Chemical Thermodynamics	
	Examination II (Chapters 14-15-16-17)		
	Laboratory Examination		
16	Mon. 12 December	*Last regular class day*	
	13-17 December	**Final Examination (Comprehensive)**	

IMPORTANT NOTE: This syllabus is tentative and subject to change.

COURSE PREPARATION

Students are totally responsible for preparing the lecture topics using the textbook and the readings/homework assigned to them by the instructor at the end of each chapter. This would lead to their active participation in discussions and help them make good progress.
The assigned homework must be solved by the student him/herself are meant to give a good overview of the material covered. You do not need to hand them in, but **it would be a serious mistake not to do them**. Solving problems is the way you learn the material and the way you find out if you *really* understand what you've read and heard in class.
Finally, students are strongly urged to meet with the instructor during office hours whenever help related to the course material is needed.

Lab sessions

Before coming to the laboratory, students have to prepare the background as well as the procedures needed for each experiment. A laboratory report is to be handed back at the end of each session.
Short *lab pop quizzes* will be regularly administered at the beginning of each session.
For safety purposes, students coming without their own labcoat, eating, drinking or chewing will not be tolerated in the laboratory.

GRADING

The assessment of student progress and performance will be done through quizzes, class participation, laboratory achievements, and examinations during the whole semester. Quizzes will take place with **or without** prior notice from the instructor during lectures. Two one-hour exams are scheduled during this semester. In addition, a comprehensive final two-hour exam ends the semester.

The final course grade is based on points accumulated from the different evaluation procedures as follows:

Evaluation Procedure	Grade Contribution (%)	
Class participation (participation+attendance+presentation. **Max=150%**)	5	= 20%
Quizzes	15	
Lab reports + Lab pop quizzes	10	= 20%
Theoretical Lab examination	5	
Oral Lab examination	5	
Midterm I examination	15	= 30%
Midterm II examination	15	
Final Examination	30	

TOTAL : 100%

Class attendance

Class attendance is a crucial part of this course. It is the student's responsibility to attend every class as stated in the general AUI regulations and policies; each unauthorized absence will result in one grade deducted from the student's class participation grade. If a student does not show up more than **seven** times, a "WF" grade will be assigned, **without prior warning!**

No make-ups for quizzes and/or exams will be arranged except for extenuating circumstances (i.e. hospitalization and the like).

ACADEMIC INTEGRITY

Students have the responsibility to know and observe the requirements of the AUI Code of Academic Honesty and the penalties resulting from violation of this code. This code ***forbids cheating***, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and ***complicity in academic dishonesty***.

Additional Readings (available in the Library):

1. Brady, J.E., *Student Solution Manual to General Chemistry, Principles and Structure*. New York, NY: John Wiley & Sons, 1990.
1. Davis, R.E., *Study Guide to Accompany General Chemistry* (Whitten, Gailey & Davis). 4th Edition. Orlando, FL: Saunders College Publishing, 1992.
2. Fine, L.W. & Beall, H.B., *Chemistry for Engineers & Scientists.* Orlando, FL: Saunders College Publishing, 1990.
3. Hill, J.W. & Kolb, D.K., *Chemistry for Changing Times*. 7th Edition. Engelwood Cliffs, NJ: Prentice Hall, 1995.
4. Joesten, M.D. *et al.*, *World of Chemistry.* Orlando, FL: Saunders College Publishing, 1991.
5. Malone, L.J., *Basic Concepts of Chemistry*. 3rd Edition. New York, NY: John Wiley & Sons, 1989.
6. McQuarrie, D.A., *General Chemistry*. 3rd Edition. New York, NY: John Wiley & Sons, 1991.
7. Sherman, A. & Sherman, S.J., *Chemistry and Our Changing World*. 3rd Edition. Engelwood Cliffs, NJ: Prentice Hall, 1992.
8. Sherman, A. *et al.*, *Basic Concepts of Chemistry*. 4th Edition. Boston, MA: Houghton Mifflin, 1992.

Some Useful Resources on the Web:

- Homework assignments and lecture notes will be posted online at: http://www.aui.ma/personal/~S.ElHajjaji/Assignments.html

- Students' scores will be posted on Jenzabar (http://www.my.aui.ma). After each examination/quiz, the breakdown of the overall grades will be available at http://www.aui.ma/personal/~S.ElHajjaji/Grades.html

- Assignable, in-depth tutorials in General Chemistry designed to coach you with hints and feedback specific to your individual misconceptions: www.masteringchemistry.com