# SYLLABUS for CHEM 1412 fall 2017

## (General Chemistry II)

## Tentative. Subject to change. Changes will be announced in class.

## **Brief description of the course**

CHEM 1412 is the second semester of the two-semester general chemistry sequence that aims to lay the foundation of in depth studies in chemistry. This semester we will first learn the properties of gases, liquids and solids. Then we will explore what drives chemical reactions in terms of their progress and rate. We will cover chemical kinetics, chemical equilibrium, thermodynamics, acids/bases, electrochemistry and nuclear chemistry. With these studies, we will learn how to model matter and chemical processes to use them in our every-day life.

### Semester Goals:

- Develop interest in science, and in learning science.
- While learning about science learn to value scientific literacy for its impact on society.
- Describe and explain the relationship between structure and reactivity of molecules.
- Develop critical thinking and problem-solving skills as applied to chemistry and science in general.
- Be able to interpret the chemical significance of new information and ideas acquired in the future.
- Develop and use teamwork abilities (among them communication).
- Be able to identify important resources for their own subsequent learning.

### Please note that CHEM 1411 is a mandatory prerequisite for CHEM 1412.

Lectures: Monday-Wednesday-Friday 9:00 AM to 9:50 AM, CFS 103 Instructor: Dr. Timea Gerczei Fernandez

Office Hours for Dr. Gerczei Fernandez

Location: CFS 310 Times: after class or please make an appointment via e-mail.

### **Required texts and equipment:**

- 1) Brown, LeMay, Bursten, Murphy, Woodward and Stoltzfus. Chemistry: The Central Science, 13th Edition (ISBN-13: 978-0321910417). Older editions are good too, but the 13th edition will be our reference book.
- 2) Calculator: recommended type is TI-30X or similar non-programmable calculator.
- 3) Recommended (if available): portable computer device such as smart phone, iPad or small laptop for viewing PDF and PowerPoint files.
- 4) Recommended websites:

- a. https://openstaxcollege.org/textbooks/chemistry
- b. <u>http://preparatorychemistry.com/Bishop\_Atoms\_First.htm</u>
- c. http://2012books.lardbucket.org/books/principles-of-general-chemistryv1.0/

## **General information:**

- 1. Attendance:
  - a. Your attendance at all scheduled class meetings and laboratory sessions is required. Each class and laboratory session will have activities that contribute toward your grade.
  - b. If you have to miss class due to a valid reason (severe weather, illness, death in the family) please make sure you contact me via e-mail. If you contact me in this manner I will not count your missed in-class activities against you.
- 2. *Homework:* Online homework problems will be assigned to help you master the concepts learned in class. These problems should take you 30-60 min to complete. Generally, you will have a week to complete these problems. Homework and in class assignments will contribution 15% toward your grade.
- 3. *Exams:* Exam will last 40-50min and consist of multiple-choice questions, short-answer questions and calculations.
  - a. Chapter objectives
  - b. In-class problems
  - c. Homework problems

Laboratory: The laboratory portion of this course counts for 20% of the overall grade. In order to make a C or higher in this course (which is the prerequisite for CHEM 2323), you must earn at least a C in both the lecture portion of the course AND in the laboratory portion of the course. See your laboratory syllabus for details regarding the laboratory portion of the course.

### **GRADING POLICY**

Percentages are distributed as shown below. Letter grades are calculated from percentages according to the cutoff values shown below. There is no extra credit in this course.

Letter Grade	<b>Final Average</b>
А	90-100%
В	80 - 89%
С	70 - 79%
D	60 - 69%
F	< 60%

A weighted percentage will be used to determine the overall course grade.

Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam (comprehensive)	20%
Laboratory	20%

## COURSE SCHEDULE (tentative)

Week	<u>Subject</u>	<u>Text Chapter</u>
Aug 21	Syllabus, Gases	10
Aug 28	Gases, Liquids and Intramolecular Forces	10, 11
Sept 4	Liquids and Intermolecular Forces September 4 <sup>th</sup> Labor Day, No Class	11
Sept 11	Properties of Solutions	13
Sept 18	Properties of Solutions, Chemical Kinetics	13, 14
Sept 25	Exam 1 (Chapters 11, 12 and 13) Chemical Kinetics	14
October 2	Chemical Equilibrium	15
October 9	Chemical Equilibrium, Acid-Base Equilibria	15, 16
October 16	Exam 2 (Chapters 13, 14 and 15) Acid-Base Equilibria	16
October 23	Acid-Base Equilibria	16
October 30	Additional Aspects of Aqueous Equilibria	17
November 6	Chemical Thermodynamics	19
November 13	Electrochemistry	20
November 20	Exam 3 (Chapters 16, 17 and 18) Thanksgiving Holiday (November 22-24)	20
November 27	Nuclear Chemistry, Coordination Chemistry	21, 23

#### December 4 Final - Chapters 10-23 (except 12, 18, and 22)

#### **UNIVERSITY POLICIES**

Please follow the links below to review University Policies that apply to this course: <a href="http://www.shsu.edu/syllabus/">http://www.shsu.edu/syllabus/</a> <a href="http://www.shsu.edu/dept/dean-of-students/policies/">http://www.shsu.edu/syllabus/</a>

#### Academic Dishonesty

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. For a complete listing of the university policy, see: Dean of Student's Office http://www.shsu.edu/dept/dean-of-students/index.html.

#### **Students with Disabilities**

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and email disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see: http://www.shsu.edu/dotAsset/7ff819c3-39f3-491d-b688-db5a330ced92.pdf

#### **Student Absences on Religious Holy Days Policy**

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: "a holy day observed by a religion whose places of worship are exempt from property taxation under Section

11.20...." A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed. For a complete listing of the university policy, see: http://www.shsu.edu/dept/academic-affairs/documents/aps/students/861001.pdf

### Visitors in the Classroom

Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.