

**General Chemistry 1306**  
**Syllabus**  
**Summer 2 Term 2019**

**I. Instructor:**

Dr. Dino Villagrán

Course CRN: 30898

Lecture: MTWRF 08:10 – 10:20

Location: UGLC 116

Office Hours: MW 12 – 1 PM

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**II. Learning Goals and Student Outcomes:**

This is the second part of General Chemistry for scientists, engineers and pre-medical students. It covers the fundamental aspects of intermolecular forces in Nature, properties of solutions, the rate of chemical change and reaction mechanisms, chemical equilibrium, thermodynamics, electrochemistry, nuclear chemistry, and an introduction to organic chemistry. The students in this class should already be familiar with basic understanding of atomic and molecular structure, nomenclature, fundamentals of chemical reactivity and chemical bonding.

This lecture has two components that all students must attend: **CHEM 1306 Lecture and CHEM 1306 Lecture Workshop**. If you don't understand what this means ASK.

Prerequisites:

In order to be enrolled in Chemistry 1306, you should have: Passed with a "C" or better CHEM 1305, CHEM 1105, and MATH 1508 (or MATH 1411 or a math SAT score of at least 600). CHEM 1106 (Lab) should be taken concurrently with CHEM 1306.

Student Major:

The CHEM 1305 - 1306 sequence is designed for students who are majoring in a field of science or engineering. Students majoring in other disciplines may prefer to take the CHEM 1407 - 1408 sequence which contains more descriptive and less quantitative material.

Summer Term:

The summer term forces the instructor to go at a very fast step. It is imperative for students to keep up with the assigned textbook reading **EVERY DAY**. Homework is an important component of learning. Due to the pace of the summer term, you will have to work daily on your homework, otherwise you will fall behind. It is to your own benefit to be diligent in terms of your assigned reading, homework, and studying.

**III. Course Information:**

Required Textbook:

*Chemistry*, by Raymond Chang, Thirteenth Edition, McGraw-Hill Science. This was the textbook used in the CHEM 1305 course. Earlier editions of the same book (i.e. eleventh or twelfth editions) may also be used (and may be purchased at a lower price).

Chemistry 1306 covers chapters 11 - 18 (and select topics from 19-24) in *Chemistry* by Chang and is the second semester of the two-semester sequence in general chemistry at UTEP. This class is rigorous and demanding and **should not be attempted without adequate mathematical preparation**. Any subsections in the text, which are not to be tested on examinations, will be so indicated by me;

however, reading all sections in each chapter is to your advantage. You are expected to read every chapter, and attempt the problems on the back of each chapter. If you read each chapter prior to the lectures, the content of the course will be significantly more accessible to you.

Summer classes can be difficult and tedious. For your benefit, spend a minimum of 3 hours per day reviewing the content discussed in the lecture.

The topics to be covered in the lecture will be:

11. Intermolecular Forces and Liquids and Solids
12. Physical Properties of Solutions
13. Chemical Kinetics
14. Chemical Equilibrium
15. Acids and Bases
16. Acid-Base Equilibria and Solubility Equilibria
17. Entropy, Free Energy, and Equilibrium
18. Electrochemistry
20. Chemistry in the atmosphere / 24. Organic Chemistry

### **Required Attendance to Workshop:**

- There are 16 Workshop sections for Summer 2 2019.
- Workshop is a required component of CHEM 1306. **Every student enrolled in a 1306 lecture section must also be co-enrolled in a Workshop section.**
- Workshop is NOT the same as CHEM 1106 Laboratory.
- Each Workshop meets for a two-hour period, and is instructed by a Peer Leader. The Workshop format allows the Peer Leaders to use active learning techniques to enhance understanding of the chemical principles discussed in class.
- You will need to purchase the Workbook “General Chemistry by Exploration: Second Semester General Chemistry”, Spring 2019 Edition, ISBN 978-1-943668-16-8 available from the bookstore. Make sure you buy the one that corresponds to the FIRST semester of General Chemistry. (It says so in the first page). The purchase of this workbook is **mandatory**.
- Grading policy for **workshop** is based on participation and involvement. Absence, tardiness, or leaving early from Workshop will result in a grade reduction in the overall CHEM 1306 grade.
- Peer Leaders: There are ten Peer Leaders (PLs) teaching in the CHEM 1306 Workshop Program this summer term. Each PL has specified office hours each week in the 2<sup>nd</sup> floor of CCSB and the schedule of their office hours will be posted in blackboard. *You* may consult with any PL during her or his office hours, not just the PL in charge of your specific Workshop section.

### **Homework:**

This course covers Chapters 11-18 in the book Chemistry, 13<sup>th</sup> edition by Raymond Chang, McGraw-Hill Publishers. Any previous editions may also be used for this course, but the numbers of the problems and sections may be different (if used, it is the student’s complete responsibility to resolve numerical differences). The 13<sup>th</sup> edition textbook can be also used in the CHEM 1305 course (second semester general chemistry) next semester. The book’s homework website is <http://connect.mcgraw-hill.com>. The electronic homework required for the course is called CONNECT. It is from the same publisher as the book. CONNECT comes with the CHANG 13<sup>th</sup> ed. (but not with other editions), so if you purchase editions other than the 13<sup>th</sup> you will have to purchase CONNECT online separately. The cost of CONNECT alone is about \$100 IN AMAZON. The loose leaf book is in the bookstore for about \$132.00.

If you decide to use the 12<sup>th</sup> ed. of CHANG, then CONNECT may come with it. The CHANG 13<sup>th</sup> ed. e-Book + CONNECT is also an acceptable option.

The following website is where all the homework assignments will be made:

<http://connect.mcgraw-hill.com/class/villagran-summer-2019>

You will use this link (above) to access our homework every time. More details will be provided in class.

### **In-Class Exercises:**

Lectures are scheduled to be 2:10 h long. A 10-15 minute intermission will be held after about one hour of lecture. During this time a few problems (one to three) will be assigned to be solved by the class in a group format. These groups will be formed organically (i.e. not assigned by the instructor) and can be different every day. Each student will submit an answer page with his or her own name, and this will be graded based on *accuracy, completeness and effort*. Each answer page will be awarded 1, 2, or 3 points based on the above mentioned criteria. These grades will be added at the end of the term and will count towards 50 points of your total grade, see below.

### **Attendance to lecture:**

Attendance will be taken at each class meeting using UTEP student ID cards. Card readers are located at the entrance of the classroom. When you enter class, simply hold your student ID card against the reader. It may not be necessary to remove the card from your wallet or purse. If the light on the device turns green, your card has been read properly and your attendance has been recorded. If the light remains red, the device was unable to read your card; please present it again gently until the green light appears. If you do not see the green light, you may need to remove your card from your wallet or purse in order to ensure that it is detected. Your attendance will be recorded up to one-half hour before or after your class is scheduled to start.

There is a strong direct correlation between good attendance and your grade. It is your responsibility to be here. I will utilize this attendance information to determine whatever degree of extra credit in the exams the class will have.

### **Resources:**

1. Announcements will be made using Blackboard. All notes from lecture will be posted on Blackboard on the day each chapter is finished.

#### *Accessing Blackboard*

- 1.1. You can access Blackboard via your myUTEP page but you will need your email username and password. If you don't know your email username and password, call the HELP desk to request them (915-747-HELP).
  - 1.2. Go to My.UTEP.edu and log in
  - 1.3. Click on Blackboard — it's on the menu bar at the top of the page.
2. Office Hours: Dr. Villagrán Office hours will be from 12 to 1 PM Mondays and Wednesdays. Peer-leaders will tell you their own office hours during their respective workshops.

### **Instructor Expectations:**

Every student shall attend all lectures and workshops. Daily homework will be assigned and it will be due on the day announced. Late homework will not be credited. Students will attend review sessions given by Peer Leaders and practice answering questions and problems from within the chapters and those at the end-of-chapter if available. It is highly recommended that the student will read over the appropriate pages in the textbook and complete the required homework on time.

### **Course Withdrawal Policy:**

Classes dropped prior to the official census date (**07/11/2019**) will be deleted from the student's semester record. After this date, the University permits any student to drop with an automatic "W" until **07/26/2019**. After this date students who withdraw must receive grades of "F".

#### IV. **Laboratories:**

CHEM 1106 is a separate course from CHEM 1306 while the Workshop is an integral part of CHEM 1306. The laboratory is highly recommended for all students regardless of major.

#### V. **Examinations:**

- Four one-hour examinations and a Final are scheduled according to the schedule in Section IX. Three exam grades will count towards the overall grade.
- Examinations will typically be held on Fridays at 8:10 AM. After the exam there will be time for lecture from approximately 9:20 to 10:20 AM.
- Exam 1 will cover chapters 10 and 11. Exam 2 will cover mainly chapters 12, 13 and 14, but may include questions from previous chapters. Exam 3 will mainly cover chapters 15 and 16, and again it may include questions from previous chapters. Exam 4 will cover chapters 17 and 18 and previous chapters. This may change depending on the pace of the lecture.
- The American Chemical Society Exam for General Chemistry will be used as the final exam. The score of this examination is highly reflective of student's understanding of the main concepts of the course. Therefore, it is imperative that a deep understanding of the subject is achieved. This can be accomplished by attending lectures, doing all the HW, consulting the instructors and Peer Leaders during office hours, and actively reading the textbook. The Final Exam is comprehensive.
- **You must pass the Final Examination in order to pass the course.** Failing the Final Examination will automatically prevent you from passing the course.
- CHEM 1306 examination questions are designed to test: **I)** understanding of basic concepts, and **II)** familiarity with chemical nomenclature, usage and calculations. Examinations emphasize problem solving as opposed to memorization. You are well advised to learn the process involved in problem solving rather than memorization of specific facts. Valid absences for University related activities (e.g. out-of-town research presentations, sporting events) must be arranged **prior** to the date of the respective examination. No provision exists for makeup of examinations missed as a result of unexcused absences.
- **NO CELL PHONES, TABLETS, LAPTOPS, OR OTHER ELECTRONIC DEVICES MAY BE ON OR USED DURING EXAMINATIONS INSIDE OR IMMEDIATELY OUTSIDE THE EXAMINATION ROOM.**
- We will be using Apperson AccuScan™ answer recording sheets. Peer-leaders will be able to help you buying them.
- Any student found using an electronic device during an examination will receive a grade of zero on the examination.
- No caps or hats may be worn during examinations. **Bring a photo identification card to all examinations to display when turning in your examination.**
- **Do not** bring programmable calculators (i.e. a calculator capable of retaining equations or words) to the hour examinations and the final examination. Anyone found using a programmable calculator will receive a grade of zero. You can purchase a satisfactory calculator which can perform logarithmic and exponential operations for less than \$15 at many stores.

#### VI. **Grades:** (*Grading is subject to revision.*)

We will use the best three grades out of the four examinations (i.e. the lowest exam grade dropped).

1. <b>Best 3 of Exams I, II, III, IV</b>	<b>300 pts.</b>
2. <b>Home Work</b>	<b>150 pts.</b>
3. <b>During class work</b>	<b>50 pts.</b>
4. <b>Workshop</b>	<b>200 pts.</b>
5. <b>Final</b>	<b>200 pts.</b>
<b>TOTAL</b>	<b>= 900 pts.</b>

As a good approximation, a total of 810 points or better will yield an A; 809-720 a grade of B; 719-630 a grade of C; 629 to 540 a grade of D, and 539 and below will result in a grade of F. **You must pass the Final Exam in order to get a grade of C or better.** During the regular one hour examinations, one or two questions *may be given* as extra credit (Not in the final!). **No additional extra credit will be awarded at any other time.**

**VII. Academic honesty:**

Materials (written or otherwise) submitted to fulfill academic requirements must represent a student's own efforts. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Violations will be taken seriously and will be referred to the Dean of Students Office for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions.

**VIII. Students with Disabilities:**

Student with a disability can contact the Center for Accommodations and Support Services (CASS) to take exams with appropriate accommodations. The office is located in Room 106 Union East Building and can be contacted at (915) 747-5148 Voice/TTY, (915) 747-8712 Fax or at [cass@utep.edu](mailto:cass@utep.edu). If you have or believe you have a disability, you may do so by providing documentation to the Office of disabled Student Services. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass). CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.

**IX. Lecture Schedule and Evaluation (This section is tentative and subject to change.)**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
7	8	9 Syllabus Ch 10	10 Ch 11	11 Ch 11	12 Exam 1 Ch 12 HW10 Due	13
14	15 Ch 12 HW11 Due	16 Ch 12&13	17 Ch 13 HW12 Due	18 Ch 14	19 Exam 2 Ch 14 HW13 Due	20
21	22 Ch 15 HW14 Due	23 Ch 15	24 Ch 15&16	25 Ch 16 HW15 Due	26 Exam 3 Ch 16 Drop Day	27
28	29 Ch 17 HW16 Due	30 Ch 17	31 Ch 18 HW17 Due	1 Ch 18	2 Exam 4 Ch 24 HW18 Due	3
4	5	6 Final Exam	7	8	9	10