

CHEMISTRY 1411 (4:3:3)

GENERAL CHEMISTRY I

INSTRUCTIONAL AREA: CHEMISTRY

DEPARTMENT: SCIENCE

DIVISION: ARTS AND SCIENCES

SOUTH PLAINS COLLEGE

FALL SEMESTER 2019

PROFESSOR WERENKO

LECTURE OUTLINE

Block 1 (Lecture Exam 1)

Chapter 2: Atoms, Molecules, and Ions

Chapter 3: Mass Relationships in Chemical Reactions

Block 2 (Lecture Exam 2)

Chapter 4: Reactions in Aqueous Solutions

Chapter 5: Gases

Block 3 (Lecture Exam 3)

Chapter 6: Thermochemistry

Chapter 7: Quantum Theory and the Electronic Structure of Atoms

Block 4 (Final Exam)

Chapter 8: Periodic Relationships Among the Elements

Chapter 9: Chemical Bonding I – Basic Concepts

Chapter 10: Chemical Bonding II – Molecular Geometry

LAB OUTLINE

Block 1 (Lab Exam 1)

Exp 2: Measurements

Exp 3: Density

WS 1: Determining Chemical Formulas and Names

Exp 4: Atoms and Molecules

WS 2: Precipitation Reactions

Block 2 (Lab Exam 2)

Exp 6: Hydrates

Exp 8: Determination of Molar Mass by Titration

Exp 10: Calorimetry of Metals

Exp 12: Atomic Emission Spectroscopy

COURSE DESCRIPTION (FROM THE SPC CATALOG). “(4:3:3) Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Basic laboratory experiments supporting theoretical principles presented in lecture; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. Semester Hours: 4, Lecture Hours: 3, Lab Hours: 3. Pre-requisite: MATH 1314 (College Algebra) or equivalent academic preparation. High school chemistry is strongly recommended.”

INSTRUCTOR. Professor Werenko
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(The best way to contact me and get a reply.)

OFFICE HOURS. Office hours will be posted on my door at the beginning of the semester.

CLASS CONTENT. All information for this class comes from lectures (overhead transparencies, whiteboard, demos), the textbook, homework problems, and lab experiments. Exams will be given. Blackboard is not used in this class.

CORE OBJECTIVES. This class is intended to develop the following skills:

1. **Teamwork:** Working with your lab group on experiments.
2. **Critical Thinking:** Homework problems, lab work with accompanying data analysis, exams.
3. **Communication:** Reporting and checking the results of experiments. Discussing with your lab group how to best carry out an experiment.
4. **Empirical & Quantitative Skills:** Homework problems, lab work with accompanying data analysis, exams.

REQUIRED COURSE MATERIALS. The following materials may be purchased at the SPC bookstore.

- *Chemistry*, 13th Edition, by Raymond Chang & Jason Overby
- CHEM 1411 Lab Manual
- **Laboratory** safety glasses

You will also need a *scientific* calculator (not a smart-phone calculator, which *may not* be used on exams).

PROPER LABORATORY DRESS. You must wear safety glasses for Experiments 6, 8, and 10. See the attached Class Schedule for these dates.

You may not bring snacks or drinks into the lab. They should be placed on the instructor desk, or put in your book bag. Do not set them on the lab bench.

Book bags should be placed next to your lab station, away from foot traffic, not on the lab bench. The lab bench is where experiments are done.

LECTURE EXAMS. There will be three (3) Lecture Exams, each worth 100 points.

The exams are “open lecture notes and homework.” Class handouts are considered “lecture notes.” Questions will be based on what is covered in class, and the homework. The dates of Lecture Exams are given in the attached Class Schedule.

LAB EXAMS. There will be two (2) Lab Exams, each worth 50 points.

The exams are “open lecture notes, lab notes, homework, and lab manual.” Questions will be based on the experiments covered in lab. The dates of Lab Exams are in the Class Schedule.

You may only do the experiments on the days they are scheduled. The dates of experiments are also in the Class Schedule.

FINAL EXAM. The Final Exam is non-comprehensive and worth 100 points.

The Final Exam is “open lecture notes and homework.” You will take the Final Exam on the day it is scheduled. Final Exams are scheduled by the college, not the instructor. **If you do not take the Final Exam, you will receive a zero for your score, which will be factored into your class average.**

EXAM REFERENCES. You **may not** use your textbook on any exam. If you are found using “unauthorized” materials (anything other than what you are permitted, above), you will receive an irreplaceable zero on that exam. If you store your lecture notes, lab notes, or homework on computer, you must print out paper copies to be able to use them on exams. If you do not, you will test without them. Computers, smart phones, or other electronic devices **may not** be out or in use during exams, even if they were used for taking notes during class. You may use a standard *scientific calculator* (example: Texas Instruments) on exams, not a smart-phone calculator.

RETURNING OF EXAMS. **Exams are like library books: I always get them back!** Your graded exams will be returned to you, and you will have time to compare them with the keys I will post. *Your exams must be returned to me at the end of the lecture period, so be sure to keep a record of your scores.* An exam not returned (including the answer sheet) will be entered into the grade book as an irreplaceable zero. Exams will only be brought to class ONCE, so if you were not present on the day an exam was returned, you must come to my office to see how you did.

Note: Exams, answer sheets, and answer keys may not be photographed at any time. If you do so, you will receive an irreplaceable zero for that exam.

EXAM MAKEUPS. *Lecture Exams:* If one (1) Lecture Exam is missed, your Final Exam will count twice. This also applies to students who are away on SPC-sponsored activities. Any other missed exams will be scored as zeros.

Lab Exams: A missed Lab Exam will be scored as a zero. Since Lab Exams are not included in the Score Replacement Policy (see below), I reserve the right to grant a makeup *if* the miss was due to situations beyond your control (in my opinion). You should notify me as soon as possible (email, voice mail, etc.). Don't just "show up" to class and expect to take a makeup. **Makeups will only be for students who have made prior arrangements with me. You will take the exam makeup during the lab period of our next class day.** (*Example:* If you could not take Lab Exam 1 on the Tuesday that it was scheduled – *and you let me know about it in advance* – you would make it up on Thursday of the same week.) After that, it will be too late to make up the exam, regardless of the reason, and it will be scored as a zero.

Once a graded Lab Exam has been returned to the class, it cannot be made up and will be scored as a zero. The makeup "window" has closed. This includes if you are sitting in class when the exams are returned, and you have not made prior arrangements with me for a makeup. It is therefore up to you to keep me informed!

Final Exam: Exam times are scheduled by the college, not the instructor. Given that our exam is on Thursday of Final Exam week, a missed exam will be difficult, if not impossible, to make up. So don't miss it, because a missed Final Exam will be scored as a zero! The Final Exam will not be given early to accommodate family vacations, flight schedules, "getting out early," or things of that nature. So plan accordingly!

In extreme cases that would *prevent* you from coming in to take the Final Exam during Final Exam week (*example:* cases requiring hospitalization), you may be excused from taking the Final Exam and your grade would be based on the scores you do have. (Unless the college has a contingency plan for such situations.) I won't just "take your word for it," however. I will need proof.

USE OF TECHNOLOGY. Computers, smart phones, or other electronic devices may not be out or in use during exams. You are permitted to use a *scientific calculator* on exams (*example:* Texas Instruments). Smart-phone calculators may not be used.

RECORDING OF LESSONS. Lessons may not be recorded or videotaped, unless you have *written permission* to do so from Special Services. Unauthorized recording or videotaping will be reported to the Dean of Students.

SCORE REPLACEMENT POLICY. If your score on the Final Exam is higher than the score of your lowest Lecture Exam, the Final Exam will replace your lowest score. This score replacement applies to *one exam only*, even if the same low score is received more than once. Lab Exams will not be replaced. A zero obtained for using unauthorized exam materials, not returning an exam, or photographing an exam will also

not be replaced. Since the Final Exam is non-comprehensive and over new material, no one “tests out of it.” The Final Exam counts toward everyone’s course grade. *Example:*

Lecture Exam 1	80%
Lecture Exam 2	60% → 85% (score replaced)
Lecture Exam 3	75%
Final Exam	85%

If, due to situations beyond my control (*examples:* snow, illness, jury duty), we are unable to have the Final Exam, each exam will stand on its own and the Score Replacement Policy would not apply. (Unless the college establishes a contingency policy.)

CURVING OF SCORES AND EXTRA CREDIT. There are no curves on exams, though there will be extra-credit questions. You may not realize that a “true curve” curves up if the average is low, but it also curves *down* if the average is high. Otherwise, if the curve is only “up” for low scores, exams do not receive equal treatment. With “grading on a curve,” the “average,” whatever it is, is usually set at a C. So, if you don’t do so well on an exam, look for ways to make up for it (*examples:* study better for the next exam, give the extra-credit questions a try, use the Score Replacement Policy to replace your lowest score, etc.).

HOMEWORK. Homework is meant to prepare you for the Lecture Exams. It will not be collected or graded (after all, the answers are at the back of the textbook!); however, if you do not or cannot do the homework, chances are you will not do well on the exams. You will receive a homework handout for each chapter that lists topics from the lectures and problems from the textbook. I select the homework problems based on the material we cover in class. You should therefore be able to work out solutions to the problems based on the methods taught in class. Answers to the homework problems can be found beginning on page AP-1 at the back of the book. No other solutions will be posted. **You should also rework example problems from lecture, for additional practice.**

MISSING CLASS. Missing class has consequences, whether the miss is due to your job, an SPC activity, etc. If you miss a day of class, it is your responsibility to catch up – from the homework handout. You can see me for the topics you missed, but I will not re-teach that material during office hours or photocopy lesson slides.

Should I have to miss class (due to illness, jury duty, etc.), I will either put a homework assignment together that will allow you to cover that material on your own, or we will simply pick up where we left off the next time we meet. This also includes classes officially cancelled due to inclement weather. This could result in the schedule of lessons having to be revised, and exam dates having to be rescheduled.

RESULTS OF EXPERIMENTS. Answers to the experiments will be posted in the hallway display case outside the classroom (S-101). Your lab results are not turned in; however, *you should check the posted answers and study your experiments and lab notes in preparation for the Lab Exams.*

ATTENDANCE POLICY. A total of 6 absences – or 4 consecutive absences – qualifies you for an Excessive Absence Drop (with a grade of X or F, at my discretion). Additionally, if you have accrued 6 or more absences by the last day to drop, and you have not dropped yourself, I will drop you with an X or an F. Students participating in *official SPC activities* will not be charged with absences for those days, **but** work missed is work missed. It will be your responsibility to make up the material that you missed – from the homework handout. Lab work cannot be made up. **The results of roll call as recorded on my class roster will be the official record of attendance.** If you are not present for roll call, you will be counted absent *for the day*. If you think you may have missed roll call, you should check in with me *that day*. Cutting class and/or lab will count against you. If you are unable to finish this class, complete a withdrawal slip (*W*) at the Registrar’s Office. Don’t wait to drop, however, because once I drop you for excessive absences, it’s either an X or an F. Neither looks good on your transcript!

Reason: South Plains College requires that each instructor have an attendance policy. SPC in good faith gives you a grade and credit hours for taking this class in-class and in-lab. I will enforce the integrity of this policy. This is not an online class or a self-paced class. You should not even come close to your allowed absences. If you come to me wondering about how many absences you have, you are not approaching this class in the right way!

POINT DISTRIBUTION.

3 Lecture Exams @ 100 points each	300 points
2 Lab Exams @ 50 points each	100 points
1 Final Exam	100 points
TOTAL	500 points

GRADES. Grade lines are firm, and will be drawn as follows. When posted, grades will not be changed, unless there has been an arithmetic error on my part. Percentages are computed to the tenths place, and – given extra credit and score replacement possibilities – are not rounded up.

<u>Grade</u>	<u>Percent (%)</u>	<u>Total Points</u>
A	≥ 90.0	≥ 450
B	≥ 80.0	≥ 400
C	≥ 70.0	≥ 350
D	≥ 60.0	≥ 300
F	< 60.0	< 300

COMPUTING YOUR AVERAGE. You can compute your up-to-the-minute average by dividing the total number of points you have earned by the number points available in the class *up to that point in time*. Example: $(221/250) \times 100 = 88.4\% = B$.

If, due to situations beyond my control (*examples:* snow, illness, jury duty), we are unable to have the full allotment of exams, your grade will be calculated based on the

scores we *do have* at the end of the semester. (Unless the college establishes a contingency policy.)

You will receive your official final letter grade posted to your SPC transcript. Further information on the posting of grades will be given on the day of the Final Exam.

SMART PHONES AND TEXTING. Texting during testing = Cheating = Irreplaceable zero on that exam. Smart phones **may not** be used as calculators on exams, may not be out or in use during exams (and must be silenced), must be silenced and not used during lectures and labs. I do not want to hear phones vibrating during class! If I can hear it, your classmates can too.

DISRUPTIVE BEHAVIOR. I expect behavior that is in keeping with a college classroom. If you are disruptive in class (*examples*: talking with your friend while I am lecturing, making inappropriate comments, etc.), you will receive a warning. If it continues, I will report your disruptive behavior to the Dean of Students. This may also result in an Administrative Drop from the class (with *X* or *F*, depending on your grade at the time).

WEATHER DELAYS. If, due to inclement weather, the start of class is officially delayed until our lab period, **we will meet during lab.** Be sure to check the SPC website or local news sources for instructions during times of inclement weather.

I reserve the right to modify any of these syllabus policies, given the circumstances, if I feel it is in fairness to a student, to the class as a whole, or if it is otherwise dictated. This will be the exception, not the rule.

This class is taught in accordance with SPC classroom policies.

CHEM 1411 FALL 2019 CLASS SCHEDULE (TR)

Note: The following schedule shows each day's agenda. We will adhere to it as closely as possible. I will announce any changes, should they be necessary. If nothing is listed for lab on a particular day, we will use that period as needed (TBA = To Be Announced = finishing a lecture, catching up, etc.).

<u>Date</u>	<u>Lecture</u>	<u>Lab</u>
Aug 27	Introduction	TBA
Aug 29	Chapter 2	Chapter 2
Sep 3	Chapter 2	Chapter 2
Sep 5	Chapter 2	Exp 2
Sep 10	Chapter 3	Exp 3
Sep 12	Chapter 3	WS 1
Sep 17	Chapter 3	WS 1
Sep 19	Chapter 3/4	Exp 4
Sep 24	Lecture Exam 1	
Sep 26	Chapter 4	TBA
Oct 1	Chapter 4/WS 2	WS 2
Oct 3	Chapter 5	Chapter 5
Oct 8	Chapter 5	Lab Exam 1
Oct 10	Chapter 5	TBA
Oct 15	Chapter 6	Exp 6 (safety glasses required)
Oct 17	Lecture Exam 2	
Oct 22	Chapter 6	Exp 8 (safety glasses required)
Oct 24	Chapter 6	TBA
Oct 29	Chapter 6	Exp 10 (safety glasses required)
Oct 31	Chapter 7	TBA
Nov 5	Chapter 7	Exp 12
Nov 7	Chapter 7	Chapter 7
Nov 12	Chapter 8	Chapter 8
Nov 14	Lecture Exam 3	
Nov 19	Chapter 8	TBA
Nov 21	Chapter 9	Chapter 9

Nov 26	Chapter 9	Lab Exam 2
Nov 28	<i>Thanksgiving Holiday</i>	
Dec 3	Chapter 10	TBA
Dec 5	Chapter 10	TBA
Dec 12	Final Exam*	
	8:00 a.m. – 10:00 a.m. (Section 007 = “the morning class”)	
	10:15 a.m. – 12:15 p.m. (Section 009 = “the afternoon class”)	

*** You will take the Final Exam at the designated time.** Exam times are scheduled by the college, not the instructor.

CHEM 1411 SPRING 2019 CLASS SCHEDULE (TR)

Note: The following schedule shows each day's agenda. We will adhere to it as closely as possible. I will announce any changes, should they be necessary. If nothing is listed for lab on a particular day, we will use that period as needed (TBA = To Be Announced = finishing a lecture, catching up, etc.).

<u>Date</u>	<u>Lecture</u>	<u>Lab</u>
Jan 15	Intro/Chapter 2	TBA
Jan 17	Chapter 2	TBA
Jan 22	Chapter 2	TBA
Jan 24	Chapter 2	Exp 2
Jan 29	Chapter 3	Exp 3
Jan 31	Chapter 3	WS 1
Feb 5	Chapter 3	WS 1
Feb 7	Chapter 3/4	Exp 4
Feb 12	<i>Lecture Exam 1</i>	
Feb 14	Chapter 4	TBA
Feb 19	Chapter 4/WS 2	WS 2
Feb 21	<i>TTU Conference</i>	<i>No Class</i>
Feb 26	Chapter 5	Chapter 5
Feb 28	Chapter 5	<i>Lab Exam 1</i>
Mar 5	Chapter 5	TBA
Mar 7	<i>Lecture Exam 2</i>	
Mar 12	<i>Spring Break</i>	
Mar 14	<i>Spring Break</i>	
Mar 19	Chapter 6	Exp 6 (safety glasses required)
Mar 21	Chapter 6	Exp 8 (safety glasses required)
Mar 26	Chapter 6	TBA
Mar 28	Chapter 6	Exp 10 (safety glasses required)
Apr 2	Chapter 7	TBA
Apr 4	Chapter 7	Exp 12
Apr 9	Chapter 7	Chapter 7
Apr 11	Chapter 8	Chapter 8

Apr 16	Lecture Exam 3	
Apr 18	Chapter 8	TBA
Apr 23	Chapter 9	Chapter 9
Apr 25	Chapter 9	Lab Exam 2
Apr 30	Chapter 10	TBA
May 2	Chapter 10	TBA
May 9	Final Exam*	
	8:00 – 10:00 a.m. (Section 006 = “the morning class”)	
	10:15 a.m. – 12:15 p.m. (Section 007 = “the afternoon class”)	

*** You will take the Final Exam at the designated time.** Exam times are scheduled by the college, not the instructor.