

CHEMISTRY 1411 (4:3:3)

GENERAL CHEMISTRY I

INSTRUCTIONAL AREA: CHEMISTRY

DEPARTMENT: SCIENCE

DIVISION: ARTS AND SCIENCES

SOUTH PLAINS COLLEGE

SPRING SEMESTER 2015

INSTRUCTOR: PROFESSOR WERENKO

## LECTURE OUTLINE

### ***Block 1 (Lecture Exam 1)***

Chapter 2: The Basics – Atoms, Elements, Compounds, and Ions

- Also includes Chapter 3, Sections 3.1-3.4

Chapter 3: Stoichiometry – Mass Relations in Chemistry

- Also includes Chapter 2, Section 2.8; and Chapter 4, Sections 4.2, 4.3

### ***Block 2 (Lecture Exam 2)***

Chapter 4: Solution Chemistry – Reactions in Aqueous Solution

Chapter 5: Gases – The Gas Laws

### ***Block 3 (Lecture Exam 3)***

Chapter 6: Thermochemistry – Heat Flow in Chemical Reactions

Chapter 7: The Structure of the Atom

- Also includes Chapter 8, Section 8.3

### ***Block 4 (Final Exam)***

Chapter 8: Atomic Structure and the Periodic Table

Chapter 9: Chemical Bonding I – The Covalent Bond

Chapter 10: Chemical Bonding II – Molecular Shapes (Geometry)

## LAB OUTLINE

### ***Block 1 (Lab Exam 1)***

Exp 1: Measurements (based on material found in Chapter 1)

Exp 2: Physical Properties – Density (Chapter 1)

Exp 11: Formula Writing and Nomenclature (Chapter 2)

Exp 3: Hydrates (Chapter 3)

Exp 5: Ionic Reactions (Chapter 4)

### ***Block 2 (Lab Exam 2)***

Exp 6: Determination of Molar Mass by Titration (Chapter 4)

Exp 7: Boyle's Law – Pressure-Volume Relationships in Gases (Chapter 5)

Exp 8: Calorimetry of Metals (Chapter 6)

Exp 10: Atomic Emission Spectroscopy (Chapter 7)

AS A STUDENT IN THIS CLASS, YOU ARE RESPONSIBLE FOR READING AND COMPLYING WITH THIS COURSE INFORMATION SHEET.

DESCRIPTION (FROM THE SPC CATALOG). “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)

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

CLASS FORMAT. Lectures (overhead transparencies, whiteboard, demos), textbook reading and homework problems, hands-on laboratory, exams.

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

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 results of experiments. Discussing with your lab group how to best accomplish a goal.
4. **Empirical & Quantitative Skills:** Homework, lab-work with accompanying data analysis, exams.

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

- *Principles of Chemistry*, 2nd Edition, by Tro
- CHEM 1411 General Chemistry I Lab Manual, 2nd Edition
- Laboratory safety glasses or goggles
- Scientific calculator (smart-phone-type calculators *may not* be used on exams)

PROPER LABORATORY DRESS. This dress code will be followed for Experiments 1-3, 6, and 8.

1. You must wear safety glasses or goggles.
2. Tank/strap tops, shorts/skirts, and sandals are not recommended, given the possibility of cuts and burns, and the use of irritating chemicals.

You may not bring snacks or drinks into the lab. They must be left on the instructor desk or put in your book bag.

Book bags should be placed next to your lab station, away from foot traffic, not on the lab bench. The lab bench will be cluttered enough during experiments.

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

The exams are “open lecture notes and homework” – **only!** 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 Lab Exams, each worth 50 points.

The exams are “open lecture notes, lab notes, and lab manual” – **only!** Questions will be based on what is 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 will be non-comprehensive, and worth 100 points.

The Final Exam is “open lecture notes and homework” – **only!** You will take the Final Exam on the day it is scheduled. If you do not take the Final Exam, you will receive an **F** for your course grade, for **Failure** to complete the class. **IMPORTANT:** The Final Exam is scheduled during the time slot given to your lab period, for the reasons stated in the attached Class Schedule.

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. Exams may not be photographed at any time. Any exam.

RETURNING OF EXAMS. Your graded exams will be returned to you, and you will have time to compare them against the keys that 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. Exams (including answer sheets) not returned will be entered into the grade book as irreplaceable zeros. Exams will only be brought to class ONCE – not continually until everyone has had a chance to see how they’ve done.

MAKEUPS. **Lecture Exams:** If one (1) Lecture Exam is missed, your Final Exam will count twice. (*Exception:* Students on SPC-sponsored activities. However, if a mutually

agreed upon time cannot be found for the makeup, the Final Exam will count twice in this case, as well.) Any other missed exams = Zeros.

**Lab Exams:** Missed Lab Exams will be scored as zeros. I reserve the right to grant a Lab Exam makeup *if* the miss was due to situations beyond your control (in my estimation). *You* must come to me with written proof of your absence, if possible, or advance notice (email, voice mail, etc.). You will take the exam makeup during the *lecture* period of your first day back, and must meet with me *before* class starts. Once a graded exam has been returned to the class it cannot be made up, regardless of the reason, and will be scored as a zero. This includes if you are sitting in class when the exams are returned and have not made prior arrangements for a makeup with me. (This policy applies to both Lecture and Lab Exams, for those on SPC trips.) It is therefore up to you to keep me informed. I will not come after you about making up an exam. That's your responsibility.

**Final Exam:** If the Final Exam is unavoidably missed due to situations beyond your control (in my estimation), I will do my best to fit you in *during Final Exam week*. Reason for absence will be required. Final Exams not **completed** by 3 p.m. of the Thursday of Final Exam week will be scored as a zero, and you will receive an *F* for your course grade, for *Failure* to complete the class. The Final Exam will not be given early to accommodate family vacations, flight schedules, or things of that nature. So plan accordingly!

USE OF TECHNOLOGY. Computers, smart phones, and other electronic devices may not be out or in use during exams, even if they are used for note-taking during class. In such a case, you must print out your notes and homework on paper in order to use them while testing. If you do not, you will test without them. You are permitted to use a **scientific calculator** on exams (*e.g.*, Texas Instruments). Smart-phone-type 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, for not returning an exam, or for 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 towards 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 unforeseen reasons, we are unable to have the full allotment of exams, the Score Replacement Policy will be voided, and each exam will stand on its own.

CURVING OF SCORES. There are no curves on exams. It is a long semester with lots of grades. If you don't do so well on an exam, look for ways to make up for it (*e.g.*, study better for the next exam, use the Score Replacement Policy to replace a low score, etc.).

HOMEWORK. Homework is meant to prepare you for the exams. It will not be collected or graded (after all, the answers are at the back of the book); however, if you do not/cannot do the homework, chances are you will not do well on the exams. Reading and problems will be assigned daily from the textbook. I will only post assignments on the board in the classroom ONCE, so if you miss a day of class, you will miss that day's assignment. You will then need to get it from a friend in the class or from your lab partner. Answers to the homework problems can be found in Appendix III of your textbook. No other solutions will be posted. You should be able to work out solutions to the homework problems based on what we cover in class. You should also rework all lecture examples, for additional practice.

MISSING CLASS. If you miss a day of class, it is your responsibility to get the material that we covered that day (from the textbook and the assigned problems). You are also welcome to sit in on my other section, in such cases, as we will be covering the same material on a particular day. My personal lecture notes and slides will not be on loan. If you arrive late for class and miss material, don't expect to come up after lecture to copy the slides that you missed. This is my time for cleaning up and getting ready for the lab period.

Should I have to miss class (due to illness, jury duty, etc.), we will simply pick up where we left off the next time we meet, unless other arrangements are made. This also includes classes officially cancelled due to inclement weather. This could result in exam dates having to be rescheduled.

EXPERIMENTS. Answers to the experiments will be posted in the hallway display case outside the classroom. Your results are not turned in; however, you should study your experiments, lab notes, and related lecture topics in preparation for the Lab Exams.

ATTENDANCE POLICY. There are no excused absences in this class. Every absence counts. A total of 6 absences makes you eligible for an Excessive Absence Drop (with a grade of *X* or *F*, at my discretion). Four (4) classes missed in a row will result in a Drop (with *X* or *F*, at my discretion). In some cases I am required to drop you with an *F*, if you have too many drops in other classes. Students participating in *official SPC activities* will not be charged with absences for those days. However, you must talk to me in advance, and will be responsible for making up the material that you miss. There are no other excused absences. 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, you will be counted absent *for the day*. If you think you may have missed roll call, you must check in with me *that day*. Cutting class and/or lab will not be tolerated and 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*.

*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. Therefore, after a total of six absences (or four consecutive), you will be dropped with an *X* or an *F*, regardless of your grade at the time. (Six absences count as *three weeks* of classes and labs missed.) If you come to me worrying about "How many absences do I 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
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TOTAL	500 points

GRADES. Grade lines are not negotiable, and will be drawn as follows. When posted, grades are final and will not be changed, unless there has been an arithmetic error on my part. Final percentages will not be rounded up; *e.g.*, a 79.6% is a C. (If you get tackled on the 1-yard line, does the referee "give you" a touchdown?) Remember, the Score Replacement Policy is an opportunity to add points to your total.

<u>Grade</u>	<u>Percent (%)</u>
A	≥ 90.0
B	80.0-89.9
C	70.0-79.9
D	60.0-69.9
F	< 60.0

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:*  $(223/250) \times 100 = 89.2\% = B$ .

If, due to unforeseen reasons, 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.

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

CELL PHONES/TEXTING. Texting during testing = Cheating = Irreplaceable zero. Smart phones, etc., 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.

DISRUPTIVE BEHAVIOR. I expect behavior that is in keeping with a college classroom. If you are disruptive in class (*e.g.*, 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 (*X* or *F*, depending on your grade at the time) from the class.

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 for instructions during times of inclement weather.

*Any typographical error, or error found through audit, will be corrected.*



REQUIRED SYLLABUS STATEMENTS.

***DIVERSITY STATEMENT:*** “In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.”

***ADA Statement:*** “Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office through the Guidance and Counseling Centers at Reese Center (Building 8) [716-4606](tel:716-4606), or Levelland (Student Services Building) [716-2577](tel:716-2577).”

***Note to students with disabilities:*** “If you have a disability-related need for reasonable academic adjustments in this course, provide the instructor with a letter of accommodation from the Disability Services Office. If you need immediate accommodations or physical access, please arrange to meet with the Disability Services Office before the next class meeting.”

## CHEM 1411 FALL 2014 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 no lab is listed for a particular day, we will use that period as needed (finishing lecture, catching up, etc. = TBA = To Be Announced).

<u>Date</u>	<u>Lecture</u>	<u>Lab</u>
Aug 26	Intro/Chapter 2	Chapter 2
Aug 28	Chapter 2	TBA
Sep 2	Chapter 2	Exp 1 (Safety glasses required)
Sep 4	Chapter 2	Exp 2 (Safety glasses required)
Sep 9	Chapter 3	Chapter 3/Exp 11
Sep 11	Chapter 3	Chapter 3/Exp 11
Sep 16	Chapter 3	Exp 3 (Safety glasses required)
Sep 18	Chapter 3/4	TBA
Sep 23	Chapter 4	TBA
Sep 25	<b>Lecture Exam 1</b>	
Sep 30	Chapter 4/Exp 5	Exp 5
Oct 2	Chapter 5	Chapter 5
Oct 7	Chapter 5	<b>Lab Exam 1</b>
Oct 9	Chapter 5	Exp 6 (Safety glasses required)
Oct 14	Chapter 6	TBA
Oct 16	<b>Lecture Exam 2</b>	
Oct 21	Chapter 6	Exp 7 (Vernier)
Oct 23	Chapter 6	Chapter 6
Oct 28	Chapter 6	Exp 8 (Safety glasses required)
Oct 30	Chapter 7	TBA
Nov 4	Chapter 7	Exp 10
Nov 6	Chapter 7	Chapter 7
Nov 11	Chapter 8	Chapter 8
Nov 13	<b>Lecture Exam 3</b>	
Nov 18	Chapter 8	Chapter 8
Nov 20	Chapter 8	<b>Lab Exam 2</b>

Nov 25	Chapter 9	Chapter 9
Nov 27	<i>Thanksgiving Holiday</i>	<i>No Class</i>
Dec 2	Chapter 9	Chapter 9
Dec 4	Chapter 10	TBA
Dec 9	<b><i>Final Exam*</i></b> 10:15 a.m. – 12:15 p.m. (Section 6, “the morning class”) ** Room S-101  1:00 – 3:00 p.m. (Section 8, “the afternoon class”) ** Room S-101	

\* *Note:* You will take the Final Exam at the designated time. Exam times are scheduled by the college. The exam will not be given early (*i.e.*, before Final Exam week). Extenuating circumstances (in my estimation) will be handled on a case-by-case basis. You must work out any conflict in exam times. An exam not taken at the designated time holds up grade processing for the entire class.

\*\* *Note: IMPORTANT! You will take the Final Exam during the time slot given to your lab period.* This is an official meeting time for our class, and this exam time is a better fit with the class times we’ve had all semester (*i.e.*, rather than having you come in at an “odd” time to take the exam). *Giving the exam earlier in the week also gives us some options to work with in case a situation arises that would cause you to miss the Final Exam.*

## CHEM 1411 SPRING 2015 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 no specific lab is listed for a particular day, we will use that period as needed (finishing lecture, catching up, etc. = TBA = To Be Announced).

<u>Date</u>	<u>Lecture</u>	<u>Lab</u>
Jan 20	Intro/Chapter 2	TBA
Jan 22	Chapter 2	TBA
Jan 27	Chapter 2	Exp 1 (Safety glasses required)
Jan 29	Chapter 2	Exp 2 (Safety glasses required)
Feb 3	Chapter 3	Chapter 3/Exp 11
Feb 5	Chapter 3	Chapter 3/Exp 11
Feb 10	Chapter 3	Exp 3 (Safety glasses required)
Feb 12	Chapter 3/4	TBA
Feb 17	Chapter 4	TBA
Feb 19	<b>Lecture Exam 1</b>	
Feb 24	Chapter 4/Exp 5	Exp 5
Feb 26	Chapter 5	Chapter 5
Mar 3	Chapter 5	<b>Lab Exam 1</b>
Mar 5	Chapter 5	Exp 6 (Safety glasses required)
Mar 10	Chapter 6	TBA
Mar 12	<b>Lecture Exam 2</b>	
Mar 17	<i>Spring Break</i>	
Mar 19	<i>Spring Break</i>	
Mar 24	Chapter 6	Exp 7 (Vernier)
Mar 26	Chapter 6	Chapter 6
Mar 31	Chapter 6	Exp 8 (Safety glasses required)
Apr 2	Chapter 7	TBA
Apr 7	Chapter 7	Exp 10
Apr 9	Chapter 7	Chapter 7
Apr 14	Chapter 8	Chapter 8
Apr 16	<b>Lecture Exam 3</b>	

Apr 21	Chapter 8	TBA
Apr 23	Chapter 9	<b>Lab Exam 2</b>
Apr 28	Chapter 9	TBA
Apr 30	Chapter 10	TBA
May 5	Chapter 10	TBA
May 7	Chapter 10	TBA
May 12	<b>Final Exam*</b>	
	10:15 a.m. – 12:15 p.m. (Section 5, “the morning class”)**	
	Room S-101	
	1:00 – 3:00 p.m. (Section 7, “the afternoon class”)**	
	Room S-101	

\* *Note:* You will take the Final Exam at the designated time. Exam times are scheduled by the college. The exam will not be given early (*i.e.*, before Final Exam week). Extenuating circumstances (in my estimation) will be handled on a case-by-case basis. You must work out any conflict in exam times. An exam not taken at the designated time holds up grade processing for the entire class.

\*\* *Note: IMPORTANT! You will take the Final Exam during the time slot given to your lab period.* This is an official meeting time for our class, and this exam time is a better fit with the class times we’ve had all semester (*i.e.*, rather than having you come in at an “odd” time to take the exam). *Giving the exam earlier in the week also gives us some options to work with in case a situation arises that would cause you to miss the Final Exam.*