General Chemistry I, CHEM 111-01  
Spring 2017  
Mondays, Wednesdays and Fridays; 12:00pm – 12:50pm; AYRS 120

Instructor  
Dr. Carolynn Arpin, carpin@csuchico.edu, carolynnarpin.com

Office Hours  
Mondays and Wednesdays 1-2pm; Tuesdays and Thursdays 11am-12pm, and by appointment; PHSC 316

Lecture Course Materials  
**Suggested Text:** *Preparing for Your ACS Examination in General Chemistry: The Official Guide*; ACS Division of Chemical Examinations Institute; ISBN: 0-9708042-0-2  
i>Clicker2: Participation points will be assessed via use of the i>Clicker2; this will aid in class engagement for students and immediate feedback for the instructor  
**Sapling Learning:** Subscription to the online homework system will be required; instructions for purchase and set-up can be found here or on Blackboard  
**Calculator:** Any graphing or scientific calculator will suffice

Laboratory Course Materials  
**Supplies:** Available through SAACS in PHSC 309  
- Safety glasses or goggles  
- Lock for your locker

Supplemental Instruction (SI)  
- Supplemental Instruction (SI) is offered for this course and attendance is encouraged  
- SI sessions are weekly, ongoing study sessions wherein student leaders facilitate sessions for comparing notes, discussing content, developing review material, and predicting test items  
- For information about SI sessions (days, times, locations), refer to the SLC website

Course Content  
- CHEM 111 is the first course of a 2-semester sequence of general chemistry (CHEM 112 is the second course)  
- High school algebra II, high school chemistry and the completed ELM requirement are all prerequisites for this course  
- Students can expect to work toward achieving these (very) general learning objectives:  
  - Understand how the chemical and physical behavior of atoms and compounds are related to their internal structure and geometric shape.  
  - To gain understanding in the interactions between atoms and molecules.  
  - Understand how chemical reactions occur.  
  - To gain understanding about the relationship of energy to chemical reactions.
• To gain understanding and implement the scientific process through hands on laboratory experience.

- Efforts will be made to stick to the following tentative schedule; the provided experiment numbers correlate to those listed in the laboratory text:

<table>
<thead>
<tr>
<th>Wk</th>
<th>Begins</th>
<th>Lecture Topic(s)</th>
<th>Laboratory Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 23</td>
<td>Ch.1: Experimenting with Measurement</td>
<td>Check-In &amp; Exp #1: Basic Laboratory Techniques</td>
</tr>
<tr>
<td>2</td>
<td>Jan 30</td>
<td>Ch.1 &amp; Ch.2: Extreme Close-Up of Atoms, Molecules and Ions</td>
<td>Exp #2: ID of Substances by Physical Properties</td>
</tr>
<tr>
<td>3</td>
<td>Feb 6</td>
<td>Ch.2 &amp; Ch.3: Mass Relationships and Chemical Reactions</td>
<td>Exp #3: Separation of the Components of a Mixture</td>
</tr>
<tr>
<td>4</td>
<td>Feb 13</td>
<td>Test #1 Wed &amp; Finish Ch.3</td>
<td>Exp #5: Chemical Formulas</td>
</tr>
<tr>
<td>5</td>
<td>Feb 20</td>
<td>Ch.4: Aqueous Awesomeness</td>
<td>Exp #4: Chemical Reactions</td>
</tr>
<tr>
<td>6</td>
<td>Feb 27</td>
<td>Ch.4 &amp; Ch.5: The Amazing Atom</td>
<td>Exp #21: Reactions in Aqueous Solutions – NIEs</td>
</tr>
<tr>
<td>7</td>
<td>Mar 6</td>
<td>Finish Ch.5 &amp; Test #2 Fri</td>
<td>Exp #20: Titration of Acids and Bases</td>
</tr>
<tr>
<td>8</td>
<td>Mar 20</td>
<td>Ch.6: Ionic Compounds</td>
<td>Gravimetric Determination of Calcium</td>
</tr>
<tr>
<td>9</td>
<td>Mar 27</td>
<td>Ch.6 &amp; Ch.7: Covalent Bonding and Lewis Structures</td>
<td>Exp #6: Chemical Reactions of Copper and Percent Yield</td>
</tr>
<tr>
<td>10</td>
<td>Apr 3</td>
<td>Ch.7 &amp; Ch.8: Bonding and Structure</td>
<td>Exp #15: Activity Series</td>
</tr>
<tr>
<td>11</td>
<td>Apr 10</td>
<td>Test #3 Wed &amp; Finish Ch.8</td>
<td>Exp #11: Molecular Geometries of Covalent Molecules</td>
</tr>
<tr>
<td>12</td>
<td>Apr 17</td>
<td>Ch.9: Thrilling Thermochem</td>
<td>Exp #28: Heat of Neutralization</td>
</tr>
<tr>
<td>13</td>
<td>Apr 24</td>
<td>Ch.9 &amp; Ch.10: Gases Galore</td>
<td>Exp #13: Behavior of Gases: Molar Mass of a Vapor</td>
</tr>
<tr>
<td>14</td>
<td>May 1</td>
<td>Ch.11: It’s Just a Phase &amp; Test #4 Fri</td>
<td>Exp #14: Determination of the Gas-Law Constant</td>
</tr>
<tr>
<td>15</td>
<td>May 8</td>
<td>Ch.12: Sassy Solutions</td>
<td>Check-Out</td>
</tr>
</tbody>
</table>

**Learning Assessment**

**Point Breakdown**

- Attendance/Participation: 148 total points (~10%)
  - Clickers: 76 points
  - Reading Quizzes: 60 points
  - Wrappers: 12 points
- Homeworks (14): 10 points each = 140 total points (~10%)
- Tests (4): 125 points each = 500 total points (~40%)
- Final Exam: 275 points (~20%)
- Laboratory: 280 points (~20%)
- Total Possible: 1343 points
Attendance/Participation
- Attendance/Participation points will be assessed based on the completion of various activities before, during and after lecture:
  - Clicker points will be assessed via responses made using the i>Clicker2 during lecture (all answers will receive full credit)
  - Reading quizzes (one per chapter) covering additional material outside of lecture will be posted on Blackboard and are due before we conclude the chapter’s discussion (answers must be correct for full credit)
  - “Wrappers” for tests will be posted on Blackboard after these assessments are returned; they will have appropriate due dates (all answers will receive full credit)

Homework
- Homework problems for each week will be assigned and completed online through Sapling Learning
- Homework is due by 11:55pm every Friday beginning Week 2
- Students have unlimited attempts for each homework problem, and submitted answers can be checked; however, students cannot “give up” on any problem and view the solution
- If a student completes the Math Review before Friday, January 27th, he/she will earn up to 10 extra credit points

Tests and the Final Exam
- Four 50-minute tests will be given in class throughout the semester:
  - Wednesday, February 15th
  - Friday, March 10th
  - Wednesday, April 12th
  - Friday, May 5th
- The Final Exam will be a 110-minute final exam covering all of the course content; it will be the standardized multiple choice first-semester general chemistry exam provided by the American Chemical Society (ACS)
- Notes and textbooks are not permitted during tests or the final exam

Laboratory
- Laboratory grading will be up to the individual lab instructor, but will based on the following criteria
  - Pre-lab assignment completed and correct
  - Data recorded properly and legibly
  - Calculations are correct and clear
  - Significant figures are correctly and consistently applied
  - Graphs are prepared and interpreted correctly
  - Accurate results are obtained
  - Post-lab questions are completed and correct

Grading Scale
- The approximate grading scale below will be followed; the instructor reserves the right to modify this scale should the need arise, but ONLY in the student’s favor

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>85-100%</td>
</tr>
<tr>
<td>A-</td>
<td>80-84%</td>
</tr>
<tr>
<td>B</td>
<td>77-79%</td>
</tr>
<tr>
<td>B+</td>
<td>73-76%</td>
</tr>
<tr>
<td>C</td>
<td>67-69%</td>
</tr>
<tr>
<td>C+</td>
<td>63-66%</td>
</tr>
<tr>
<td>D</td>
<td>50-59%</td>
</tr>
<tr>
<td>F</td>
<td>0-49%</td>
</tr>
</tbody>
</table>

Late or Missed Work
- If a student misses a pre-lecture assignment, quiz or exam wrapper, or i>Clicker2 session, he/she will receive a zero (0) for these Attendance/Participation points; these points cannot be made up
Late homework cannot be submitted online since homework solutions become available immediately after the assignment’s deadline has passed.

If a student misses a test, he/she will receive a zero (0) for the test; extenuating circumstances will be considered.

Students may take tests early under rare circumstances, only if the instructor is contacted well in advance.

Any student who misses three laboratory experiments will automatically fail the laboratory and lecture portions of the course.

**Student Conduct**

- Students are expected to follow CSU, Chico’s Code of Student Conduct.
- Students are encouraged to work together for the completion of homework but what is submitted must be each student’s own work.
- Any form of cheating will result in a zero (0) on the entire assessment and likely further penalties.
- Students are encouraged to speak up and participate during class meetings; because the class will represent a diversity of individual beliefs, backgrounds, and experiences, every member of this class must show respect for every other member of this class.
- We will all work to promote an anti-discriminatory environment where everyone feels safe and welcome by being committed to providing equality of opportunity for all by eliminating any and all discrimination, harassment, bullying, or victimization; the success of this policy relies on the support and understanding of everyone in this class.

**Disabilities**

- If a student has a disability/health consideration that may require accommodations, please feel free to approach the instructor and/or the Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities.
- ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.
- Students can contact the Accessibility Resource Center (ARC) by calling (530) 898-5959, by visiting Student Services Center 170, or by e-mailing arcdept@csuchico.edu.

**Other Course Policies**

- Appealing the grading of homework, quizzes or tests requires a written, detailed complaint; please feel free to take advantage of this opportunity.
- Students who are more than 15 minutes late to the laboratory portion of CHEM 111 will be dropped from the course; those students on the waitlist and present for that laboratory section will be added to the course.
- The last day to drop this class is Friday, February 17th; after this date you will only be able to drop the class for "serious and compelling" reasons as described in the University Catalog.
- No extra points will be given to any student after the course is over; the grade a student receives is the grade he/she earned in the course.
- In order to pass the course, a student must earn the grade of a D or better in both the lecture and laboratory portions.
- Any student missing three or more labs will automatically fail the course.
General Chemistry I Laboratory
CHEM 111 Lab Section 18
Fall 2016
Mondays, 2:00-4:50pm, PHSC 321

Instructor
Dr. Carolynn Arpin, carpin@csuchico.edu

Office Hours
Mondays, Wednesdays, and Thursdays 12:00-1:00pm and by appointment; PHSC 316

Course Materials

Primary Text:

Supplies (all available through SAACS in PHSC 309):
- Safety Glasses
- Lock for your Drawer

Blackboard:
Blackboard will be utilized to provide various materials and supplemental aids; please be sure to check the course site daily

Evaluation

Each Experiment: $\frac{100\%}{14} \approx 7\%$ per experiment

- There will be 14 unique experiments throughout the semester; each experiment is weighted the same and will be worth $\approx 7\%$ of your total laboratory grade
- Recall that your laboratory grade accounts for 150 points ($\approx 16\%$) of your entire CHEM 111 grade
- Your grade for each experiment will primarily consist of three parts:
  - Pre-lab Questions: posted on Blackboard and due before the lab period begins
  - In-Lab Report: provided in the primary text and due before the end of the lab period
  - Post-Lab Questions: posted on Blackboard and due with the in-lab report before the end of the lab period
- Experiments also have points that may be taken away at the discretion of the instructor based on laboratory conduct (*i.e.*, technique, lab cleanliness, respect for others and the instructor, etc.)
- To be efficient in lab, you need to arrive each day knowing what the plan is and ready to work – be sure to come to lab prepared, since this will directly affect your grade!

Safety
- Standard attire in lab includes long pants that cover all parts of your legs and closed toe shoes
- Safety glasses must be worn at all times when any one student is working on the experiment
- Once all students have completed the experiment for the week, students may remove their safety glasses only if the instructor gives you permission to do so
- For certain experiments, personal protective equipment (lab coat or gloves) may also be required; students will be instructed to proper use of personal protective equipment and when it is required
### Experiment Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Laboratory Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug. 22nd</td>
<td>• Check-In and Exp #1: Basic Laboratory Techniques</td>
</tr>
<tr>
<td>2</td>
<td>Aug. 29th</td>
<td>• Exp #2: ID of Substances by Physical Properties</td>
</tr>
<tr>
<td>3</td>
<td>Sept. 5th</td>
<td>• Exp #5: Chemical Formulas</td>
</tr>
<tr>
<td>4</td>
<td>Sept. 12th</td>
<td>• Exp #4: Chemical Reactions</td>
</tr>
<tr>
<td>5</td>
<td>Sept. 19th</td>
<td>• Exp #21: Reactions in Aqueous Solutions – Net Ionic Equations</td>
</tr>
<tr>
<td>6</td>
<td>Sept. 26th</td>
<td>• Exp #20: Titration of Acids and Bases</td>
</tr>
<tr>
<td>7</td>
<td>Oct. 3rd</td>
<td>• Exp #15: Activity Series</td>
</tr>
<tr>
<td>8</td>
<td>Oct. 10th</td>
<td>• Exp #6: Chemical Reactions of Copper and Percent Yield</td>
</tr>
<tr>
<td>9</td>
<td>Oct. 17th</td>
<td>• Exp #8: Gravimetric Analysis of a Chloride Salt</td>
</tr>
<tr>
<td>10</td>
<td>Oct. 24th</td>
<td>• Exp #11: Molecular Geometries of Covalent Molecules</td>
</tr>
<tr>
<td>11</td>
<td>Oct. 31st</td>
<td>• Exp. #28: Heat of Neutralization</td>
</tr>
<tr>
<td>12</td>
<td>Nov. 7th</td>
<td>• Exp #13: Behavior of Gases: Molar Mass of a Vapor</td>
</tr>
<tr>
<td>13</td>
<td>Nov. 14th</td>
<td>• Exp #14: Determination of the Gas-Law Constant</td>
</tr>
<tr>
<td>14</td>
<td>Nov. 28th</td>
<td>• Exp #19: Colligative Properties</td>
</tr>
<tr>
<td>15</td>
<td>Dec. 5th</td>
<td>• Check-Out</td>
</tr>
</tbody>
</table>

### Late or Missed Work
- Pre-lab questions, in-lab reports and/or post-lab questions turned in late will receive a 25% deduction for each day they are late
- If you’d like to switch laboratory sections for a single experiment, you must obtain permission from your current lab instructor and the instructor whose lab period you would like to attend
- Missed labs will result in the score of a zero (0) for the lab; extenuating circumstances will be considered
- Any student who misses three laboratory experiments will automatically fail the laboratory and lecture portions of the course

### E-Mail
- Important course information may be sent via e-mail; the student is responsible for ensuring that his/her Chico State e-mail address is set up and properly entered in Blackboard
- Be sure to check that course e-mails are not being sent to “Spam” or “Junk” folders
- Check the course syllabus and Blackboard before e-mailing!

### Student Conduct
- Students are expected to follow CSU, Chico’s Code of Student Conduct
- Students are encouraged to work together for the completion of experiments but what is submitted must each student’s own work
- Any form of cheating will result in a zero (0) on the entire assessment and likely further penalties
- Copying of any part of a lab from your classmates, labs from students of other semesters, your own old labs, or any other site is expressly prohibited and will be considered plagiarism
Students are encouraged to speak up and participate during class meetings; because the class will represent a diversity of individual beliefs, backgrounds, and experiences, every member of this class must show respect for every other member of this class.

We will all work to promote an anti-discriminatory environment where everyone feels safe and welcome by being committed to providing equality of opportunity for all by eliminating any and all discrimination, harassment, bullying, or victimization; the success of this policy relies on the support and understanding of everyone in this class.

Disabilities

- If a student has a disability/health consideration that may require accommodations, please feel free to approach the instructor and/or the Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities.
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Other Course Policies

- Appealing the grading of experiments requires a written, detailed complaint; please feel free to take advantage of this opportunity.
- No extra points will be given to any student after the course is over; the grade a student receives is the grade he/she earned in the course.
- Note that a student must receive a passing score in the laboratory portion to receive an overall passing grade in the entire course.