Instructor: Ronald Solberg  
e-mail: rsolberg@dordt.edu  
phone #: 507-962-3368  
office hours: by appointment only


Additional Required Materials: Calculator, dark colored fine point permanent marker (for labeling test tubes, etc.), safety glasses (available from the bookstore), $5 deposit for lab drawer key

Grading System: Your laboratory grade is worth 25% of your Chemistry 101 course.

<table>
<thead>
<tr>
<th>Class Participation</th>
<th>10%</th>
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<tbody>
<tr>
<td>Reading Quizzes</td>
<td>10%</td>
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<tr>
<td>Laboratory</td>
<td>40%</td>
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<tr>
<td>Experiment Reports</td>
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<tr>
<td>Formal Lab Quizzes</td>
<td>40%</td>
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Students are expected to demonstrate active **class participation**, including attendance, attentiveness, preparedness, following safety rules, neatness, cleanliness and proper attire (see special safety rules). Participation in laboratory exercises is important for you to gain hands-on learning and to apply the principles you learn in lecture and reading. You must inform the instructor *in advance* of any legitimate absences and arrange for the completion of all laboratory exercises with another section or at some other approved time. All exercises must be completed in order to successfully fulfill course requirements. Participation is worth 10%, and you will be docked every time you come to lab late, without your book or key or if you are not properly attired.

It is important for you to prepare for the lab ahead of time by studying the assigned experiments and readings. Advance preparation will allow you to complete experiments more quickly and with fewer errors. Additionally, you will be **quizzed on readings** regularly. For each laboratory experiment there will be a report sheet that must be completed and turned in before you leave the laboratory. **Report sheets** will be graded by your TA and returned to you at the beginning of the next lab session.

In addition to your report sheets and reading quizzes there will be two **formal lab quizzes**. These quizzes will be closed book and will cover all information from previous experiments. The first formal lab quiz will cover the first five weeks of experiments and the second formal lab quiz will cover the final six weeks of experiments. Each quiz will be conducted during your scheduled laboratory time. It is important that you properly prepare for these as they are each worth 20% of your lab grade. Be sure to file your graded lab reports in a safe place so you can study from them.
as the questions usually come directly off the lab reports.

**General Laboratory Instructions:**

- Avoid waste of gas, water (tap and distilled), filter paper, and materials of any kind
- Use only your own equipment and reagents and leave reagent bottles in their proper places.
- Do not return excess reagents to supply bottles.
- Dispose of solids by placing them in the wastebasket, unless they are readily water-soluble (check with instructor if you are unsure on this).
- Use the trough in the center of the desk for the disposal of water only. Dispose of small quantities of non-aqueous liquids by pouring them into the end sinks. If such liquids are corrosive or flammable, flush them down with plenty of water. Larger quantities of flammable solvents should be placed in the containers provided for this purpose.
- If acids or alkalis are spilled on the desk or floor, immediately notify the instructor and wash the surface at once with plenty of water. Then wash with sufficient vinegar solution in the case of spilled alkalis and sodium bicarbonate solution in the case of spilled acids so as to neutralize the acids or alkalis that have penetrated the surface. Then wash the desk or floor once more with plenty of water.
- When leaving the laboratory make certain that your gas and water are turned off. Also, make certain that your desk is neat and clean.
- Maintain and orderly arrangement of the apparatus and materials in your desk. The desk drawers and cupboards are subject to periodic inspection and students with messy desks will be penalized.

**Special Safety Rules:**

- ★ Students may only work in the lab when the instructor or TA is present. **Never work alone.**
- ★ Students may only work in the lab during scheduled times, and may not work when other lab sections or classes are present unless it is pre-approved by the instructor.
- ★ Be familiar with the location of the safety equipment (i.e. fire extinguisher, safety shower, and eyewash).
- ★ **All accidents must be reported to the instructor.** You must go to the clinic for treatment of major cuts, burns, or inhalation of fumes. Your instructor will arrange transportation if necessary.
- ★ Perform only authorized experiments.
- ★ Do not taste anything in the laboratory. No food (including gum) or drink is allowed in the laboratory, and you must wash your hands when you leave.
- ★ Do not use your mouth to suck up chemical reagents into a pipette.
- ★ Do not force rubber stoppers into glass tubing. Use a towel to protect your hands.
- ★ Exercise great care in noting the odors or fumes and avoid breathing them. **Remember to waft, not sniff.**
- ★ Loose, long hair should be tied up in the back. Use wise clothing choices: short sleeves, or tight-fitting long sleeves are recommended. Hair and loose clothing burn very easily. Shirts must overlap pants when sitting, standing, or raising hands above your head (i.e. NO bare midriffs). Also, you must not wear sandals in the laboratory, only closed-toed shoes are allowed.
- ★ Handle all chemicals, especially strong acids and bases, in a slow, deliberate, and careful manner.
- ★ No horseplay.
## Chemistry 101 Laboratory Schedule
Dordt College, Fall 2005

**Location:** SB 209  
**Time:** Monday 2:00 - 5:00 p.m. OR Tuesday 1:35 - 4:35 p.m. OR Wednesday 2:00 - 5:00 p.m.

### Date | Laboratory
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Aug 29/30/31 | Diagnostic Test (by Dr. Fictorie)
Sept. 5/6/7 | **Introduction and Safety Rules**  
*Note: Read Chapter 1 (pp.1-28) in advance of lab*  
Exp. 1 (p.29) Measurement of Volume  
Exp. 2 (p.35) Measurement of Mass and Density
Sept. 12/13/14 | Exp. 3 (p.42) Physical Properties of Compounds and Elements  
Exp. 4 (p.42) Evidence of Chemical Reaction
Sept. 19/20/21 | Exp. 17 (p.101) Factors Affecting Solubility  
Exp. 18 (p.105) Factors Affecting the Rate of Dissolution
Sept. 26/27/28 | Exp. 5 (p.47) Heat Energy and Chemical Changes  
Exp. 6 (p.51) Conservation of Mass During a Chemical Change
Sept. 29/30/31 | Exp. 14 (p.95) Properties of Compounds and Elements
Oct. 3/4/5 | Exp. 7 (p.55) Chemical Change: Oxidation and Reduction  
Exp. 8 (p.59) Mass Relationships in Chemical Changes
Oct. 10/11/12 | Exp. 9 (p.65) Relation Between Moles of Reactants & Products  
Exp. 11 (p.73) Effect of Limiting the Concentration of a Reactant
Oct. 17/18/19 | **Lab Quiz #1**
Oct. 24/25/26 | Exp. 12 (p.77) Boyle’s Law: The Relation between Pressure and Volume at Constant Temperature  
Exp. 13 (p.83) Charles’ Law: The Relation between Volume and Temperature at Constant Pressure
Oct 31/Nov. 1/2 | Exp. 22 (p.121) Surface Tension and Surfactants  
Exp. 24 (p.127) Cooling Capacity of Water & Ice; Heat of Fusion; Colligative Properties
Nov. 7/8/9 | Exp. 27 (p.143) Colloidal Dispersions vs. True Solutions  
Exp. 26 (p.139) Dialysis
Nov. 14/15/16 | Exp. 28 (p.149) Reactions of Hydronium Ions  
Exp. 31 (p.161) Tests of Various Ions
Nov. 21/22/30 | **NOTE DATES**  
Exp. 36 (p.185) Hydrolysis of Salts; Effect on pH  
Exp. 37 (p.189) Testing for Buffering Ability and Capacity
Dec. 5/6/7 | **Lab Quiz #2**