Welcome to Introduction to Experimentation (160:171). This handout provides information concerning lab policies and procedures. You are responsible for all the information that follows. Failure to comply with the rules contained in this packet can result in a loss of points and a consequent reduction in grade. No appeal will be considered on the grounds that you did not understand the rules.

(Note: the page numbers refer to the lab manual given to you during the lab unless otherwise noted)

<table>
<thead>
<tr>
<th>Week/Date</th>
<th>Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0: 9/4-9/7</td>
<td>No Labs</td>
</tr>
<tr>
<td>1: 9/10-9/14</td>
<td>Review Syllabus, Safety Rules, and Safety Quiz¹</td>
</tr>
<tr>
<td>2: 9/17-9/21</td>
<td>Check in, Significant Digits, Density of Water. (Douglas-HSB students need a padlock, Livingston-Beck students do not.)</td>
</tr>
<tr>
<td>3: 9/24-9/28</td>
<td>Density: A physical Property of Matter (p.1) Start of Handing in a hard copy of the Completed Chemical Hazard Awareness Form and Pre-Lab to your TA.</td>
</tr>
<tr>
<td>4: 10/1-10/5</td>
<td>Paper chromatography. (p.11)</td>
</tr>
<tr>
<td>5: 10/8-10/12</td>
<td>Sakai Posting²: Water of Hydration (Print and bring to lab) Beck students: Turn in six 10 mL test tubes in a labeled 100 mL beaker for the Net Ionic Equations Lab.</td>
</tr>
<tr>
<td>6: 10/15-10/19</td>
<td>Net Ionic Equations (p. 23)</td>
</tr>
<tr>
<td>7: 10/22-10/26</td>
<td>Empirical Formula of Copper Chloride (p. 41)</td>
</tr>
<tr>
<td>8: 10/29-11/2</td>
<td>Reactivity of Metals. (p. 81)</td>
</tr>
<tr>
<td>9: 11/5-11/9</td>
<td>Volumetric Analysis: An Acid-Base Titration (p.127)</td>
</tr>
<tr>
<td>10: 11/12-11/16</td>
<td>Evaluating Commercial Antacids. (p. 139)</td>
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<tr>
<td>11: 11/20-11/28</td>
<td>Determining Molar Volume of Carbon Dioxide (p. 69) Switch to a Thursday to Wednesday lab week until semester ends.</td>
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<tr>
<td>12: 11/29-12/5</td>
<td>Enthalpy of Formation of Ammonium Salts. (p. 111)</td>
</tr>
<tr>
<td>13: 12/6-12/12</td>
<td>Check Out And Sakai Posting²: Magnetic Behavior Lab (Print and bring to lab)</td>
</tr>
<tr>
<td>Sat. Dec 15th 11 AM-12 PM</td>
<td>FINAL EXAM: Saturday December 15th, 11AM-12PM. Location: To Be Determined</td>
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</tbody>
</table>

Notes:

¹Every student must get 80% or better on the safety quiz. Every student must have a thorough and complete understanding of all the safety rules and follow them at all times. Students will not be allowed to work in the lab without first passing and signing the safety quiz.
²For Water of Hydration and Magnetic Behavior lab please print the experiments ahead of time and bring to lab.
**Required Items: by week 2**

1. Registration for the lab course: If you are registered, the department will provide the lab manual, goggles, and chem kit. Part of your term bill, if you registered for 171 was a fee that covers the lab manual and the disposable items. **If your name does not appear on our roster, you are not in the course and will not receive a manual, goggles or the rest of the chem kit.**

2. Douglas-HSB students are required to bring a padlock for your drawer, any lock similar to a bicycle lock, or a gym locker will work. This is to lock up your glassware.

**Description of Course:**

Course Coordinator/Administrator:
Michael Vitarelli (mvitarel@chem.rutgers.edu) (848) 445-7439 (Wright Rieman 370)
Stockroom phone numbers:   (848) 445-2318 (Beck–LIV)   (848) 932-6160 (HSB–D/C)

Course website: sakai.rutgers.edu Grades and scores will be posted on Sakai.

**Intellectual Property**

The material for this course is copyrighted and may not be posted on any other web site at or outside of Rutgers without permission. Any violation of this policy will be treated as an academic integrity violation and will be referred to the Office of Student Conduct.

**Laboratory operations**

Before each lab, you must do two things: 1. You must read the experiment thoroughly and look up the concepts in any general chemistry textbook. 2. Complete the prelab assignment including the chemical hazard awareness form that you need to fill out for the chemicals you will encounter in that experiment and what precautions you must take in handling them. You will hand in a hard copy of the chemical hazard awareness form and pre-lab assignment to your instructor at the start of the lab. You will perform the experiment after your instructor discusses various aspects of the work, changes in procedure, and any tips. During this time, go to the blackboard and listen carefully to what your instructor is discussing; do not perform any lab related activity during this time. **SAFETY GOGGLES MUST BE WORN PROPERLY IN THE LAB for the entire period.** Safety goggles must be worn on the eyes and not on the forehead. **PENALTIES FOR VIOLATIONS WILL BE IMPOSED WITHOUT WARNING.**

**Grading**

A total of 924 points are allocated as follows: density of water (35 pts), 11 experiments (330 pts, 30 points each), 11 pre labs, (264 points, 24 points each), 55 points for chemical hazard awareness, and 240 points for the final exam. Also your lab instructor will assess such things as basic understanding of the experiment, general lab skills, degree of preparedness, tidiness of the work area, handling of chemicals and wastes, and cooperation in following instructions for the assessment of your grades. Labs are graded largely on performance and outcome, rather than effort. The accuracy of your lab work is of importance.

You will **not** need a separate lab notebook. Record all data directly on the data sheet provided in your lab manual and **show all calculations.** All entries have to be made in permanent ink (flair pens run and are not acceptable). A single line through the entry can be used to indicate any deletion with your initial — correctional fluid is not allowed. **NO EXTRA TIME WILL BE ALLOWED FOR UNFINISHED WORK.** The key for a lab course is preparation and organization.
Absences:

An unexcused absence will result in a zero grade for the missed experiment; three (3) unexcused absences will constitute an automatic failing grade for the course. Anyone with 3 excused absences will be asked to drop the course and take it another time. A student with 3 or more absences (valid or otherwise) will not pass the course.

For excused absences, the post-lab and chemical hazards form will be left blank on Sakai. Blanks are not included in your course grade. The pre-lab must always be turned in. According to University policy, regularly scheduled classes take priority over common hourly exams and your other instructor must make alternate arrangements. Students who miss lab to take an exam will receive a zero on the lab.

Remember you will be standing and working in the lab for three hours and you need to observe common sense (such as sleeping and eating properly before coming to the lab) to avoid incidents. If you are sick or are injured, follow your doctor’s orders and notify the stockroom or your TA by phone or email. We will never punish a student for being ill. While it is in your best interest to perform each experiment, rather than having the grade averaged out, this should not be done at the expense of your health. If you become ill during the lab, let the TA know immediately! We will excuse your absence if you become ill during the experiment. We will attempt to provide any assistance we can.

VALID REASONS FOR ABSENCES

Valid reasons include (but are not limited to):

- Religious observance (requires advanced approval).
- Illness or injury (requires documentation).
- Certain Rutgers sponsored activities (requires advanced approval).

These do NOT include club activities/events.

Court dates (requires prior approval).

Reasons that we will NOT excuse for include (but are not limited to):

- Dismissal from the lab due to the violation of safety rules such as dress code
- Vacation plans. Family trips, weddings, or reunions.
- Leaving early for holidays such as Thanksgiving or Christmas.
- Non-Rutgers group events.
- Job schedule.
- Transportation issues/car troubles (accidents on the way to lab with a police report may be excused).
- Personal issues.

Excused absences may be made up; unexcused absences may not be made up. Please make sure the documentation is provided in the timeframe requested, if the documentation is not provided, the makeup will not be counted.

Students with Disabilities

Please contact the office of Disability Services at https://ods.rutgers.edu/ or tel: 848-445-6800 if you need a permanent or a temporary accommodation. We attempt to accommodate students with disabilities in an appropriate manner. If you require extra time for assignments, you will need to get a letter from the Office of Disability Services confirming
this. Notify the stockroom/your TA and the course coordinators of your disability by the end of the first lab period. Also make arrangements for the stockroom/TA and course coordinator to receive a copy of the disability letter by the end of the first week of classes. If your disability is such that we feel you would be a risk to yourself or others, we may recommend that you not take the lab at all. If this is the case, we will discuss with you, your Dean, the Office of Disabilities Services, and/or the departmental administration if waiving a lab requirement is in your best interest.

**Academic honesty**

You are being graded on the work you perform. Use of lab reports from other students (past or present) is expressly forbidden. Both the lender and the borrower are subject to severe penalties. Some discussion about the labs is acceptable at the discretion of the TA, but you must perform all the work (including the data analysis and answering of questions) yourself. The TA is free to ask you at any point to explain what you are doing. This is to help the TA instruct the confused and prevent copying of answers. If you are confused, ask for help. Don’t just copy an answer. The University’s policy on Academic integrity can be found at [http://academicintegrity.rutgers.edu/policy-on-academic-integrity](http://academicintegrity.rutgers.edu/policy-on-academic-integrity)

We cannot see everything that occurs in lab. If you observe any violations of the rules, you owe it to yourself and your fellow students to report it. We will treat these reports in the strictest confidence. Here are some common violations of the academic honesty policy and the penalties that have been assessed in the past:

<table>
<thead>
<tr>
<th>Violation</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing data</td>
<td>Zero on lab</td>
</tr>
<tr>
<td>Possession of previous semester’s lab report in class. (This includes electronic access by any method such as texting.)</td>
<td>Zero on lab</td>
</tr>
<tr>
<td>Performing unauthorized experiments (horseplay)</td>
<td>Zero on lab</td>
</tr>
<tr>
<td>Second offence for any of the above</td>
<td>Failure of course</td>
</tr>
<tr>
<td>Posting of material from this course on another website</td>
<td>Referral to the Office of Student Conduct</td>
</tr>
<tr>
<td>Untruthful medical note or documentation for make ups or excuses</td>
<td>Referral to the Office of Student Conduct</td>
</tr>
</tbody>
</table>

In addition to the penalties above, your academic dean will be informed of the infraction. You may be placed on academic probation, suspended, or expelled. Further, record of the violation can impact your ability to obtain professional credentials and/or licenses in the future.

**Dropping the course**

In the event that you drop the course, you **MUST** check out of your drawer. You can go to the lab any time Chem 171 is running on the campus that you took the course. Obviously, it is easiest if you check out when your lab meets. Go to the stockroom at the BEGINNING of a lab
period and tell the personnel that you are checking out. You must do this before the end of the semester.

**Chain of Command**

If you have a question about grading, you should first talk about it with your lab instructor. If you are not satisfied with the explanation, you may raise the question with the course coordinator. We will not intervene for questions of a small number of points. Decisions made for safety (such as ejection for violation of safety rules) can be made by any lab instructor, the stockroom personnel, or the coordinators, or a chemistry faculty member. These decisions are final and not subject to appeal. If you have a question about content, concepts or procedures then you may ask any course personnel for help. You must attempt to clear up any concerns you have about the grading of your reports as soon as possible. You have **two weeks** after the end of any given lab to request that its grading be reviewed. The coordinator will not consider appeals after the two weeks are up.

**Students with Medical Conditions**

Some medical conditions such as pregnancy, asthma, allergies to certain chemicals, or other conditions may be affected by exposure to chemicals. If you believe you are pregnant or if you have a medical problem which might be affected by chemicals, please contact the course coordinator before the lab commences or as soon as you become aware of such a condition. We will fully respect your privacy and you do not need to disclose the nature of your medical condition to us. It is, however, imperative that your physician be informed of any chemicals you may be in contact with during the semester so that he/she can determine whether it is safe for you to participate in lab assignments. We will provide you with information for your physician regarding any substances you may be exposed to. We simply require that you bring in a note from your physician indicating that they have reviewed this information and whether you may safely proceed with laboratory work. Rutgers Environmental Health and Safety (REHS) is available to assist you if your doctor recommends that you avoid or minimize contact with certain chemicals. Please feel free to contact them at *(848)445-2550* to request assistance.

**LAB SAFETY RULES**

1. You are not permitted to be in the laboratory when a TA is not present.
2. Report all accidents and injuries, no matter how minor, to your TA.
3. You are only allowed to do authorized experiments.
4. Horseplay in the lab is unacceptable behavior and is cause for immediate ejection.
5. **You must wear safety goggles on your eyes (not foreheads) in the lab at all times.**
   
   Contact lenses (hard or soft) are not permitted: trapped chemicals may cause injury to the eye.

   Know the location and use of the closest eyewash, safety shower, and fire extinguisher.

   If you get chemicals in the eye, immediately flush the eye with copious amounts of water from the eyewash. For other parts of your body, wash the affected area thoroughly using the sink or safety shower.

6. Keep your book bags and other non-essential items at designated spaces only.
7. Bare feet, legs, or midriffs are not allowed in a chemistry lab. Sandals, open-toed or open-backed and open-topped shoes, shorts, or halters are not enough protection. Legs must
be covered completely to within 1 inch of the top of your shoes. If you have long hair it must be tied back. Old clothing or a laboratory apron or coat is highly recommended. **If you are not properly attired, you will not be admitted to the lab.** If you are ejected from the lab for improper dress, you will not be permitted back until you are properly dressed. If you miss the lab, or do not finish, you will not be permitted to make the lab up, and the absence will **NOT** be considered excused. If your back is exposed when you bend over then your top is too short and you will not be allowed to work.

8. The vapors of a number of solutions are quite potent and can irritate or damage the mucous membranes of your nasal passages and throat. If you must smell a chemical, hold its container away from your face and waft its vapor gently toward your face with your hand. For reactions involving poisonous or noxious gases, use the hood by placing the container well within the marked lines. At Douglass, **ALL WORK MUST BE DONE INSIDE THE HOODS!**

9. Always keep burners under the hood. Never apply heat to the bottom of the test tube; always apply it to the point at which the solution is highest in the tube. A suddenly formed bubble of vapor may eject the hot and perhaps corrosive contents violently from the tube (an occurrence called “bumping”).

10. No eating, drinking, or smoking in the lab. You may not bring in anything consumable, either. Water bottles (or other drink containers) are not permitted in the lab, even if they stay in your backpack.

11. Never taste chemicals or solutions—poisonous substances are not always so labeled.

12. Label all containers. Stock solutions must remain on the stock solution bench. Be sure to replace the same cap or stopper on the reagent bottles. Do not put medicine droppers or pipettes in the reagent bottles. Do not take too much stock solution. If you accidentally take more than you needed, do not return the excess back in the reagent bottle, try to give it to another student or dispose the excess as instructed. Grades may be reduced if instructions are not followed and materials are found where they should not be.

13. Although we do not provide gloves, you may wear them, if you choose to do so. Consult with your TA or the stockroom regarding the type of gloves you should consider. All experiments in this course can be safely performed without gloves.

14. Make sure your sink is cleaned out before leaving the lab.

15. Beware of hot glass—it looks cool long before it may be handled safely.

16. You must wash your hands at the end of lab even if you have been wearing gloves. This will prevent you carrying something out on your hands, which you later might get in your eyes or onto food.

17. **Inform your TA if you have a medical condition that requires special consideration.**

18. During the molar volume of carbon dioxide experiment do not force the stopper into the rim of the flask. Gently push the stopper into the rim of the flask. If you put too much pressure on the stopper, while the flask is filled with water, the flask will shatter and can cause severe injuries.

**WHEN IN DOUBT, ASK YOUR INSTRUCTOR!**