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| **COURSE NAME** | GENERAL AND ANALYTICAL CHEMISTRY LAB I |
| **COURSE NUMBER** | CHMG-145 |
| **SECTION NUMBER** |  |
| **PREREQUISITE** | NONE |
| **COREQUISITE** | CHMG-141 or equivalent |
| **DESCRIPTION** | The course combines hands-on laboratory exercises with workshop-style problem sessions to complement the CHMG-141 lecture material. The course emphasizes laboratory techniques and data analysis skills. Topics include: gravimetric, volumetric, thermal, titration and spectrophotometric analyses, and the use of these techniques to analyze chemical reactions. |
| **INSTRUCTOR** | T.B.A |
| **INSTRUCTOR EMAIL** | T.B.A. |
| **INSTRUCTOR OFFICE HOURS** | T.B.A. |
| **MATERIALS** | Available at B&N Campus Bookstore:   * Lab Coat * Lab Goggles * Calculator * Quad ruled Lab Notebook |
| **TEXT** | Course content will be available through MY COURSES. The **Lab Handout** and **Report Guide** for each lab will be made available through MyCourses. It is the student’s responsibility to make and bring the relevant printouts to lab. |

**SCHEDULE OF LABS:**

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| **WEEK OF** | **LAB** |
| Aug 26 - | Course Intro, Syllabus & Online Lab Safety Training  (See last page of syllabus for directions) |
| Sep 2 - | NO LABS  **Measurements & Stats Homework**:   * Read the measurements & stats handout * Complete the measurements & stats exercise * Hand in the measurements and stats exercise at the beginning of lab, on the week of Sep 9. |
| Sep 9 - | Density |
| Sep 16 - | Solubility |
| Sep 23 - | Law of Definite Proportions |
| Sep 30 - | Chlorophyll Extraction and Visible Spectroscopy |
| Oct 7 - | Stoichiometry |
| Oct 14 - | NO LABS |
| Oct 21 - | Acid-Base Titration |
| Oct 28 - | Precipitation Reactions |
| Nov 4 - | Redox Titration |
| Nov 11 - | Calorimetry |
| Nov 18 - | Gas Constant |
| Nov 25 - | NO LABS |
| Dec 2 - | NO LABS |

**LAB STRUCTURE**

* PRE-LAB
  + Arrive on time and prepared.
  + Stow coats and bags under the work islands.
  + Notebook check / attendance. When you arrive for lab, your notebook should be prepared as follows:
    - Table of contents
    - Headers
    - Objectives
    - Written Procedure - In your own words, with sufficient detail for replication.
    - Tables – as shown in the handouts.
* LAB
  + Work in pairs
  + Record data, calculations and results directly into your notebook.
  + Record any qualitative observations.
  + Record any changes to the procedure.
* POST-LAB
  + Dispense of waste as instructed.
  + Clean up and put everything away.
  + Notebook check. Before leaving, your notebook should be completed as follows:
    - Show how essential calculations are done. Note: It is not necessary to show how statistical calculations are done.
    - Completed tables
    - Major Results
    - Completed headers on all pages that are written on.
* LAB REPORTS
  + **Each student is to write their own lab report, in their own words**.
  + Each lab report has its own specific **Report Guide**, available on MyCourses.
  + Submit a **PDF** of the report through the drop box, 1 week after the lab is performed.

**GRADES**

Based on:

* 10 evenly weighted lab reports
* Discretionary deductions for issues regarding safety, housekeeping, notebooks, arriving late, etc.
* The lowest lab grade will be dropped.

**FINAL GRADE DISTRIBUTION**

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| **Final Average**  (rounded to the nearest ones place) | **Final Letter Grade** |
| 95-100 | A |
| 90-94 | A- |
| 86-89 | B+ |
| 83-85 | B |
| 80-82 | B- |
| 76-79 | C+ |
| 73-75 | C |
| 70-72 | C- |
| 60-69 | D |
| 0-59 | F |

**Safety Rules for Chemistry Laboratory Work:**

1. Goggles, lab coat and gloves must be worn whenever experiments are in progress in the lab, whether the experiments are being conducted by you or by a fellow student. Any teaching assistant, faculty member, or safety officer may ask that you leave the laboratory if you fail to comply with this or any other safety request.
2. Gloves must be removed before exiting the lab – for example, you should never use door knobs with gloves on or you will contaminate the door knob. Take your gloves off when you leave the room and put on a new pair when you return.
3. No shorts, open toed shoes (flip flops), and exposed legs are allowed in lab – if you come unprepared, you will not be allowed to do the lab. Shoes and leg wear must completely cover your legs and feet.
4. No eating, drinking, gum chewing, smoking, application of lipstick or chap stick in the laboratory. Consumables should not be brought into the laboratory because of risk of contamination.
5. Wearers of contact lenses are discouraged from using them in the lab. Some chemicals and vapors can cause permanent stains to some lenses, and any chemicals that might get into the eye could be trapped between the eye and the contact lens, causing permanent damage.
6. Any long hair or loose clothing must be tied back prior to lab.
7. Wash your hands before leaving the lab.
8. Labs are intended to be informative, interesting, and, yes - fun, but "horseplay" has no place in the laboratory.
9. The laboratory work space should be cleaned before leaving.
10. To protect the environment, please follow all special instructions for chemical waste disposal as announced by your instructor.
11. Report all accidents in the lab (cuts, bums, etc.), even if you think they are minor.
12. All book bags and coats must be stored in the cabinets below your work station – NOT on the floor or on counter tops.

**ABSENCES:**

* In the case of unexcused absence, a grade of zero will be received.
* Makeup labs:
  + For excused absences involving: illness, sports, job interviews, etc.
  + Require documentation from: doctor, coach, advisor, etc.
  + Must be done by the end of the following week
  + Must be approved by any instructors involved
  + Must be **arranged by the student** doing the makeup. See SIS for a list of all sections, times and instructors. Find a section that fits your schedule and is not at full capacity. Then contact the instructor to ask if they can accept you into their section for a makeup. Instructors must not allow more than 24 students in the lab at a time.

**Late Submission Policy**:

* From one day to one week late 10% off.
* From one week to two weeks late 20% off.
* Not accepted after two weeks without permission of the instructor.
* If a student is taking responsibility and working with the instructor due to illness or other excused absences the penalty system above will start with the new agreed upon due date.

**ACADEMIC HONESTY**

ALTHOUGH YOU CAN AND WILL WORK IN PAIRS DOING THE EXPERIMENTS, EACH PARTNER WILL WRITE AND SUBMIT A LAB REPORT INDEPENDENTLY. Academic honesty is highly valued in the Chemistry Department and at RIT.  If any words or ideas used a lab report do not represent your original words or ideas, you must cite the sources and make clear the extent to which such sources were used. Words or ideas that require citation include, but are not limited to, all hard copy or electronic publications, whether copyrighted or not, and all verbal or visual communication when the content of such communication clearly originates from an identifiable source. Please see the [RIT Student Rights and Responsibilities](https://mymail.ad.rit.edu/owa/redir.aspx?C=16d52b938c0743ea8a4d4e4f1498e1cc&URL=http%3a%2f%2fwww.rit.edu%2f%7e301www%2frr.php3) for more information about academic honesty, including consequences of academic dishonesty.  IT IS EXPECTED THAT THE WORK SUBMITTED IN THIS CLASS WILL BE THE ORIGINAL WORK OF THE INDIVIDUAL STUDENT AND WRITTEN IN HIS OR HER OWN WORDS.

**LAB SAFETY TRAINING**

For the purpose of ensuring the safety of all students who take classes in wet labs in the College of Science, all students are required to complete an on-line safety training module.

The training is identical to the lab safety training all our faculty, staff and COS research students take and involves a slide presentation and short questionnaire (about 15-20 minutes).  When completed, students receive a certificate they can save as a pdf or print out. Show the pdf or printout to your lab instructor.

Training only has to be done once per academic year (ending 3rd week of August), and can be used for all other lab courses on campus.  If you are already doing the training for undergrad research, you can use the same certificate for your lab course(s).

Instructions you should give to students for lab safety training completion:

1. Make sure your browser is set to allow Pop-ups and Java before starting.
2. Go to rit.edu/fa/cpd – Login with RIT credentials – click on talent roadmap in menu at left – search for “lab safety training” in search bar …..or……. Clink the following link to training module: <https://rit.sabacloud.com/Saba/Web_spf/NA3P1PRD0049/common/leclassview/dowbt000000000003054>
3. Click “Enroll” to register, “RIT Lab Safety Training” module appears in your activities bar.
4. Click “Launch” to begin the training.
5. Use the start arrow to begin the slide presentation.
6. Read each slide completely.
7. Complete questions at the end of the slide presentation
8. Receive completion certificate by following instructions to print (to pdf or paper)
9. Show paper or electronic certification to your lab instructor at the start of lab, the second time the lab meets.