

STATE UNIVERSITY OF NEW YORK
College at Old Westbury

CP2131 Principles of Chemistry II Laboratory
S102, M-W 1-4 pm

Summer 2018

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Office Hours: M-W 11:30-12:30 pm and by appointment

Required Materials:

- Laboratory Manual for Principles of General Chemistry by J. A. Beran, Tenth Edition, John Wiley and Sons, New York 2014 (ISBN 978-1118621516)
- Calculator
- Pen
- Notebook

Course description: CP 2131 is designed to illustrate the concepts of Principles of Chemistry II (CP 2130). This course emphasizes the basic chemical concepts, quantitative laboratory skills, descriptive chemistry, and development of scientific report writing skills. CP 2131 is offered in conjunction with CP 2130. The prerequisite is CP2121, completed with grade “C” or better.

Learning Objectives/Outcome:

1. To understand the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis.
2. To learn how to apply scientific data, concepts, and models in physical science.

Assignments:

- **Pre-Lab:** Students should read the laboratory manual/handout and answer the pre-lab questions. **They are due at the beginning of class period on the day of the experiment.** This is an individual assignment.
- **Lab Report:** **Lab reports are due by noon on Monday one week following the completion of the assigned experiments.** Reports should include all necessary observations, data, and calculation work. Please use the rubric (see table below) to prepare your laboratory reports and submit them on time on Blackboard. This is a group assignment.

Laboratory Policy

1. **Be on time.** A brief description of the experiment and potential trouble spots will be given at the beginning of each lab session, so it is crucial that you arrive on time. **Missing pre-lab lecture will prevent you from working in the lab.**
2. Bring required materials to every lab.
3. **Be responsible** for your individual assignments and contribute positively while working in a group.
4. **No electronics** will be allowed during lab session.
5. Use **Blackboard or Old Westbury email only** to communicate with me. Any email originated from an address other than Old Westbury account will be discarded.
6. It is your responsibility to log on to Blackboard regularly to check your grades and any important announcement.

Notes on textbook: Course Materials for this course can be obtained at Old Westbury's official campus store, located in the Student Union Building. Your campus store offers several options for you to acquire the needed materials for your classes. Course materials are available to Buy New or Used, Rent New or Used, Buy Digital, and Rent Digital (Options subject to availability). Bring your course information to the bookstore to obtain your course materials. Campus store hours are posted on the website 24 hours a day, 7 days a week. Information about your course materials can be found on their website: www.Oldwestburyshop.com. Orders placed via the website are usually ready for pickup within 48 hours (for free) or can be shipped anywhere in the United States plus the cost of shipping (Not for use if using vouchers as form of payment).

Grading:

Grading is based solely on the laboratory report. Please note that the laboratory grade is separate and independent of your grade in lecture. There will be **no extra credit work**. Refer to the guidelines for preparing the laboratory report. Organize the report according to the five sections (I to V) as described in the Instructions for Lab Reports. LABEL each section appropriately. Laboratory reports are graded by sections as shown below. **One lowest grade will be dropped.**

Pre-lab assignment: 10 points

I. Introduction: 10 points

II. Experimental Section: 20 points

III. Calculations: 20 points

IV. Analysis/Discussion of Results: 20 points

V. Conclusion: 10 points

Laboratory questions: 10 points

Grades are assigned according to the percentage of points received:

%	Grade	%	Grade	%	Grade	%	Grade	%	Grade
≥ 93.0	A	87.0-89.9	B+	77.0-79.9	C+	67.0-69.9	D+	≤ 59.9	F
90.0-92.9	A-	83.0-86.9	B	73.0-76.9	C	63.0-66.9	D		
		80.0-82.9	B-	70.0-72.9	C-	60.0-62.9	D-		

How to submit group work through Group Wikis on Blackboard?

1. Log in to Blackboard.
2. In **Tools**, select **Wikis**.
3. Click "Create Wiki Page" to name the experiment as following, Exp. 1. Basic Laboratory Operations.
 - a. Please know that each group only needs to do this once for each experiment.
 - b. Do not make a new one if your group member has created Wiki page for this experiment.
4. For each post-lab report, place the following table on the top **with individual assignments**. One student will write more than one sections.

Section	Student Names
Introduction	
Calculations	
Analysis/Discussion of Results	
Conclusions	
Post-lab Questions	

- Individual writing: write your sections and keep all sections in the order shown above (suggested due date is Friday).
- Peer-review: Each group member has to review the whole lab report, and submit your comments by clicking "Comment" at the bottom (suggested due date is Saturday)
- Read others' comments and revise your sections (due on Monday noon).
- Click "Submit" often while you are writing so that your work is saved.

Tentative Laboratory Schedule

DATE	EXPERIMENT NUMBER & TITLE	Lab Report Due
Jul 9	Check-in & Safety Regulations	
Jul 10	Exp 14. Molar Mass of a Solid	
Jul 11	Exp 15. Synthesis of Potassium Alum	
Jul 16	Exp 23. Factors Affecting Reaction Rates	Exp 14, 15
Jul 17	Exp 24. A Rate Law and Activation Energy	
Jul 18	Exp 34. An Equilibrium Constant	
Jul 23	Exp 10. Vinegar Analysis	Exp 23, 24, 34
Jul 24	Exp 18. Potentiometric Analyses	
Jul 25	Exp 16. LeChâtelier's Principle; Buffers	
Jul 30	Exp 22. Molar Solubility; Common-Ion Effect	Exp 10, 18, 16
Jul 31	Exp 39. Qual II. Ni^{2+} , Fe^{3+} , Al^{3+} , Zn^{2+}	
Aug 1	Exp 26. Thermodynamics of the Dissolution of Borax	
Aug 6	Exp 27. Oxidation-Reduction Reactions	Exp 22, 39, 26
Aug 7	Exp 32. Galvanic Cells, the Nernst Equation	
Aug 8	Check out	
Aug 10	Last laboratory reports due by noon	Exp 27, 32

There will be no make up labs.

Instructions for Laboratory Reports

The report must be structured to include the five (5) sections shown below. All reports must be typed and grammatically sound. Reports should be written in the third person passive voice and past tense throughout.

- I. **Introduction:** A short paragraph, which states the **scientific objectives** of the experiment. The statement should be in your own words and should not be copied from the laboratory manual. Leave out all references to: I, me, myself, you, we, etc. (See attached sheet for examples of good and poor objectives)
 - II. **Experimental Section:** Write "Report Sheet submitted" and submit the Report Sheet(s) from the laboratory manual containing the data obtained in the laboratory at the beginning of the lab on Monday following completion of the experiments. Use correct units. Do not erase. Draw a line through incorrect data and write the correction above or to the side. **Write your data in pen.**
 - III. **Calculations:** All calculations should be shown. Any gray box in report sheet indicates that calculation is needed to obtain a value in the gray box. If there is more than one trial, you need show calculations for a single trial only. Use correct units and **significant figures** (refer to the laboratory manual).
 - IV. **Analysis/Discussion of Results:** A short paragraph **analyzing your results** including a **brief discussion** of any significant observations or discoveries - identify any problems that occurred as well as "new" pieces of information gathered as a result of performing the experiment. Comment as best you can on the perceived quality of your data (precision and/or accuracy). Indicate possible sources of error that might have affected the results. Do not summarize the data in this section – leave that for section V. If an unknown is part of the experiment, present your results with a brief, but clear statement of the reasoning used in reaching the identification of an unknown.
 - V. **Conclusion:** Refer to the scientific objectives of the experiment (stated in the Introduction) and describe whether these objectives have been met. Include a summary statement of your results (a conclusion). Write complete sentences. For numerical results, state the values for **concluding (final) data** determined and explain what they mean. Be specific, not general. The conclusion section should allow the readers to know what important findings were made, what data were determined and what their significance is without having to read the entire report. This is a summary.
- ❖ **Laboratory Questions:** Answer the assigned laboratory questions shown at the end of each experiment. Answers must be typed. You do not have to type questions.

***Plagiarism and other academic dishonesty will result in failing of the course.**

Stating the scientific objective of an experiment:

A GOOD statement:

The objective of this experiment was to determine and compare the accuracy of volumetric measurements of a liquid using a graduate cylinder, a glass pipet and an automatic pipet.

A POOR statement:

The objective of this experiment was to teach the students how to determine and compare the accuracy of volumetric measurements of a liquid using a graduate cylinder, a glass pipet and an automatic pipet.

Another POOR statement:

The objective of this experiment was to learn how to determine and compare the accuracy of volumetric measurements of a liquid using a graduate cylinder, a glass pipet and an automatic pipet.

The first statement correctly focuses on the scientific goal of the work performed.

The two poor statements focus on the educational objective of the experiment not the scientific objective. The educational objective is valid, but as scientists in-training you need to view experiments the way scientists do. The focus is mainly on achieving a scientific result. What is learned in the process is important. However, from a scientist's point of view, that is secondary to the scientific objective.

Office of Services for Students with Disabilities

SUNY/Old Westbury is committed to assuring that all students have equal access to learning and extracurricular activities on campus. If you have, or suspect you may have a physical, psychological, medical or learning disability that may impact how you function academically and/or your access to activities on campus, please contact Dr. Lisa Whitten, Director of the Office of Services for Students with Disabilities (OSSD). She will determine whether or not you qualify for academic accommodations and arrange them with your professors if you do. The OSSD is located in the NAB, Room 2064. You can reach Dr. Whitten at 516-876-3009 or whittenl@oldwestbury.edu.

SCHOOL OF ARTS AND SCIENCES

POLICY ON ACADEMIC INTEGRITY

Plagiarism and cheating are condemned at all institutions of higher learning. These acts detract from the student's intellectual and personal growth by undermining the processes of studying, reading, note-taking and struggling with one's own expression of ideas and information. Moreover, cheating inevitably involves secrecy and exploitation of others. See "Academic Integrity" and related topics in the *Old Westbury Catalog, 2006-2008*, p.46.

Plagiarizing means "presenting somebody else's words or ideas without acknowledging where those words and ideas come from" (Ann Raimes, *Keys for Writers*, 5th ed., p.188). Examples include:

- copying material from the Internet or other sources and presenting it as your own
- using any author's words without quotation marks; using any quotation without credit
- changing any author's words slightly and presenting them as your own
- using ideas from any published sources (even in your own words) without exact credit. **Note:** This includes all material from the Internet or electronic databases.
- using long passages in a paper that have been written or rewritten by a friend or tutor
- turning in any assignment written by someone else

However, using quotations or borrowed ideas while giving exact credit is good academic procedure.

Other types of academic dishonesty include unauthorized collaboration or copying of students' work (cheating); falsifying grades or evaluations; and others. They are treated as equivalent to plagiarism.

When detected and verified, plagiarism and other academic dishonesty will be punished severely. Normally, the first offense will result in a failure on the specific assignment; a second offense or a particularly flagrant first offense will result in failing the course. A second verified instance of plagiarism within the School of Arts and Sciences, after report of a first verified instance, will normally result in failing the course in which the second instance occurs. Know what plagiarism is and how to avoid it; for guidance see Raimes or any other college writing handbook. **Please note: in this matter, ignorance is never an acceptable excuse.**

Revised effective 5/20/08