Outline

• General Information
• Grades
• Pre-Labs
• Tardiness
General Information

• This is a hard course
  • Time intensive
    • 1 hr/week in lecture
    • 4 hrs/week in lab
    • 8+ hrs/week at home
  • Writing Intensive
    • Extensive Pre-Labs and Lab Reports

• Best way to get help
  • Step 1: Ask your TA
    • Most knowledgeable of your situation
  • Step 2: Ask me
    • I can answer 99.9% of questions
    • If I can’t, I’ll pass it on to Dr. Lu

• You are of course welcome to contact any of us at any time, but this is usually the best method
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# Point Breakdowns

Table 1: Point Breakdown by Experiment

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Pre-Lab</th>
<th>Notebook Quiz</th>
<th>Lab Report</th>
<th>Technique</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Techniques</td>
<td>–</td>
<td>–</td>
<td>50</td>
<td>10</td>
<td>–</td>
<td>10(60)</td>
</tr>
<tr>
<td>Copper/Iron Stoichiometry</td>
<td>40</td>
<td>20</td>
<td>50</td>
<td>10</td>
<td>–</td>
<td>110</td>
</tr>
<tr>
<td>Gravimetric Determination of Calcium</td>
<td>50</td>
<td>30</td>
<td>100</td>
<td>30</td>
<td>60</td>
<td>280</td>
</tr>
<tr>
<td>Determination of an Equilibrium Constant</td>
<td>30</td>
<td>10</td>
<td>100</td>
<td>10</td>
<td>–</td>
<td>140</td>
</tr>
<tr>
<td>Determination of a Solubility Product</td>
<td>30</td>
<td>10</td>
<td>100</td>
<td>10</td>
<td>–</td>
<td>140</td>
</tr>
<tr>
<td>Characterization of a Weak Acid</td>
<td>50</td>
<td>30</td>
<td>100</td>
<td>30</td>
<td>90</td>
<td>320</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td>200</td>
<td>100</td>
<td>450</td>
<td>100</td>
<td>150</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Percentage of Grade</strong></td>
<td>20%</td>
<td>10%</td>
<td>45%</td>
<td>10%</td>
<td>15%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Two Grades?

• Yes, it’s true!
• Straight Scale
  • You know your grade absolutely
  • Not a bell-curve
    • Everyone can get an A!
• Curved Scale
  • Distribution based
  • Don’t know your grade absolutely
Straight Scale – How It Works

• Turn-in Assignment
• Get it back
  • Raw score
• Time passes
• Go online
  • Find your scaled score
  • Compare your scaled score to straight scale cutoffs.
• Scaled by section
  • Eliminates variability between TAs
• Rounding issues
  • We round to the thousandths place
    • No exceptions
  • Ex: 92.996% rounds to 93.00% (A)
  • Ex: 92.994% rounds to 92.99% (A-)
• Cutoffs won’t increase, but may decrease!
Curved Scale – How it works

- Determined using statistics and historical data
- Set and computed only at the end of the term
- Rough guide:
  - A/A-: One $\sigma$ above mean/median
  - B/B-: Mean/median
  - C/C-: One $\sigma$ below mean/median
  - TA will give you these stats for each lab report and pre-lab
- Don’t ask for your curved grade – we literally can’t tell you!
Benefits/Two Extremes

- Both scales remove variability in TA grading from the picture
- No need for competition
  - Work together, not against each other
  - Aren’t competing for the grade
- At the end, we give you the better of the two grades

- A+ is special
  - A/A+ get same GPA – it’s an honor thing

- Failing Grades
  - Aren’t given out as long as you complete every lab and put forth a good faith effort
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Purpose/Format

- Makes you work ahead
- Efficiency in lab
- Get feedback for lab report
  - Already will have *Introduction* and *Materials & Methods* sections written
  - Questions to consider form basis for topics to be covered in *Discussion* section
- A brief guide to formatting the pre-lab will be available on the website
- In general, follow all the same conventions and rules as for lab reports
Introduction

• Statement of purpose
• Overview of key techniques, chemical concepts, and equipment
• Reference and summary from a peer-reviewed literature source.
  • Summary can be a sentence or two, but must show that you looked at more than the title of the paper!
• Don’t blow this off – it will save you a lot of time on the lab report if this is well written the first time around
• May not be more than two pages! Anything over two pages will be docked points! You can say everything you need to within that limit! (I swear, really…)

Materials and Methods

- Table of Reagents
  - www.hbcpnetbase.com
- Procedure
  - List
  - Own words
- When taking to lab report, change data to fit experiment and convert to prose format
Questions to Consider/Pre-Lab Questions

- Found after each experiment in the lab manual
- Typically 1-3 sentence answers suffice
- Be thorough, but concise
- Excellent guide for topics to be covered in Discussion section!
Times?

- Pre-labs are due in lecture for the lab which they cover
  - i.e. the Copper/Iron pre-lab is due in the lecture that discusses the Copper/Iron lab
- Will be graded and returned to you at start of lab
- Use comments to make necessary corrections and increase (hopefully) your score for that section on the lab report!
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Late...

• ...to lab?
  • Very bad
    • Miss safety info
    • Miss hints and tips
    • Every 10 mins/5 TA point penalty

• ...leaving lab?
  • Shouldn’t happen
    • All labs are designed to be completed in under four hours
    • Every 10 mins/5 lab report point penalty
    • There will be a final cutoff time
Pre-Lab

• You’ll quickly realize you forgot
  • Up to 1 day late – 50% credit
  • After 1 day – 0% credit

• Arrive to lab w/o pre-lab done?
  • 1 “free” pass
    • Still get 0% credit
    • Must go to library and complete it (Must do a reasonable job, too!)
    • Assessed late points for coming back to lab late
  • Subsequent occurrences:
    • Still have to do lab report w/ fake data (Must do a reasonable job, too!)
    • Receive a 0% on the entire lab (Pre-lab, Notebook Quiz, Lab Report, TA Grade)
Lab Report

- Every 1 day – 5 point penalty
- Weekends
  - TAs are not required to be available for turning in on weekends
    - Arrange something with your TA
    - Find another TA that will be around
    - Must do this completely at their convenience
  - BUT they still count as late days
- Thursday/Friday only
  - May e-mail digital copy to TA (must be *.doc or *.docx)
  - Must turn in 100% identical copy on Monday or TA’s earliest convenience
  - Will count as received on date e-mail received
  - Note: Not responsible for lost e-mail, email outages, corrupt files, anything
Final Notes

• Never leave material in a TA’s mailbox
• Never slip any materials under a door
• ALWAYS have any materials turned into another TA initialed/dated/timed

• Always better to turn things in on time!
Chemistry 203

How to Write a Brilliant Lab Report
Why is it Important?

- Important for all scientists
- Record of your lab performance
- 45% of the grade
Lab Report Breakdown

- Title, Name, Section, Date
- Abstract (5% of total lab grade)
- Introduction (5-15%)
- Materials and Methods (5-10%)
- Results (20-40%)
- Error Analysis (5-10%)
- Discussion (25-45%)
ABSTRACT

• Concise summary of experiment – under 150 words!
• Goals
  • Purpose – why conduct experiment?
• Principles
  • What Chemistry does the experiment teach us?
• Techniques
  • Instruments & specific methods used
• Results
  • Conclusive outcomes, numbers
INTRODUCTION

• Purpose of Experiment (again)
• Chemical principles – background information on experiment
  • This is where you want to write about techniques you are using and why they work chemically.
  • Explanation of any chemical equations
• Explain techniques being used
• Real World Example
  • Application of experiment in real world Chemistry
    • Use Journal Article
• DO NOT include data or discussion of results in this section!
• Two pages max. Two pages max. Two pages max. Two pages max. Two pages max. Two pages max. TWO… PAGES… MAX!
Materials and Methods

• Cite the lab manual
  • “The laboratory procedures were conducted based on the steps provided in “An Introduction to Chemical Systems in the Laboratory” on pages 10 – 17 (1)”
    • Note: (1) refers to the citation at the end of the lab report in the references section and the footnote at the bottom of the page!

• Write out the full procedure you performed in lab
  • Should be easy – you already laid the framework in your pre-lab!
  • Don’t forget this is supposed to be prose and in past-tense, because you already did this!
  • Very important during the experimental process to write down everything you do in your lab notebook – observations, measurements, etc.
RESULTS

• Tables & Graphs!
  • All measurements and observations should be put in an organized table/graph with a proper heading
• All information gathered from experiment should be in this section (an organized version of your lab notebook)
• Show sample calculations
• Include proper units and number of significant figures!
• Remember, if it isn’t in a table, graph, chart, etc, it does not exist
ERROR ANALYSIS

• Calculate averages, standard deviations, percent errors, percent yield, etc as necessary.
• If this section is not needed, say, “no mathematical analysis was completed” or equivalent.
• Explanations of error should be in the discussion section of the lab report.
• We are not asking you to do ANY propagation of error this year.
DISCUSSION

• Heavily weighted and by far the most comprehensive section!
• Summarize
  • Goals, Principles, Techniques, Results
• Analyze
  • Discuss errors and reasons for results
• Explain
  • Connect chemistry background with actual experimental procedure and results.
  • Most important section! – allows us to see you have understood chemical principles behind experiment!
• Conclude
  • What have you learned?
  • Success/ Failure, why? Expected/Unexpected?
  • Future investigations?
REFERENCES

• Cite all outside resources in this section
• Must cite, at the very least, lab manual and the source of information gathered for the introduction (real world chemistry)
• The Chemistry 202 Zumdahl textbook can be used and cited
• Use proper ACS format – you can find examples at the address given in the formatting guide!
Lab Lingo!

• Clarity!!! – want writing to be concise and to the point, no flowery language.
• PAST TENSE!!
• Write in **third** person (active voice, where possible)
• Write thoroughly
• All charts, graphs, tables must contain headings, units, and proper significant figures
Lab Report Guidelines

• Labs should be neatly typed, 12 pt. font, double spaced.
• Calculations can be computer generated using MathType® or Equation Editor.
  • www.webstore.uiuc.edu (look for software and download)
• “Results” in computer-generated charts.
• Never split up a chart on two pages.
• Proofread and spell-check.
• In general, just follow the formatting guide – a nice looking and well formatted lab report is easier to grade and read!
Important to Note

- Your lab MUST be turned in on time, when your lab section begins (8am or 1pm).
- Each day late = -5 points (including weekends).
- Strive for brevity – lab reports for 203 should not be 20 pages. (Although there isn’t a page limit this semester)
- Length of lab report depends on the experiment
Academic Integrity

- Cheating/Plagiarism are absolutely **UNACCEPTABLE**
- University policy:
  - [http://www.research.uiuc.edu/ai/index.asp](http://www.research.uiuc.edu/ai/index.asp) - PLEASE READ
- Class policy:
  - All lab reports must come in complete with all sections (title – references) or else will get an incomplete grade
  - All lab reports need to be turned in, no exceptions, in order to pass course
  - Any lab report that has any implication of cheating and/or plagiarism will get an automatic 0 for the report. (Will lower a letter grade).
  - Any student involved in such a situation will be held accountable (eg. If two students have the same thing written on a report, both are held responsible for plagiarism).
For Next Week...

• This week in lab: check-in and lab techniques experiment
• Before next Lecture:
  • Read Copper-Iron experiment for next week’s lecture (pgs. 11-22)
  • Do your pre-lab for Copper/Iron!
• Before next Lab:
  • Make sure to have your breakage fee card, lab coat, goggles, and proper attire (you will be sent home to change if you don’t).
Enjoy your first week in lab!