Where do you get your information?

Google
Wikipedia
ChemSpider

SciFinder / Beilstein /
Gmelin / Merck Index /
CRC Handbook / Knovel /
SPRESIweb / CASSI /
Wolfram Alpha / Google /
Web of Science / Library
Catalog / ChemSpider /
MEDLINE / Kirk-Othmer /
DGR / MSDS / Aldrich /
Chem Sources / Access
Science / Wikipedia
Goals for Today

• Group Report and Presentation
  – Tips on PPT for your talk

• Resources for Organic Labs
  – Handbooks and property data
  – Sources of spectra

Group Report and Presentation
How to make a bad presentation

Jeremy Garrigano

Points

• Don’t be on time
• Make slides that are hard to read
• Don’t get the point of the talk
• Don’t consider your audience
• Use complex terms and visual aids
• Don’t organize the talk
• Don’t prepare for your presentation
• Turn your audience off
• Don’t stay within time limits
• Let PowerPoint do it
• Put too many bullets on one slide
Tips for PPT presentations

• Font size
• Colors
• Simple visuals
• Keep “special effects” to a minimum
• Watch for distractions

Font size - Arial

• This is 10 pt Arial font
• This is 18 pt Arial font
• This is 24 pt Arial font
• This is 32 pt Arial font
• This is 44 pt Arial font
• This is 54 pt Arial font
• This is 72 pt Arial font
Font size – Times New Roman

• This is 10 pt Times font
• This is 18 pt Times font
• This is 24 pt Times font
• This is 32 pt Times font
• This is 44 pt Times font
• This is 54 pt Times font
• This is 72 pt Times font
Giving Credit

• Cite your sources
• Cite your graphics

Questions?

(A final tip: proofread your presentation carefully!)
Resources – E-books

- **Designing Science Presentations - Matt Carter**
  - Part 4 is on Slide Presentations, including Visual Elements

- **Scientific Papers and Presentations - Martha Davis; Kaaron Davis; Marion Dunagan**
  - Ch 13 is Scientific Presentations, Ch 15 is Visual Aids for Presentations

- **Writing for Science and Engineering - Heather Silyn-Roberts**
  - Section 5 is on Presenting Your Work Orally

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Resources for Organic Labs
Basic Physical and Chemical Properties

Describing Compounds

• Make a list of how many ways you can describe a compound.
How to describe a compound?

**Descriptions**
- Chemical name
- Common/trivial name
- Molecular formula
- Empirical formula
- Structure
- CAS Registry Number

**Example**
- Ethanol
- Ethyl alcohol, Ethyl hydroxide
- \( \text{C}_2\text{H}_6\text{O} \)
- \( \text{H}_3\text{C}—\text{CH}_2—\text{OH} \)
- \( \text{OH} \)
- CAS# 64-17-5

CAS Registry Number

- Provided by Chemical Abstracts Service (CAS)
- Is a unique numeric identifier
- Designates only one substance or mixture
- Has no chemical significance
- Numeric identifier that can contain up to 10 digits, divided by hyphens into three parts
- **Is a link to a wealth of information about a specific chemical substance**
Data

- Accepted/Standard Data
- Experimental Data
- Predicted/Computed Data

Wikipedia
Wikipedia: WikiProject Chemicals

• Assesses and rates chemical compound entries
  – Check “Discussion” tab in entries for current Quality

<table>
<thead>
<tr>
<th>Chemicals articles by quality and importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>Start</td>
</tr>
<tr>
<td>Stub</td>
</tr>
<tr>
<td>NA</td>
</tr>
<tr>
<td>Assessed</td>
</tr>
<tr>
<td>Unassessed</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

- Infoboxes are also “validated”
Boiling point of pyridine?
Boiling Point of Pyridine

<table>
<thead>
<tr>
<th>Properties</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular formula</td>
<td>C(<em>{12})H(</em>{16})N</td>
</tr>
<tr>
<td>Water mass</td>
<td>79.1 g mol(^{-1})</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless liquid</td>
</tr>
<tr>
<td>Density</td>
<td>0.951 kg L(^{-1})</td>
</tr>
<tr>
<td>Melting point</td>
<td>-41.6 °C, 222 K, -43 °F</td>
</tr>
<tr>
<td>Boiling point</td>
<td>115.2 °C, 388 K, 239 °F</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Miscible</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>16 mmHg</td>
</tr>
<tr>
<td>Acidic ((\mathrm{pK}_a))</td>
<td>5.25 (^{[192]})</td>
</tr>
<tr>
<td>Refractive index ((n_\rho))</td>
<td>1.5093</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.83 cP</td>
</tr>
<tr>
<td>Dipole moment</td>
<td>2.2 D (^{[192]})</td>
</tr>
</tbody>
</table>

Basic properties:
- Molecular weight: 79.0990 g mol\(^{-1}\)
- Phase: liquid
- Melting point: -42 °C
- Boiling point: 115 °C
- Density: 0.978 g cm\(^{-3}\)
- Solubility: miscible in water

**Question #1**

- You have found that your organic unknown has the molecular formula \(\text{C}_{12}\text{H}_{16}\text{O}\). You would like a list of the possible substances with that formula, preferably with some physical properties, so you can figure out what it is.

- Where should you look?
How do these compare?

- Wikipedia
- Wolfram Alpha
- ChemSpider
- CRC Handbook
- Knovel

Property Information

- CRC Handbook (http://purl.lib.purdue.edu/db/hbcp)
- Knovel (http://purl.lib.purdue.edu/db/knovel)
  - International Critical Tables
  - Chemistry of the Elements
  - Hawley's Condensed Chemical Dictionary
  - Lange's Handbook of Chemistry
  - Hazardous Chemicals Handbook
- Merck Index (http://purl.lib.purdue.edu/db/db107)
- CHEMnetBASE (http://purl.lib.purdue.edu/db/chemnet)
Question #2

• You have run an IR spectrum of your unknown and you think it is chlorendic acid. You want to verify this.

• Where should you look?

Spectra Information

• Check “Spectra” under “Research Help” near the top of the Chemistry Library web site
  – NIST WebBook (http://webbook.nist.gov/chemistry)
  – SDBS (http://riodb01.ibase.aist.go.jp/sdbs/cgi-bin/cre_index.cgi?lang=eng)
  – Aldrich Catalog (http://www.sigmaaldrich.com/catalog/AdvancedSearchPage.do)
Question #3

• Your roommate just drank a bottle of something labeled “16721-80-5” that he found in the fridge. (He’ll drink anything.) You are concerned for his health because he is the percussionist in your band “The Amelia Earhurts.”

• Where can you go to find some information on how poisonous this “16721-80-5” is?
MSDS and Safety Information

• Under “Research Help” on Chem Lib web site
  – CCOHS databases (http://purl.lib.purdue.edu/db/ccohs)
  – MSDS search sites
  – NIOSH Pocket Guide to Chemical Hazards

• MSDS Collection in Library
  – MSDS are in Red Binders (by chemical name)

Web Sites

Chemistry Library Web Site
http://www.lib.purdue.edu/libraries/chem/

CHM 294 Web Site:
http://guides.lib.purdue.edu/chm294
Summary

• Group Report and Presentation
  – Tips on PPT and presenting your talk

• Resources for Organic Labs
  – Handbooks and property data
  – Sources of spectra and safety information

If you have problems or questions, contact me!

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