

# Writing Tools for Chemistry

## Introduction

In this laboratory activity, you will work with two different software applications that allow you to prepare more professional-looking scientific papers. The skills you learn in this laboratory should compliment and enhance some of the data analysis and reporting skills you learned in the first semester of this course. For review, go to <http://webs.anokaramsey.edu/chemistry/chem1061> and select [Laboratory Reports](#), Lab 3: [Spreadsheets I](#), and Lab 4: [Spreadsheets II](#).

Each of these applications may be accessed from and integrated into any Microsoft *Word* document enabling you to produce professional-looking scientific papers directly from your word processor. Rather than giving you complete instructions of how to use the two applications, which is close to impossible, your professor will demonstrate many of the features in the laboratory. Just as it is with anything new, it will take you some time before you begin feeling comfortable with their use. Few of you probably sat down with an instruction manual to learn how to use a word processor, web browser, or spreadsheet. Rather, you gained knowledge with experience. The same will probably hold true in this instance.

## Equation Editing

Equation editing may be done with either Microsoft *Equation 3.0* or the built-in equation editor in *Word 2007*. If you are planning to work on this assignment on a computer that has *Word 2003* or earlier version installed, you must use *Equation 3.0* for your work to be compatible with the earlier version.

*Equation 3.0* is an application that provides the ability to write many types of mathematical equations and symbols. *Equation 3.0* is integrated into all recent versions of Microsoft *Office* and Microsoft *Works*. While *Equation 3.0* may be run directly as an application, it is typically installed on most computers as an “object” in *Word* or *PowerPoint*.

In order to use *Equation 3.0*, you will need to first open Microsoft *Word* on you computer. Then under the “Insert” menu, select “Object”. Then under object type, select “Microsoft Equation 3.0”. You will see a number of templates for mathematical symbols and equations. The instructor will demonstrate a few of the templates before you begin your assignment.

If you are will be using only computers with *Word 2007* installed, you may use the equation editor integrated into *Word 2007*. The integrated equation editor may be found under the “Insert” tab and selecting “Equation”.

## **MDLI ISIS Draw 2.5**

The second application you will use is MDLI's *ISIS Draw 2.5*, used to draw molecules and write chemical equations and formulae. It is designed primarily for organic chemistry, though it may also be used for inorganic chemistry. *ISIS Draw 2.5* is installed on all of the laboratory computers in the science building and in the main computer lab on the Coon Rapids Campus. If you would like to use it at home, you may download it at <http://www.mdli.com/download>. *Note: Do not install software on any college computer.* You must also download *Autonom 2000 Add-In* to utilize the nomenclature feature within *ISIS Draw*.

You may launch *ISIS Draw 2.5* directly from the Start menu or the desktop. However, to integrate it into your *Word* documents, you will need to first open Microsoft *Word*. Then under the "Insert" menu, select "Object". Then under object type, select "ISIS/Draw Sketch". You will see a number of templates for chemical structures and equations. The professor will demonstrate a few of the templates before you begin your assignment.

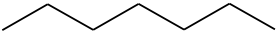
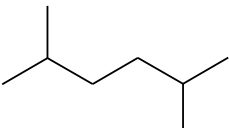
## **ACD ChemSketch 10.0 Freeware (\*not yet available on laboratory computers)**

*ChemSketch 10.0 Freeware* is a more robust application than *ISIS Draw 2.5* and is also used to draw molecules and write chemical equations and formulae. It can also generate color-coded 3D structures that may be viewed and rotated in any direction. *ChemSketch 10.0 Freeware* may also optimize all 2D and 3D structures. It is designed for use in both organic and inorganic chemistry. *ChemSketch 10.0 Freeware* will be installed on all of the laboratory computers in the upper science building and eventually into the main open computer lab on the Coon Rapids Campus. If you would like to give it a try at home, you may download it at <http://www.acdlabs.com/download/chemsk.html>. *Note: Do not install software on any college computer.*

Once installed, you will be able launch *ChemSketch 10.0 Freeware* directly from the Start menu or the desktop. However, to integrate it into your *Word* documents, you will need to first open Microsoft *Word*. Then under the "Insert" menu, select "Object". Then under object type, select "ACD/ChemSketch". You will see a number of templates for chemical structures and equations. The professor will demonstrate a few of the templates before you begin your assignment.

## **Assignment**

Open a new document in Microsoft *Word*. Place your name(s), the course number, date, and professor's name in the upper left hand corner of the first page. At your instructor's discretion, you may be asked to complete this lab on an individual basis or in pairs. Save your document regularly to avoid accidental loss of data. Since this assignment will be submitted as an email attachment in *Word*, please use a filename convention of "Lastname Lab 1" or "Lastname1 LastName2 Lab1" in naming your document to help the professor keep files organized.

1. Place the following items in your document using *Equation 3.0* objects (or the *Word 2007* integrated equation editor). The page numbers refer to the 8<sup>th</sup> edition of the Ebbing & Gammon text.
  - a) the molarity equation in the box on p. 155
  - b) the 2<sup>nd</sup> equation given on p. 274 (near the top of the page)
  - c) the first chemical equation showing the catalyst above the arrow on p. 598
  - d) the solution for the quadratic equation, given on p. 637
  - e) the equation in STEP 3 of the problem at the top of p. 739
  - f) the nuclide symbol of nucleus having 19 protons and 21 neutrons
  - g) the setup using dimensional analysis *and* the solution for problem 3.78 on p. 118
2. Place the following items in your document using *ISIS Draw 2.5* (or *ChemSketch 10.0 Freeware\**) objects:
  - a) equation (a) in Example 15.2 on p.622, showing the double arrow
  - b) the molecule, , with the IUPAC name generated by *ISIS Draw*
  - c) the molecule, , with the IUPAC name generated by *ISIS Draw*
  - d) the molecule in 24.43a on p. 1033, with the IUPAC name generated by *ISIS Draw*
  - e) the molecule in 24.47a on p. 1033, with the IUPAC name generated by *ISIS Draw*
  - f) the molecule in 24.48a on p. 1033, with the IUPAC name generated by *ISIS Draw*
  - g) a molecule of  $\text{PBr}_3$ , drawn to the best of your ability, giving the appropriate name
3. Future *ChemSketch 10.0 Freeware* assignment for generating and optimizing 2D and 3D structures.

### Submitting Your Assignment

Follow your instructor's directions for submitting this lab report. Remember to name the file as specified near the beginning of Assignment section (*Lastname Lab 1* or *Lastname1 LastName2 Lab1*). If you are emailing your report, use the subject line "Chem 1062: Writing Tools Lab". If you worked in pairs and are submitting this assignment on an individual basis, please underline your own name and include your lab partner's name on the assignment.