

ChemBIODraw Assignment

ChemBIODraw (commonly called ChemDraw by chemists) is a program designed for drawing molecules and reactions. The software is easy to use, but the more time you spend exploring available options and practices using the program, the easier it will be to properly complete your future lab reports. In the assignment, you will be asked to complete several tutorials, perform a series of tasks, and answer some questions about the program. You will need to turn in a word processing document with all the requirements completed by your lab on June 24 or 25 to receive full credit.

To complete this assignment, you must use a copy of ChemDraw. If you wish to install it on your own computer, IU has purchased a site license for this software, so it is free for any IU student to download and use. Use the link below to download the program. A second option is to use one of the computers in room 046 of the Chemistry building. These computers already have ChemDraw installed. Keep in mind that your schemes for all of your formal lab reports for this class must be drawn in ChemDraw.

Download ChemDraw: (optional)

1. Connect to the link <http://itg/?page=software>
2. Enter your IU email address. You must use your IU address to be able to use the site license.
3. Follow the directions to complete your download of ChemBIODraw Ultra 11.0.

Your Report:

For your written report, you should open a Word Document and Cut/Paste drawing from Parts 1-3 into the document. Then type answers to part 4 and copy the Academic Honesty statement.

Part 1: Tutorials

ChemDraw comes with several tutorials that provide step-by-step directions for using standard features of the program. You can find these tutorials by selecting the Help menu and clicking on "Getting Started," and finally selecting "Tutorials" from the next menu. Please complete the following tutorials:

- Tutorial 1: Drawing a Structure
- Tutorial 2: Using Rings
- Tutorial 6: Stereochemistry
- Tutorial 7: Templates

Copy and paste all of the structures you drew into your final report.

(Note: In addition to the above assignment, you might find it helpful to search other help topics or explore the other tools on your own.)

Part 2: Natural product synthesis

To get an idea of the types of organic molecules with which some professional organic chemists work, look at the chemical research being done here at IU Bloomington. Go to the webpage <http://www.indiana.edu/~drwchem/totalsyn.htm> and select one terpene and one alkaloid natural product from Professor Williams' page. Use ChemDraw to draw a structure identical to the ones on the website. Below each structure, add the name of the molecule. Copy and paste these structures into your report.

Part 3: Reaction Schemes

For the third part of this assignment, refer to your lab manual and find Project 6.1. Draw the reaction scheme. Paste this scheme, along with the page number of the lab manual, into your report.

Part 4: Answers to questions

Answer the following questions in your report.

1. How can you use ChemDraw to convert a structure into a name and to convert a name into a structure? What is the structure of (S)-3-(1-phenylpropyl)benzaldehyde?
2. How can you use ChemDraw to calculate a molecular weight and molecular formula?
3. How can you use ChemDraw to show chemical properties of a substance you draw?
4. Define what the following shortcuts do:
 - a. Ctrl Z
 - b. Ctrl X
 - c. Ctrl V
 - d. Ctrl C

Academic honesty:

Assignments like these are easy to plagiarize due to their "cut and paste" nature. Therefore, you must write the following statement at the bottom of your report and sign after the statement.

"Every drawing and answer contained in this report was completed by me alone. I did not use any work done by any other individual in this report. I understand that if I break this agreement, I will receive a zero for this report and further disciplinary action will be discussed with my Dean."

Signed

Date

Grading:

You will lose points if you do not complete every section of this assignment. You will also receive minor deductions (1/2 or 1 point) for every instance of sloppiness in your drawings, so take time to do them well.