

## Chemistry and the Internet

The Internet can enhance any college curriculum, especially through the use of the World Wide Web (hereafter simply “Web”) and Electronic Mail (hereafter “email”.) The purpose of this lab will be to acquaint you with the Internet and a few of the chemistry-specific tools available to you as a student of Chemistry 221.

You will need access to the Internet to complete this exercise. Access can be obtained free of charge from the Mt. Hood Community College library, through the Multnomah County libraries (including the branch in Gresham), coffee houses, and through Multnomah County Television (MCTV). You will need access to a web browser such as Firefox, Safari or Internet Explorer on the computer you are using.

The final page of this lab is a worksheet that you will complete as you finish the sections below.

### Part One: Anatomy of Web Addresses

Open a web browser (such as Firefox, Safari or Internet Explorer) on the computer. A horizontal bar (the “**URL bar**”) should be across the top of the screen; this is where you type in the **web address** you wish to access. A web address is also known as a **URL**, which stands for “Universal Resource Locator”. The URL bar may have an address in it, but this can be removed by selecting the text using the mouse, typing over it and pressing the Enter key.

A typical web address is:

**<http://www.sou.edu>**

Type this address in the bar, then press the Enter or Return key. The web page for Southern Oregon University should appear, my undergraduate alma mater. Note how there are four parts to a web address: “http”, “www”, “sou” and “edu”, and periods separate the three later parts while a “://” separates the first two parts.

The “http” part stands for “HyperText Transfer Protocol” and simply means that this is a web document. Certain URLs have other types of prefixes (such as “mailto” or “ftp”) but most contain http.

The prefix (“www”) stands for “World Wide Web”, implying that this address is a web document. In the early Web days, web addresses *always* started with “www” to show they were part of the web. *Many* web addresses begin with www, but this percentage is shrinking. Many sites now omit the www prefix such as:

**<http://gst-d2L.com/>**

This is the Gresham Speech Therapy and DarkToLight web page. They omit the “www” prefix in their URL, but this is OK since the “http” says “this is a web document.” Note that many companies advertise their sites as “amazon.com”, “nike.com” or “norelco.com”. Consumers can recall small names better than long titles, so the www prefix is often dropped.

Going back to

**<http://www.sou.edu>**

observe the suffix – “edu”. The suffix tells something about the nature of the web page under observation. For example, “edu” stands for “education”, as you can see in our (MHCC) web address (see below).

**<http://www.mhcc.edu/>**

Other types of schools may or may not have the edu suffix, so be careful. *Realize that web prefixes and suffixes can give some information about the type of webpage being accessed.*

Other types of suffixes:

**<http://comedycentral.com>** - the website for the Comedy Channel. "com" = "company"

**<http://www.oregon.gov>** - the State of Oregon Webpage. ".gov" implies "government"

**<http://www.vanartgallery.bc.ca/>** - The Vancouver Art Gallery in Vancouver, British Columbia. Note the "bc.ca" suffix - this stands for **British Columbia, Canada**. Other country names include "se" for South Africa, "uk" for the United Kingdom, and many others.

**<http://www.sierraclub.org>** - The Sierra Club homepage. "org" stands for "organization"

**<http://www.brainwashed.com/cv>** - The Cabaret Voltaire Webpage (Cabaret Voltaire is an electronic/industrial music group I enjoy.)

Notice how the Cabaret Voltaire website has "/cv" after the main URL. This is a subheading within the "www.brainwashed.com" web address. **<http://www.brainwashed.com>** is a not-for-profit web resource for posting pages devoted to bands, experimental record labels, etc. from East Arlington, Massachusetts. Larger organizations often subdivide its webspace for individuals or organizations.

## Part Two: Electronic Mail

*If you already have an email address, enter it on the worksheet and proceed to Part Three.*

*If you do not have an email address, the purpose of this section will be to get you an email account. Email accounts are of the form "name@domain.suffix", where "name" is a name which represents you, "suffix" can be "com", "edu", etc. just like in web addresses, and "domain" will be the name of the internet provider. For example, my academic email address is:*

**[mike.russell@mhcc.edu](mailto:mike.russell@mhcc.edu)**

The "name" here is "mike.russell" - my first and last name separated by a period. "mhcc.edu" is the domain; "mhcc" for "Mt. Hood Community College, and "edu" stands for education.

In this section, we will log on to the Lycos Homepage and get you a free email address. It will be in the form

**[name@lycos.com](mailto:name@lycos.com)**

where you will pick the "name" to use. Try picking a name which is personally meaningful yet not too long. You will also need a *password* to protect your privacy while sending and receiving email. Both the name and the password must be *at least six characters* in length.

The following material was accessed in July 2004, and if you experience any troubles, please contact the instructor. In your web browser, type

**<http://mail.lycos.com/>**

and select

**Sign Up**

by clicking on the "Sign Up" button under the "Free Email" in the middle part of the webpage.

Enter your desired **Member Name**, followed by a **password**. Re-enter your password to verify that you typed it correctly. Next, start entering the information required for your email address. Enter your **title, first name, last name, street address, city, state, zip code, country**, and **birth date**. For the **other email address**, leave it blank or enter another email address. You can enter information on your **education** and **occupation** if you desire. Now **make sure all the boxes that follow are unchecked** (if they are checked, click your mouse on them to uncheck them). This will prevent unwanted junk email (called *spam*) from cluttering your mailbox. Enter the **confirmation code** into the box to the right. Finally, press the **I Agree** button with your mouse.

(*Experience a problem?* Lycos will tell you if a data field was entered incorrectly... to continue, simply make the required changes and press the "Sign Me Up!" button again.)

If approved, you will now have an email address! For example, if you entered the name "john67" above, your email address will now be john67@lycos.com. To check your email, log on the web to

**<http://mail.lycos.com/>**

and enter your email name (for example, john67) and your password to check your email. Welcome to the Internet!

### **Part Three: mhchem**

Now that you have an email address, you need to join **mhchem**. mhchem is a mailing list for my students in Chemistry 221, Chemistry 222 or Chemistry 223 at Mt. Hood Community College. Over the course of the year, you will receive various pieces of information, events, announcements, and more via mhchem, including at least one extra-credit assignment. The goal of this section is to *subscribe* (i.e. join) mhchem.

Send your Web browser to the following address:

**<http://mhchem.org/mhchem>**

Next, enter your **email address** and **name** in the appropriate places. Press the **Subscribe** button; you should now be a part of mhchem.

To post messages to mhchem, send an email to

**[mhchem@lyris.mhcc.cc.or.us](mailto:mhchem@lyris.mhcc.cc.or.us)**

You are welcome to post class-related inquires to mhchem anytime you would like. If you take CH 222 or CH 223 with me in subsequent terms, you will continue to be a member of mhchem (unless you unsubscribe yourself.) If you have any questions, please do not hesitate to contact me.

#### **Part Four: Web Search Engines**

The World Wide Web is growing exponentially, overwhelming the very computers designed to track its growth. No one nor any computer can know *every* web page available - at least not yet! - but **search engines** help us find particular subjects or locations. A search engine is a web site database, indexing a multitude of webpages which can be searched by name, location, etc. Most search engines are free to use, and experienced web sleuths use them regularly to find relevant sites.

One type of search engine can be found here:

**<http://www.yahoo.com>**

This is Yahoo.com, a popular and one of the oldest search engines available. Yahoo.com resembles an encyclopedia; you can search by category ("Arts & Humanities", "Business & Economy", etc.) or by using an index (this is the blank text field at the top of the screen with a "Search" button to the right of it.) Let's use Yahoo.com to find my graduate school alma mater, Dartmouth College. Next to "Search the Web" type

**Dartmouth College**

and press "Search". You should see an entry at the top for **Dartmouth College** with a subheading of "**Hanover, NH, USA**" amongst the other entries for Dartmouth College. There will also be a variety of other entries for Dartmouth College and their programs. This is similar to looking in an encyclopedia under Dartmouth College and finding the main entry in addition to several miscellaneous listings for various sports programs, alumni organizations, academic departments, etc.

Yahoo.com works well when you know specific names and organizations to search. However, you should be aware that sometimes you might be looking for topics not covered adequately by Yahoo. An example of an alternative search engine can be found at the following:

**<http://www.altavista.com>**

and at the top of the webpage, enter

**Obo Addy**

and press "Search". The URLs that appear are directly related to Obo Addy, the wonderful musician from Ghana. We have entered the realm of the **AltaVista** search engine. AltaVista scans the web constantly looking for names, then it compiles them into a massive database which can be searched just like the Obo Addy example, above. (Fun assignment: try searching your name in AltaVista and see what URLs come up!)

Realize that **the Web is huge** with **more information than can be imagined**. **Search engines are crucial** to proper navigation of information, but **multiple search engines work better for most problems than reliance on a single search engine**. Other popular search engines include Lycos.com and Google.com, but there are many others.

There is a third type of search engine becoming more available. This type searches other search engines and databases for URLs and information and lists it according to relevance. Check out **mySimon** (<http://www.mysimon.com>) for a search engine that scans merchant's web sites for the best price on consumer items (videos, books, computers, etc.)

## **Part Five: The Chemistry 221 Homepage**

*Your instructor may have additions to this section at the time of your laboratory session. Be sure to ask your instructor for assistance if something does not appear to function properly.*

This leads to the most important web site you will use this term:

**<http://mhchem.org/221>**

This is the **Chemistry 221 Webpage**, a useful conglomerate of handouts, tutorials, and other goodies that can aid you during this term. This page is what you will use to access the information in the website. You should try to access the CH 221 webpage several times a week to keep up on important class activities and events.

Most of the information within the homepage can be quickly accessed using the links on the left side of the page. You can also use the "Jump To..." bar if you prefer. Searching the website can be accomplished using the "Search" textbox in the middle of the page.

The **Announcements** page will have any important announcements and messages that might be relevant, and the **Class Information** contains the syllabus, weekly schedule, and other important information regarding the normal operation of the class.

The **Chapter Guides** are tools to help you navigate the course. If you are not sure what to study, or even how to study, check out the Chapter Guides. They will prove useful to you as you continue through the course.

All of the **Class Handouts** and **Labs** are available on-line using the available links, so if you lose your assignments, go the web site and print a new copy.

**Quiz Answers** will be posted in the "**Quizzes and Exams**" section. Sample quizzes and exams are also found in this section.

Extra-credit seekers should explore the **Discuss**, **Online Extra Credit**, **Web Quests** and the **Chemical of the Week** sections, and they are fun, too! The **Simulations** are wonderful learning tools.

**Grades** will be posted using your MHCC ID number by the third week using the "**Grades**" section.

"**Chemistry Links**" provides a wealth of chemical URLs to explore. If you see any additional links of interest, let the instructor know!

Finally, if you ever have any questions about the Chemistry 221 Homepage *or* if you find a broken link *or* if you need to tell me something *or for any other reason, do not hesitate to contact me!* I can be reached using the "**Feedback**" form, by email (mike.russell@mhcc.edu), phone (503 491 7348) or in person (room AC 2568). I am here to help you... all you need to do is ask!

## Part Seven: Chemistry Web Sites

There are a variety of chemistry websites that you may use in this course. Here is a sampling:

### 1. The American Chemical Society - <http://portal.acs.org>

The American Chemical Society (A.C.S.) is the largest professional organization in the world. I particularly enjoy their "Molecule of the Week" and "This Week in Chemical History" sections.

### 2. Chemdex - <http://www.chemdex.org>

This is a search engine for chemistry similar to Yahoo.com. On the left note the distinctions between the various fields of chemistry - analytical, biological, etc. - as well as a list of universities by continent. Chemdex has a wonderful section on educational chemistry; many of my ideas have come from searching Chemdex. Be sure to check in to ChemdexPlus - it's free, and it allows for "index"-style searching of Chemdex.

### 3. The Royal Society of Chemistry - <http://www.rsc.org/>

The Royal Society of Chemistry is a chemistry professional organization in the United Kingdom similar to the American Chemical Society in the United States. This webpage is filled with wonderful educational resources: try "Educational Resources", then "URLs for Chemistry Teachers" for a plethora of 'Net goodies.

### 4. The MDL / Chime Webpage - <http://www.mdl.com/products/framework/chime/>

Chime is the premier modeling program available for Web browsers. Chime is free to download and easy to install, and the result is that many of your web molecules will actually move for you on the screen.

### 5. The Journal of Chemical Education - <http://jchemed.chem.wisc.edu/>

The Journal of Chemical Education is a fantastic source for educators, and many of the resources online are available to students as well.

### 6. Chemtutor - <http://chemtutor.com/>

This is an *awesome* chemistry website dedicated to helping chemistry students outside of the classroom.

### 7. WebElements - <http://www.webelements.com/>

WebElements is one of my favorite places to get information on the different elements. This site might prove especially useful to you while working on your class presentation!

8. **How to Pass Chemistry - <http://www.heptune.com/passchem.html>**

Some practical tips and suggestions on how to do well in chemistry can be found on this website. Wise students will scan the list to achieve success!

9. **Chemistry Humor and Jokes - <http://www.ivstandards.com/extras/humor.asp>**

What is life without humor... even chemists can have a sense of joviality from time to time! ☺

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There are many more chemistry websites available on the Internet; using Chemdex (see above) is a great place to start searching for a particular topic. If you find other interesting sites, let me know by email. The Chemistry 221 page has a "Links" entry that provides some of the many favorites that I've found over the years.

But, more importantly, **congratulations!** You are now ready to hit the Internet and "surf the web" with the best of them. To complete this assignment, fill out the worksheet found below and turn it in during your recitation period.

Enjoy the Web!



## CH 221 Chemistry and the Internet: Worksheet

Name: \_\_\_\_\_

### Questions:

1. What does "http" stand for?
2. Do all World Wide Web addresses contain "www"? Explain.
3. Can you predict where **http://www.willamette.edu** will take you without using a web browser? Explain.
4. Join the *mhchem* mailing list. Write the email address you used to subscribe with.
5. Enter the Chemistry 221 homepage and select the "Chemical of the Week" entry from the left. What is the title of this week's "Chemical of the Week" entry?
6. What is the URL for the main Dartmouth College webpage? \_\_\_\_\_
7. What organization gave Obo Addy a 1996 Heritage Award? \_\_\_\_\_
8. Using the search engine of our choice, find the website for the American Chemical Society's "Molecule of the Week" site. What is the "Molecule of the Week" for this week? Give the **name** of the molecule, the **date** you saw the molecule, and **draw** the molecule (use the back of the page if necessary).
9. From the Chemistry 221 homepage, select "Discus" and obtain a username and password. (You might find the "Joining Online Discussions with Discus" handout from your syllabus helpful). What is the topic of this week's extra credit discussion? (Note that if you post a response, you will receive an extra credit point at the end of the term!)
10. Using any web site you wish *except* for the CH 221 (or CH 222 or CH 223) webpages, find an on-line chemistry tutorial (and its URL) that you find interesting. Use a search engine to find an interesting tutorial.

URL:

Describe the tutorial:

**BONUS QUESTION (1 Point):** Find the *name* of Michael Russell's research faculty advisor at Dartmouth College. Do *not* email anyone at Dartmouth College to get this information!

