
Introduction to Computer Use in Mathematics

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Access these notes at

<http://www.math.colostate.edu/~estep/webpagemodels/samplepages.html>

Using Computers in Mathematics

Computing FAQ

The computer support person Zube has prepared a detailed FAQ that answers most questions

Access the FAQ at

<http://www.math.colostate.edu/FAQ/FAQ.html>

Please consult the FAQ!

I will summarize some key points

Accessing Computers: First Level

Your first access points to department computers:

- **Weber 201**: public computing lab consisting of several Windows PCs and two postscript printers.
- **Weber 17/18**: graduate student area consisting of 4 Windows PCs and one printer (hp4250)
- **Weber 10**: graduate student area consisting of 3 Windows PCs and one printer (dps)

Some students have computers on their desktops provided by their advisors

There is also a university-administered wireless network accessible from Weber.

Accessing Computers: Passwords

Secure login is required for all department computers

Zube assigns your password chosen on good practices

If you change your password, consult </math/HELP/choosing.passwords> for help on choosing a good password

Keep in mind that **you actually have two passwords**, one for the PC and one for the UNIX computers.

To change the password on the PC, type **“CTRL-ALT-DEL”** and select **“change password”**

Consult the **FAQ** for information on changing the password on the UNIX system

Accessing Computers: Writing Files

When you log into any department PC, you will automatically be given a **J:** drive

This is your **home directory (folder)**

You should save all of your files in this directory (folder), either directly or in sub-directories (folders) located in J:

The J: drive is backed up

Use **c:\temp** to write temporary files that you do not want to keep

There is no disk space quota but Zube monitors disk use. **Using hundreds of megabytes for nonresearch purposes is too much.**

Accessing Computers: Printing

The department PCs are automatically configured with access to printers

You can select the desired printer on the print dialog

Printing is restricted to files directly related to mathematical work, teaching, and other professional use

Your account will be disabled if you print large amounts of personal material

Do not use the printers as copy machines, e.g., print out many copies of a handout for your class

Note that the printers are not accessible from the wireless network

Accessing Computers: Rules

The department is **extremely** security conscious

Certain actions will result in **permanent** loss of your account

This includes

- letting someone else use your account
- running a server of any kind on any machine
- hacking on our or anyone else's systems
- continually choosing a poor password
- unplugging any of the public machines connected to the network for any reason

Accessing Computers: Using Your Own Computer

It is possible to connect your personal computer to the department network, however **there are serious restrictions and this is a low priority task with a long backlog**

An alternative is to use the university-administered wireless network in Weber

You can install a wireless card in your computer and install the **CSU VPN** software. This will give you full access to the internet

Mathematics and Zube have nothing to do with the wireless network! Consult ACNS to get help.

Accessing Computers: Email

Everyone is given a department email address

Using the department server for email:

- You can read email from anywhere on the internet
- You can write email to department addresses from anywhere on the internet
- You can write email to addresses outside the department only when connected to the math network
- If you use `ssh` to get to the math UNIX system (e.g. `stokes`, `cantor`) and a UNIX mail program you can mail anywhere.

Using another account for email:

- You can read email from anywhere on the internet
- You can write email from anywhere on the internet as allowed by your email server

Accessing Computers: Email

Zube can arrange to have email sent to your math address automatically forwarded to another account

You may be able to configure your email software to use your math address as a default “Reply to” address

You may sign up for a university **lamar/holly** email account using your **eID (Electronic Identification)**

This email account is widely accessible using either **VPN** or **webmail**

Accessing Computers: Important CSU Web Addresses

Information on **eID**:

<http://eid.colostate.edu/>

Information on **VPN** software:

<http://www.acns.colostate.edu/?page=vpn>

Information on CSU email accounts, including **webmail**:

<http://www.acns.colostate.edu/?page=email>

CSU provides many resources and you may access much of the information that CSU keeps about you at the **RAMPoint** portal:

<http://rampoint.colostate.edu/cp/home/loginf>

Creating and Maintaining a Web Page

The Importance of Web Pages

Using a web page is an important part of teaching efficiently

It provides a communication link between the instructor and the students that is **always** accessible

Information that should be included

- Course information
- Course calendar
- Assignments and handouts
- Copies of lecture notes

There is information that should not be included. Use commonsense.

The Process for Maintaining Web Pages

The public access to your web page is through the department server

The files for your web page are kept in the directory

`public_html`

Your personal URL is

`http://www.math.colostate.edu/~LOGIN NAME`

This links to the main file for your web page:

`public_html/index.html`

This file contains links to all of the other files comprising your web page

The Process for Maintaining Web Pages

You should locate a **local master copy** of your web page on the department PCs in the directory

J:\public_html

You should only edit the local master copy

When the local master copy is correct, you should transfer the updated and new files to the **public_html** directory on the department server

This insures that your web page is always accessible and functioning correctly during any times that you are making changes

Accessing Web Page Files on the Server

The department web server **crackshot** (<http://www.math.colostate.edu>) operates the unix operating system

The files have to be copied to the server and made accessible to the public

There are **two** ways to access the files on **crackshot**

- Transfer files using **winscp** (or other secure ftp software) to
ftp.math.colostate.edu
- Access the **public_html** directory on the math drive **S**, e.g.,
use **explorer** to copy the files to

S:\public_html

WinSCP: Configuring for First Time Use

This tool provides a graphical interface for transferring files between computers using secure ftp

Double click on the icon to start the program

- Click on **Session**
- Enter **Host name** ftp.math.colostate.edu
- Enter **User name** Your math department log in name
- Enter **Password** Enter your password
- Click on **Environment-Directories**
- Check the option **Remember last used directory**
- Click on **SSH**
- Check option **2** for Preferred SSH protocol version

WinSCP: Configuring for First Time Use

Continuing...

- Click on preferences
- Click on Preferences...
- Click on Transfer
- Under Upload options
- Check option Set permissions
- Make sure options R is set for Owner, Group, Others and W is set for Owner. Do not set other permissions.
- Click Okay
- Click on Save...
- Type math ftp as session name and click okay

WinSCP: Steady State Use

Double click on the icon to start the program

- Click on **Stored sessions**
- Double click on **math ftp** to connect
- Use the navigation tool to navigate to the local **public_html** directory on the left and the public **public_html** directory on the right
- Use the mouse to select files on the left to transfer
- Using **shift+mouse** and **ctrl+mouse** to choose multiple files
- Click on **Copy** on bottom row to transfer files
- Quit

Accessing Web Page Files Through S

You should first read the [faq](#) about accessing the S drive and then contact Zube to set this up

Use [explorer](#) to copy the new and updated files from the local master copy directory to [S:\public_html](#)

Navigate [explorer](#) to [S:\public_html](#)

For each new and updated file,

- Right click on the file icon and go to [Properties](#)
- Go to [Security](#)
- Left click on [Everyone](#)
- Left click to check the box to Allow [Read and Execute](#)
- Exit

Creating a Web Page

Create the folder **public_html** on the **J:** drive

Navigate to

<http://www.math.colostate.edu/~estep/webpagemodels/samplepages.html>

Follow the four links

On each page, **right click on the page** or choose the menu **File**, then **Save Page as...**

Navigate to the **public_html** folder on the **J:** and click **Save**

You now have a local copy of a basic web page. Edit the files to make them suit your needs

Editing a Web Page

The simplest way to edit an existing web page or create a new page from scratch is to use **Microsoft Word** or **Abiword**

In either case, simply start the program and then open the file to be edited

After making the desired changes, save the file in **html** format

Warning: Microsoft Word writes complicated html and the default file structure for saving web pages is complicated

Abiword is installed by default on department computers. It is free software and produces html.

You may install **Abiword** on your own computer.

Web Settings for Microsoft Word

You will produce “cleaner” web pages with Word if you select certain web options

- Click on **Tools**
- Click on **Options**
- Click on the **General** tab
- Click on the **Web options** button
- Click on the **Browsers** tab
- For **Target Browsers** select option **Microsoft Internet Explorer 4.0, Netscape Navigator 4.0, or later**
- Click on the **Options** tab
- Check the **Disable features not supported by these browsers and Rely on CSS for font formatting options**, and uncheck the others

Web Settings for Microsoft Word

Continuing...

- Click on the **Files** tab
- Uncheck the **Organize supporting files in folder** option
- Check the **Use long file names when possible** option
- Check the **Update links on save** option
- Uncheck both options under **Default editor**
- Click on **Okay** twice

File Formats for the Web

It is best to stick to relatively plain **html** and standard **pdf**

Use **pdf** for mathematics, typeset documents, graphics, and scans of handwritten notes

To generate **pdf** from L^AT_EX, produce a **dvi** file and then use **dvi2pdf**

One way to generate a **pdf** file from a Windows program like **Word** is to print to one of the **pdf** printers available in the print dialog. This will prompt you for a file name and you can navigate to the correct directory.

To do this for network drives, save the file to **c:\temp** and then move the file to **J** afterwards

Creating a Weekly Schedule

Creating a Weekly Schedule

Everyone teaching a course is **required** to create a weekly schedule that is accessible to the public

The process has been automated

Each instructor creates a text file called “**officetimes**” or “**officetimes.txt**” which uses a short hand notation to describe the schedule

The file is located in the **public_html** directory on the web server

The file is read once a night and the schedule is then automatically created

Creating an officetimes File

Open up a **text** editor, such as **Wordpad**, that is capable of saving a **plain text file**

Word can be used, but you must be sure to save the file in the **plain text** format

The text file contains commands that indicate different types of events as well as their times and locations

Each line contains one event

Events start at the full hour and run for one hour

Events that run longer have to be entered for each time slot

Each event is described by a letter (**OLWNR**) that indicates the type of event

Creating an officetimes File

The types are

O Office hours

Time must be given and a room is optional

L Lectures

Lecture name and location have to be given

W Other events listed in the schedule

Name and location have to be given

N Events that are on the printed version but not displayed on the web

R Remark

Everything following this letter will be put verbatim on the web pages. This item has to come last. You can include HTML formatting.

Creating an officetimes File

Time is indicated by a sequence of letters from **MTWRF** followed by a number indicating times between 8am and 6pm

Unless the event is an office hour, the time is followed by the name of the event and the location

The last blank on the line separates the event from the location, thus room numbers are not permitted to contain a blank space

If you do not want (or cannot) list a room, give a question mark

While locations (Room Numbers) may not contain a blank, events may, thus “Algebra Seminar WB117” is parsed as expected

Creating an officetimes File

For example, a text file containing

O MW10

O F2

L MWF11 M766 WB014

L MWF14 M400X E202

W R2 Seminar WB117

N T3 Soccer ?

R This is my schedule

Creating an officetimes File

Produces

This is my schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8am					
9am					
10am	Office Hour		Office Hour		
11am	M766 (WB014)		M766 (WB014)		M766 (WB014)
12pm					
1pm					
2pm	M400X (E202)		M400X (E202)	Seminar (WB117)	M400X (E202)
3pm					
4pm					
5pm					

Soccer practice Tuesdays at 3 will not appear on the web but only in the printed version

Creating an officetimes File

After creating the file, save it as plain text in the folder **public_html** on the **J:** drive

Copy the file to the **public_html** directory on **crackshot** using one of the two methods described for web files above

Be sure that you set the public permissions correctly, following the instructions above

Using a Scanner and the Web

Instructions for the Scanner in 201 Weber

A scanner makes it very simple to distribute lecture notes and solutions

You simply hand write the material neatly, scan the pages, save as a pdf, and link into your web page

A public scanner is located in the northeast corner of 201 Weber
Log into the PC next to the scanner and follow the instructions in the file `scan.to.pdf.txt` located on the desktop

- Load your document face up in the document feeder with the top left of the page closest to the xerox logo on the front. **Make sure you have no staples, paperclips or anything else in your stack that might damage the feeder**

Instructions for the Scanner in 201 Weber

Continuing...

- Click on the **paperport** icon on the desktop
- Click on the Scan icon in the **PaperPort** Toolbar. The scan window will pop up on the left side. Make sure the Scanner option reads **Documate 510** and the **scan what?** is set for document.
- Click the scan button. The scan manager opens. Here you can choose some options on the right hand side, but by default they should be set for **ADF** (Automatic Document Feeder), **Black and White** and **200 DPI**.
- Click the **scan button**. It will feed each page with a slight hesitation. When it is done, click the **exit button**. Next, you will be asked if you want to scan more pages, scan the other side or done. Click **done**.

Instructions for the Scanner in 201 Weber

Continuing...

- The scanned file in pdf format will appear on the **paperport** desktop with the current date as the filename (and an number like (2) for the second scan, (3) for the third scan, etc.).
- By default, these scans are saved in:

My Documents\My PaperPort Documents\Samples

but you can also **right click** on the image in the **paperport** desktop and pull down to **save as** to save it somewhere else and/or rename it.

- Exit **paperport** and live happy.

Using Acrobat Professional to Scan a Document

Using **Acrobat Professional** to read in a scan has the advantage that it lets you edit and manipulate the pdf file

- Start **Acrobat Professional** (This has to be the professional version, not the free version)
- Choose **File** then **Create PDF** then **From Scanner...**
- Make sure the scanner is listed in the popup dialog and choose **Okay**
- On the next dialog page, select the **scanning options Greyscale** and **150 or 200 DPI**
- There will be a pause while the scanner warms up
- After the scanner finishes, click on **Done** or **Next page** if you have more documents to scan
- Click on **File** then **Save as...** and save the file

Permissions and Accessibility

Permissions and Accessibility

The files kept on the web server can be accessed by the public **only if you tell the server that this is allowed**

This is called setting **permissions** for the files

The permissions on a file are attributes that the server stores about the file

There are various categories of people who can access the file and various kinds of permissions that can be given

The goal here is to set permissions so that **all users** can **read** the file

Permissions and Accessibility

Above, we explained how to configure **WinScp** so that it sets the proper permissions when the files are uploaded to the server and how to set permissions manually with **explorer**

Permissions can also be set manually using **unix** commands inside a terminal window connected to the server

Permissions can be set on any file individually or on all files simultaneously

You first need to connect to the server using **ssh**, e.g., using **putty**

If you do not understand how to do that, then it is probably best not to try to set permissions manually

Permissions and Accessibility

Once you are logged into the server, enter the following commands

To change permissions on a particular file, such as the **officetimes** file discussed below

```
>cd public_html  
>chmod go+r officetimes
```

To change permissions on all the files

```
>cd public_html  
>find . -type d -print | xargs chmod 755  
>find . -type f -print | xargs chmod 644
```