Physics 410: Computational Physics: Online Course Resources

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Note: "PS" indicates a Postscript document, "PDF" indicates Adobe portable document format.

Index

UNIX and General Information

- UBC Physics & Astronomy Computer Labs: The site includes links to: an overview of the lab's facilities and policies, a list of available software, on-line registration, FAQs and more. In addition to the three **lnx** machines, you will be able to use the PCs configured as X-terminals to **lts1**, as well as the Windows NT PCs---all located in **Hennings 205**---for course work.
- UT Austin Computation Center Unix Resources. An *excellent* collection of Unix resources and links including an Introduction to Unix for novices.
- Introduction to Command Line Linux by Eric Nodwell, UBC Physics and Astronomy Dept.
- vi Editor Tutorial. This is the first document returned on September 5 2004, by the google.ca search 'vi editor tutorial'; there are literally hundreds of such tutorials on the Web.

Emacs (Text Editing [and more!])

- **XEmacs.org**: The home page for the XEmacs project, containing links to a wealth of information about XEmacs.
- *XEmacs User's Guide (local copy)* (PDF). **Note**: This manual is nearly 400 pages in length, so you may want to think carefully before you print it!

Searching the Web

- Google. Still the premier Web search-engine.

Creating HTML documents

1. Use your browser's compose facility

- *Mozilla users*: cliok on *Composer* icon on the bottom toolbar of the browser. See **HERE**, for example, for documentation, should you need it.
- *Other browser users*: Use Mozilla.

2. Doing it by hand

- A Beginner's Guide to HTML (from NCSA)
- A More Complete Guide to HTML (from UBC). An older (c 1994-1995) NCSA guide which I downloaded so that browsing would be snappier. Still a useful guide/reference for the "basics" of HTML.
- Choose the *Composing and editing Web pages* option from Netscape's *Help* menu (you may have to first choose *Help Contents* from the main menu).
- One of the easiest and most powerful ways of learning HTML is to use the *Page Source* feature from Netscape's *View* menu. Find a Web document with a layout or feature you wish to emulate, select *Page Source* from the *View* and then examine the source (which will appear in a separate window) to see how things are done.

Maple (Symbolic Manipulation)

- Maple: Maple Home Page including links to various Maple Web sites.
  NOTE: The current version of **maple** is apparently *Maple 9.5*. In the course, however, we will be using an older version, *Maple 6*.

Graphing (XY plots)

- gnuplot
  - Introduction to Gnuplot
  - There are many other tutorials/guides available on the web. Go to **Google** and search for **gnuplot tutorial**
- sm (Supermongo). User's Manual (PS)
  - Reference Manual
  - Tutorial
- xmgr
  - User Guide

FORTRAN 77 Programming

- Professional Programmer's Guide to Fortran 77 (PS)
- PGI Fortran 77 Reference Manual
- PGI User's Guide

FORTRAN 90 Programming

C Programming

- SGI C Language Reference Manual (PS)

Numerical Algorithms

- *Numerical Recipes*: Home Page and Online Books including: [Fortran PDF] and [C PDF]. Complete text of both Fortran and C editions of ''Numerical Recipes'' in PDF format.
  Also available: *Numerical Recipes in Fortran 90* [PDF] and *Numerical Recipes in C++* [Information page]
- Netlib Repository: Large collections of mathematical software, papers, and databases. Browse or Search the Netlib libraries.
- *LAPACK User's Guide (html)*
- *LAPACK Source Code (browse directory)*

Scientific Visualization

- Annotated list of Scientific Visualization Sites from NASA.
- IRIS Explorer Center. IRIS Explorer is a powerful scientific visualization system available on **lnx[123]**. Here are links to Postscript versions of the User's Guide with graphics and without graphics.

Other Computational Physics/Science Courses & Programs

- Carleton
- Cornell (Physics 683, Spring 98)
- Cornell (Physics 682, Spring 95)
- Imperial College
- NPAC (Syracuse) (High Performance Computing Course)
- Oregon State (Physics 465, 96?). A text has been developed from the course, and there's a paper describing the development.

General Physics Resources

- American Physical Society (APS): Physics Internet Resources
- American Institute of Physics (AIP)
- American Astronomical Society (AAS)
- The Institute of Physics (IOP). Currently maintains Physics Web.
- arXiv.org e-Print Archive