# Physics 410: Computational Physics: Suggested Hardcopy References

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## UNIX and General Information

There are many available Unix books representing a wide range in levels of presentation. With the rapid increase in popularity of **Linux** (the free (!), Open Source version of Unix originally implemented on the PC architecture), many of the available references focus on that particular flavour of Unix. If this is your first experience with Linux, I suggest that you first browse the Operating Systems section of the University Bookstore (or any other bookstore with a decent computers section), to find something which appears suited to you. The following books are fairly representative and should be widely available.

- *Learning the Unix Operating System*; Peek, O'Reilly & Associates. ($20.96 from Chapters.ca). An earlier version of this guide provided a good, quick introduction to Unix, but didn't cover any of the popular editors.
- *Unix in a Nutshell: System V Edition*; Robbins, O'Reilly & Associates. ($43.95 from Chapters.ca). Comprehensive, "quick-reference"-style tome.
- *Linux in a Nutshell*; Siever *et al*, O'Reilly & Associates. ($43.36 from Chapters.ca). Comprehensive, "quick-reference"-style tome with Linux emphasis.
- *Unix for the Impatient, 2nd ed.*; Abrahams and Larson, Addison-Wesley, (824 pages, $52.50 from Chapters.ca). Quite comprehensive; covers both 'vi' and 'emacs' and will provide more than enough information for this course.
- *The Unix Programming Environment*; Kernighan and Pike, Prentice-Hall (350 pages, $46.16 from Chapters.ca). A classic Unix reference which, although old, is still well worth studying for those of you interested in becoming Unix experts.

## Maple (Symbolic Manipulation)

We will be using excerpts from the following sources in class:

- *Maple V Learning Guide*, Heal *et al* Springer-Verlag, 1997.
- *Maple V Programming Guide*, Monagan *et al* Springer-Verlag, 1997.

In addition, you may find the following sources handy:

- *First leaves: a tutorial introduction to Maple V*, Char, Springer-Verlag
- *Maple V language reference manual*, Char, Springer-Verlag
- *Introduction to Maple*, Heck, Springer-Verlag
- *The Maple handbook: Maple V release 3*, Redfern, Springer-Verlag

## Fortran 77 Programming

This is the most problematic subject, since Fortran 77 textbooks are almost all out of print (partly due to the development of Fortran 90, Fortran 95 etc.) Fortunately, Fortran 77 is an easy language to master at the level which will be required for this course, and the instructor will be supplying ample source code which you can use as a guide.

- *Effective Fortran 77*, Metcalf. An excellent reference but somewhat lacking in sample programs; *unfortunately, it is now out of print.* You are welcome to borrow the instructor's copy on a 24-hour basis.

## Fortran 90 Programming

The following are useful references:

- *Fortran 90/95 Explained*, Metcalf, Reid. (368 pages, $69.00 from Amazon.ca).
- *Fortran 95 Handbook: Complete Ansi/ISO Reference*, Adams, et al ($64.36 from Chapters.ca).

## C Programming

- *The C Programming Language, 2nd Edition*, Kernighan and Ritchie. ($59.95 from Amazon.ca). An excellent, concise reference for ANSI-C.

## Linear Systems

- *Numerical Recipes*, Chapter 2, particularly the following sections:
  - 2.0 Introduction
  - 2.3 LU Decomposition and Its Applications
  - 2.4 Tridiagonal and Band Diagonal Systems of Equations
  - 2.5 Iterative Improvement of a Solution to linear Equations

- *LAPACK User's Guide (html)*
- *LAPACK Source Code (browse directory)*