

## RECOMMENDED READING

**Complex Analysis and Transforms.** The primary source, from which I shall be suggesting exercises, is

**H. A. Priestley:** "Introduction to Complex Analysis" (revised ed.) Oxford University Press (1990).

The relationship of this book to the course is such as to put one in mind of the closing words of Keats' "Ode on a Grecian urn". However, you should be warned that, even in the area of complex analysis and transforms, it does not quite contain "all ye need to know". For material about the *discrete* Fourier transform, you are referred to

**P. Henrici:** "Essentials of numerical analysis", Wiley (1982), section 7.5

which you will almost certainly find in your College library, or (and perhaps better)

**P. Henrici:** "Applied and computational complex analysis" (vol 3), Wiley Classics (1992), pages 1-6.

In other areas, Priestley's book goes a little further than we strictly need (at least for examination purposes). Thus the last sections of Chapters 3 and 4, covering technical aspects of the proof of Cauchy's theorem, and the end of Chapter 5, on the Maximum Modulus Theorem, may be omitted. The last section of Chapter 6 deals with multifunctions with rather more care than is specified in the syllabus, and the last two sections of Chapter 10, dealing with the theory of holomorphic mappings and with harmonic functions, may also be omitted.

Two classic text-books on complex analysis, both written by mathematicians who themselves made significant contributions to the subject during the twentieth century, are:

**L.V. Ahlfors:** "Complex Analysis" (2nd ed.), McGraw-Hill (1966);

**R. Nevanlinna and V. Paatero:** "Introduction to Complex Analysis", Addison-Wesley (1969).

Although these are out of print they are likely to be on library shelves, and make stimulating alternative reading. Since these are in the category of "additional reading" I shall not recommend specific sections.

Another stimulating book

**T. Needham:** "Visual Complex Analysis", Oxford University Press (1997)

is much more recent, and not exactly recommendable as a text for *this* course. However, it is full of nice pictures and gives some fascinating geometrical insights into what is going on in this subject.

**Differential Geometry.** The most convenient reference for this part of the course is

**R. Earl:** "The local theory of curves and surfaces", Mathematical Institute Notes (1998), Chapter 1, plus sections 2.1-2.4.

although

**J. Roe:** "Elementary Geometry", Oxford University Press (1992)

is still useful for space curves (11.3, 11.4, 12.1).

Further reading, leading towards the b3 course, can be found in

**M.P. do Carmo:** "Differentiable geometry of curves and surfaces", Prentice-Hall (1976),

another work to be found in most College libraries.