School of Mathematics

Course 121 - Introduction to Analysis 1998-99
(JF Mathematics, JF Theoretical Physics, JF Two-Subject Moderatorship (for Mathematics + Economics), SF Two-Subject Moderatorship)

Lecturer: Professor T.T. West

Requirements/prerequisites: Some mathematical intuition

Duration: Full year

Number of lectures per week: 3

Assessment: Exercises during the year will be corrected and will count for 15% of the final grade. A 1-hour exam in January will count for 15%. The end of year exam will count for 70%.

End-of-year Examination: A 3-hour paper.

Description:
The following topics will be covered among others:-

1. Numbers: real and complex;
2. Convergence of sequences and series;
3. Sets;
4. Functions, graphs and continuity;
5. Differentiation;
6. Integration;
7. Complex analysis

Textbooks
No text book will be followed slavishly. It is difficult (if not impossible) to learn this material from a text book for the very good reason that text books start with axiom systems whereas analysis (calculus) was discovered and used highly successfully long before axiom systems were developed.
For those who wish to see a text book the following may appeal (this is a highly personal matter).

1. W. Rudin *Principles of Mathematical Analysis.*
2. D.G. Bell *An Introduction to Real Analysis.*
3. M. Spivak *Calculus.*

There are literally, hundreds of similar texts on which the light never shines in the bowels of the library.

June 10, 1998