BOOK REVIEWS

Mathematical Analysis and Proof
BY DAVID S. G. STIRLING
Horwood Publishing,
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It is clear for every undergraduate Mathematics lecturer in Ireland and the UK that probably the most difficult issue that the Mathematics students have is the idea of rigorous proof. Often wise students regard proofs as unnecessary "why bother to prove a general statement about n when it's clear that it is verified for all the values of n that I have considered") and always fear them. In this book David Stirling uses a mathematical language accessible to the beginner undergraduate student in order to demonstrate that formal proof is a vital part of Mathematics. This is not done just by giving accessible proofs, but rather by showing how they are constructed. Although this book is about Mathematical Analysis, the philosophy of the proof that the author presents is valid for all areas of Mathematics.

In developing mathematical arguments, the author is particularly careful that all the logical connections are clearly presented and emphasizes the way in which the results are deduced. The aspect of good mathematical writing is not forgotten either, some of the sample proofs being real models of elegance. The presentation reads naturally and the material is stimulating and thought provoking.

The text starts with setting the scene and then progresses with notions on logic and its use in deduction, before it launches into

subjects like sets and numbers, mathematical induction, inequalities, limits, infinite series, continuity, differentiation, integration and functions of several variables. Every chapter finishes with a set of exercises for some of which hints and solutions are given.

It is my conviction that this book will be of a real help both for the undergraduate students but also for the lecturer who tries to find a suitable way to introduce the students to the intriguing world of mathematical proofs.