This book is intended to serve as a guide to understanding radiation processes in astrophysics and as a textbook for a senior or graduate level course in astronomy and astrophysics. No attempt has been made at an original or particularly elegant treatment of the subject matter. Rather the aim has been to pull together in a reasonably coherent manner some of the results of radiation theory which are commonly used in astronomi-In the first two chapters cal applications. I present, often without proof, the basic results of the classical and quantum theories of radiation. In the remaining chapters I discuss applications of this basic theory to particular physical processes. Additional applications are given in the problems at the end of each chapter.

I am grateful to George Blumenthal, Stan Olbert, Bruno Rossi and Alex Dalgarno for useful suggestions, to the MIT Press for patiently waiting for a manuscript that was more than two years overdue, and to the typist, Mrs. Sheila Toomey, for doing an excellent job on a difficult manuscript.