

Class Notes
Introduction to Modern Physics
Physics 321 – Plan II
A Different Approach
Under Construction

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Preface

These notes were prepared as the primary text for the course **Phy 321** *Introduction to Modern Physics* which is required for almost all students majoring in the Plan II degree program at the University of Texas at Austin.¹ These notes provide a comprehensive review of the material covered by that course. The students taking the course have a broad range of backgrounds, many with second majors in the usual degree plans offered by the University. The course is offered in one semester and in its original form was intended to cover all the fundamental issues at the base of modern physics. After an initial attempt offering it at the sophomore level, it was decided that the material was more appropriate to higher level students and, in its current offering, the students are dominantly juniors and seniors. Regardless, because of the diversity of backgrounds of these students ranging from engineering to religious studies with all backgrounds in between there is a significant problem with setting the technical level of the course and thus the text. In order to assist the reader in working with the text, sections that do not materially effect the conceptual understanding of the material which is the primary intent of the course are marked with an asterisk. These asterisked sections are intended to supplement the regular sections by going further and showing how more technically developed approaches make the concepts more appropriate and specific to the complex world in which we find ourselves. Students in this course will not be expected to manipulate material with the tools used in the asterisked sections. They should review these sections for content independent of the details of the manipulations. This is an important ability to develop when reading or studying ideas that have evolved very elaborate technical descriptions. As is always the case, you must see the trees to see the forest but the essence of the forest is more than a collection of the botanical descriptions of the trees.

¹The Plan II Program is the original and most prestigious honors program offered by the University of Texas.

Another point of issue is that these notes are “Under Construction”. They are a living document and is constantly under revision. Because of the nature of the real world where distractions and interruptions are unavoidable, please put up with the paragraphs the seem to end without conclusion or even sentences that are not completed. The nature and purpose of this document requires that it never be completed and finished. It is more fun that way.

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