Understanding Advanced Physical Inorganic Chemistry

The Learner's Approach

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Preface

The primary purpose of this book is to support students in developing a more holistic and integrative understanding of physical inorganic chemistry at the advanced level not only to meet the requirements of the national examination, but to really appreciate the centrality and relevancy of chemistry as a science subject. Hopefully with this book, students find the subject fascinating and exciting enough to want to continue to study chemistry after they have left school.

Our students usually find the learning of chemistry very difficult and lack intellectual stimulation. Thus, because of this, their learning is usually disjointed and mostly fact driven. The impetus behind this book was to translate what we have learnt from our students into a book that is pedagogically driven to develop their critical understanding of chemistry. This book should prove not only useful to students attempting to gain meaningful understanding of advanced chemistry, but also an asset to science teachers who are fresh into teaching service, to make the learning of chemistry of their students more engaging and mind stimulating. There are certainly pragmatic reasons for experienced science teachers to share the relevance of this book amongst the teaching community.

The main feature of this book is that we have incorporated various think-aloud questions at specific points in the content. Through this Socratic questioning, we want to challenge students to be analytical, to evaluate the chemical facts that are presented and to find a synthesis among facts and ideas being presented among disparate chapters. Ultimately, we hope that they develop their scientific thinking, gain better understanding of the nature of science and a more meaningful understanding of fundamental concepts, and appreciate that, although science evolves amongst human social-cultural activity, it is nonetheless an extremely powerful tool to develop knowledge and advance technology. The other feature that we are proud of,

as it is really useful to students for integrative understanding, is the incorporation of questions at the end of each chapter. These integrated questions will prove useful to students in helping them to revise fundamental concepts learnt from previous chapters as well as see the importance and relevancy in the application to their current learning. This book offers a vision of understanding chemistry meaningfully and fundamentally from the learners' approach.

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Special thanks go to our students who have made our teaching of chemistry fruitful and interesting. We have learnt a lot from them just as they have learnt chemistry from us.

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