be particularly interesting. Ecologists also will find information geared toward them with descriptions of phenotypic plasticity, including changes in sex due to the environment and even modifications that occur in response to potential predation. Gilbert closes the text by discussing how developmental variation can lead to evolutionary change, addressing the questions of why insects only have six legs (while spiders, shrimp, and most other arthropods have many more) and why chordates have heads.

In all, this text serves as a great introduction to the classical field of developmental biology while introducing the reader to many of the questions that current developmental biologists study. With its conversational writing style and heavy use of images to help explain topics, undergraduates, graduate students, and medical students alike will find Developmental Biology to be a quick read by textbook standards. The book’s organization — whereby development is explained chronologically — takes the reader on an exciting journey through the stages of life from sperm and egg to, well, immortal medusa.

Kyle R. Zander
Yale University Graduate School of Arts and Sciences
The Combined Program in the Biological and Biomedical Sciences, Physiology and Integrative Medical Biology Track

*Phosphoinositide 3-Kinase signaling pathway: the key to cell proliferation and death.* Edited by Eric W-F Lam. London: Imperial College Press; 2006, 238 pp. $75 Hardcover.

Phosphoinositide 3-Kinase (PI3K) has emerged in biology as a key regulator of an ever-increasing number of cellular processes. In particular, recent interest in research is devoted to the numerous survival and apoptotic pathways controlled by PI3K and its common downstream targets in relation to cancer biology. An ever-increasing array of kinases, enzymes and transcription factors are activated in response to the simple act of PI3K 3’ phosphorylation on the inositol heads of membrane phospholipids. In *Phosphoinositide 3-Kinase signaling pathway*, Lam and co-authors attempt the daunting task of dissecting and synthesizing the current research in PI3K signaling as it relates to cell survival and apoptosis. Up-to-date research is laid out alongside reviews of important signaling pathways, so advanced undergraduates are able to understand it, yet it retains the novelty of current research in the field, particularly relating to FOXO transcription factors, so the experts in the field will find it useful.

*Phosphoinositide 3-Kinase signaling pathway* outlines the essays in a straightforward and clear manner, beginning with a review on general cell cycle signaling pathways key to PI3K signaling. Next, a thorough description of the PI3K family is given, including known homologs, their domain structures, their tissue distributions, preferred substrates, and cellular activities. The book proceeds to describe key downstream effectors of PI3K signaling, including Akt/PKB, PDK1, and FOXO transcription factors. Lam and co-authors also tend to focus on other components in phospholipid signaling such as phospholipases and phosphoinositide phosphatases. *Phosphoinositide 3-Kinase signaling pathway* describes the effects of PI3K and its targets on cell survival, apoptosis, and other cellular pathways. The authors clearly focus on PI3K’s role in cancer-related pathways through Akt/PKD and PDK1. An interesting aspect in the section on PI3K and cancer is a treatment on cancer therapies and inhibitors designed to counteract PI3K-related cancers. Lastly, Lam gives a thorough description of PI3K’s role in FOXO transcription factor regulation and its effect on cell cycle and organismal development control.

*Phosphoinositide 3-Kinase signaling pathway*, while informative on many topics related to PI3K, did not seem to have a cohesive front. The chapters were often full of data from many different experiments, but lacked a given focus or direction. Many authors repeated the same information in different chapters, leading to an uninterest-
The scope of the book is fairly broad, since the goal is to familiarize the reader with key concepts and techniques; however, it does include enough detail to engage the reader in the material presented. Additional references are always provided, giving the reader a chance to explore any topic in greater depth. Relevant problems are included at the ends of chapters, although the answers are not. The author goes out of his way to not only illustrate his points with real life examples but to make the book as practical as possible. He achieves this by regularly pointing out strengths and weaknesses of various scientific approaches and techniques.

Unlike many standard textbooks, Physical Chemistry for the Biological Sciences has a fairly personable tone, almost as if the author were having a conversation with the reader. For example, the reader is often informally reminded of key ideas throughout the book or told about a useful website or tip. This textbook also does a good job with interweaving the chapters. For instance, while each has a specific focus, overlaps with other relevant topics or concepts discussed previously are re-emphasized. All in all, Hammes does a great job being concise but precise.

Dorottya Blaho
Yale University Graduate School of Arts and Sciences
Department of Molecular Biophysics and Biochemistry