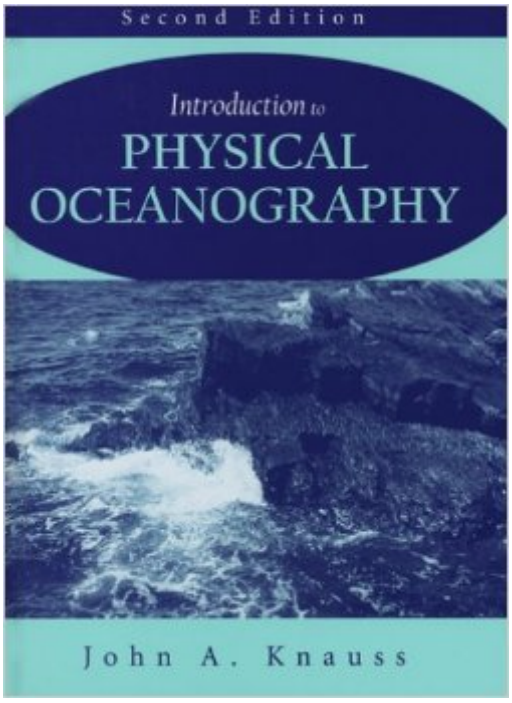
Introduction To Physical Oceanography



Synopsis

"Physical oceanography" encompasses a broad range of subjects, from heat transfer to sound and optics. Knauss brings all these disparate fields together in this comprehensive text. He strikes a balance between purely descriptive texts and mathematically rigorous ones, assuming readers only have knowledge of elementary calculus and physics. This results in a straightforward, readable book that makes the material accessible both to readers specializing in physical oceanography and those from other disciplines who need to understand the fundamental principles of physical oceanography.

Book Information

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Customer Reviews

I read the majority of this text for a physical oceanography course and found extremely helpful for understanding how the earth, not just the oceans, work to create everything from terrestial weather systems to deep water conveyer belts. As a marine biologist, one with a sound physical and mathematical background, I found this text a excellent reference for factors to consider when doing studies in the ocean. It is all too easy for some biologists to disregard certain forces acting on an organism or system, and focus solely on that organism or system itself. Vital components such as Reynolds numbers, tidal and Coriolis forces and ocean stratification greatly affects how organisms interact and adapt in their environments.I believe all marine biologists should have a general physical oceanography background and this text provides sound knowledge and well written and derived equations in an understandble format that even a non-physical scientist should be able to comprehend.

Knauss (2005) is a textbook suitable for use in college courses for upper division undergraduate and beginning graduate students. In an oversimplified way, two ways exist for directing an introduction to physical oceanography course. One approach uses two courses, with the first one descriptive and the second based on dynamics.Using this approach, students with backgrounds in any field can take the first course, with those having backgrounds in mathematics, physics or engineering taking the second one.Knauss (2005) does not fit in this two-step approach. It is short on description for a semester-long course and short on dynamics for a course of the same length. Because Knauss (2005) does not fit in the two-step approach, criticizing Knauss (2005) for its weakness in either description or dynamics has little meaning.A second way of teaching an introduction to physical oceanography brings students with backgrounds in physics, chemistry, geology or biology together in a single course. Knauss (2005) does fit in this single-step approach. It allows students using it to step into dynamics in an easy and graceful way. It also has enough description to allow students to understand why we need dynamics to explain what description reveals. A disappointing side of Knauss (2005) is its lack of a chapter on the history of physical oceanography. While other branches of science took centuries to develop, physical oceanography went from nothing in 1893 to part of modern science in 1914, an interval of just 21 years!To compare Knauss (2005) with other physical oceanography textbooks, see my reviews of Introduction to Physical Oceanography by Mellor (2008), Descriptive Physical Oceanography by Pickard and Emery (1990) and Introductory Dynamical Oceanography, Second Edition by Pickard and Pond (1983).

Got quite a surprise reading my book the other day. In the newest version of this book, page 56 is blank. In fact, several people told the professor in the class I’m using this book in about this, and it turns out nearly everyone who purchased the latest version of the book found the same thing. He wound up having to photocopy pg 56 out of an older version of the book and hand it out to us.Outside of that, there’s nothing wrong, but, just a heads up to anyone wanting to read *all* of chapter 3!

My opinion about this text is a excellent book from beginner students in the sea sciences. It have the foundaments of the Physics in the sea: Water masses, salinity, temperature, tides, waves, upwelling, sinking, currents in the ocean, motion equations and tables to computer some properties of the sea water.The book index is pefectly order for any students with the background knowledge

in chemistry, physics and mathematics.The autor explain very good the properties of the sea water in the first chapter, specially, the concepts of salinity, "in situ" temperature and potencial temperature, density, sound velocity and relationship between them. The motion equations are excellenty decribed, separating the differents terms as gravity, density, Coriolis and friction. All basic principles are related in this text but they need refresh with new standards in the Oceanography.

It is a good book that could give you quick introduction/review on basic concepts of physical oceanography like potential density, temperature, Brunt-vÃ¤isÃ¤lÃ¤ frequency, wind-driven surface currents, thermohaline circulation...The chapters about surface currents and deep circulation are succint and well-written, although more info/comments on the role of overturning circulation on climate should be mentioned. Throughout the text, math equations are clear and easy to follow. However one thing might be worth to consider is that this book is more on the descriptive side. If you wish to learn more about dynamical aspect of physical oceanography, look for another book.Last but not least, this book goes with a decent price (just compare it with Lynne D. Talley's, for example

This intro to physical oceanography is both approachable and easy-to-read, just like a good intro should be. I would recommend this text to anyone who wants to learn more about what drives ocean circulation. Potential readers should be beware that physical oceanography is, at its core, a quantitative science and this text reflects this. If you really want to follow the text, be prepared to break out your calculus book, a pencil and some paper.

Orthopedic Physical Assessment, 5e (Orthopedic Physical Assessment (Magee)) Student Laboratory Manual for Seidel's Guide to Physical Examination, 8e (MOSBY'S GUIDE TO PHYSICAL EXAMINATION STUDENT WORKBOOK) Handbook of Pediatric Physical Therapy (Long, Handbook of Pediatric Physical Therapy) Bates' Nursing Guide to Physical Examination and History Taking (Guide to Physical Exam & History Taking (Bates)) Pedretti's Occupational Therapy: Practice Skills for Physical Dysfunction, 6e (Occupational Therapy Skills for Physical Dysfunction (Pedretti)) Physical Assessment of the Newborn: A Comprehensive Approach to the Art of Physical Examination Essentials of Oceanography Oceanography: An Invitation to Marine Science (with OceanographyNow, InfoTrac) Oceanography: An Invitation to Marine Science, 7th Edition