

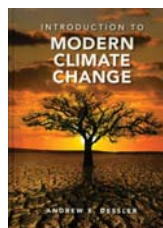
is a welcome introduction to the field and could well become a classic.

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Introduction to Modern Climate Change

Andrew E. Dessler
Cambridge U. Press, New York, 2012.
\$110.00, \$50.00 paper (238 pp.).
ISBN 978-1-107-00189-3,
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Scientific observations and analysis provide strong evidence for climate change, one of the most important issues facing humanity in the 21st century. All citizens need to understand the importance of the changes occurring in



Earth's climate and how further changes are likely to affect them, their children, and their grandchildren. However, Earth's climate system is extremely complex, and climate scientists often

find it difficult to convey their own level of understanding or to discuss what can be done about climate change.

Nominally aimed at undergraduate nonscience majors, *Introduction to Modern Climate Change* by Andrew Dessler is full of information about the basic science of the climate system, the changes occurring globally, the potential impacts on humans and ecosystems, and the economic and policy considerations for responding to climate change. The book reads extremely well: It uses stories, analogues, and examples to draw the reader into the story of the science of our changing planet. Despite the complexity of the actual science, Dessler presents the material in a clear manner and does it without drawing on mathematics any more difficult than simple algebra. He also manages to stick to the science and avoid advocacy, and in doing so, he addresses several frequently asked scientific questions and corrects some misinformation found in blogs and in other media.

The first seven chapters discuss the basic physics of Earth's climate system, the evidence for changes occurring to our climate, and the basis for attribution to human activities. The next few chapters discuss the various factors that go into the development of representative future scenarios for emissions of

heat-trapping gases and particles from human activities, including affluence, population, and technological development. The resulting projections for changes in climate during this century, along with the basis for the projections, are evaluated and then used in discussing potential impacts on humans and the environment. In the last four chapters, Dessler draws on his experience as a senior policy analyst in the Clinton administration. He discusses the complexities affecting policy decisions, the need for economic analysis, and the options for responding to climate change, namely adaptation and mitigation, including geoengineering.

The book has several aspects I don't like. Some formatting and layout choices were likely based on keeping costs and book length in check. For example, most of the graphics use grayscale, with only a few pages in the center providing color plates. In addition, in many places additional graphics could have helped tell the story more clearly. Of even more concern to me is that the book focuses largely on temperature change. Only one page of text discusses changes in precipitation. Changes associated with severe weather events such as heat waves, cold waves, flooding, and droughts are likely to be extremely damaging to human society; the discussion of them is inadequate. Observations show that over the past 50 years, more and larger precipitation events are occurring nationally and globally, but that is also not discussed.

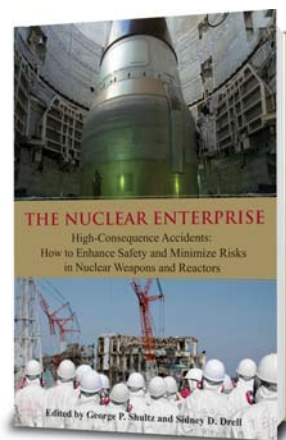
Other books, with admirable features, could be used for a course for nonscience majors. Two that come to mind are *The Rough Guide to Climate Change* (3rd edition, Rough Guides, 2011) by Robert Henson and *Dire Predictions: Understanding Global Warming* (DK Publishing, 2008) by Lee Kump and Michael Mann. *The Rough Guide to Climate Change* is much more comprehensive than Dessler's book in discussing the issues, and *Dire Predictions* uses many outstanding graphics to present the story of climate change.

However, *Introduction to Modern Climate Change* does a better job than either of those books at getting to the heart of the science and at analyzing the philosophies leading to possible policy options. I recommend this book for anyone interested in learning more about climate change and the challenges it presents to humanity.

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