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This book explores evidence-based practice in college science teaching and investigates claims about the efficacy of alternative strategies in such teaching. It showcases outstanding cases of exemplary practice supported by solid evidence, and gives voice to practitioners who offer models of teaching and learning that meet the high standards of the scientific disciplines. The book's primary focus is to uncover classroom practices that encourage and support meaningful learning and conceptual understanding in the natural sciences. To this end, it presents a review of published work in the field that suggests a useful way of classifying these classroom practices. Following an introduction based on constructivist learning theory, the book explores the practices of eliciting ideas and encouraging reflection. It examines the use of clickers to engage students and the support of peer interaction with small group activities. It discusses such topics as restructuring curriculum and instruction, rethinking the physical environment, enhancing understanding with technology, and assessing understanding. The final section of the book is devoted to professional issues facing college and university faculty who choose to adopt active learning in their courses.
