



Biological Investigations Lab Manual

By Warren Dolphin, David Vleck, James Colbert, Linda Westgate

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The lead author of eight successful previous editions has brought together a team that combined, has well over 60 years experience in offering beginning biology labs to several thousand students each year at Iowa State University. Their experience and diverse backgrounds ensure that this extensively revised edition will meet the needs of a new generation of students.

Designed to be used with all majors-level general biology textbooks, the included labs are investigative, using both discovery- and hypothesis-based science methods. Students experimentally investigate topics, observe structure, use critical thinking skills to predict and test ideas, and engage in hands-on learning. Students are often asked, “what evidence do you have that...” in order to encourage them to think for themselves. By emphasizing investigative, quantitative, and comparative approaches to the topics, the authors continually emphasize how the biological sciences are integrative, yet unique.

An instructor's manual, available through McGraw-Hill Lab Central, provides detailed advice based on the authors’ experience on how to prepare materials for each lab, teachings tips and lesson plans, and questions that can be used in quizzes and practical exams. This manual is an excellent choice for colleges and universities that want their students to experience the breadth of modern biology.

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Editorial Review

About the Author

David Vleck is Adjunct Associate Professor and Research Scientist, Department of Ecology, Evolution and Organismal Biology at Iowa State University. He received a Bachelor's degree from Pomona College and a Ph. D. in biology from the University of California at Los Angeles. He has taught lecture and laboratory courses in introductory biology, animal biology and physiology at the University of Arizona from 1989-1994 and at Iowa State University since 1994. He has published research articles on energetics, water balance, developmental biology, and aging of vertebrate animals and currently works on telomeres, oxidative damage, and mechanisms of aging.

Linda Westgate has a B.S. from the University of Missouri and a M.S. from the University of Illinois. She has over 32 years of science experience in industry, research, academia, and as a private business owner and inventor. Linda has been the biology teaching lab coordinator at Iowa State University for the past 10 years. She has worked with more than 250 graduate teaching assistants and more than 17,500 students who used the Dolphin Lab Manual. Her extensive contact with students and teachers provide a unique perspective and insight on what works in a biology laboratory and how best to engage students for an enriched learning experience.

Jim Colbert is an Associate Professor of Ecology, Evolution, and Organismal Biology at Iowa State University and serves as the Biology Program Coordinator for the interdepartmental undergraduate Biology major. He earned his B.S. at Iowa State University and his M.S. and Ph.D. at the University of Wisconsin-Madison. Dr. Colbert has been teaching introductory biology classes and directing biology labs for 23 years. His interests include evolution education, bryophyte and lichen biodiversity, and environmentally focused service-learning for biology students.

Warren Dolphin is Emeritus Professor of Genetics, Development and Cell Biology at Iowa State University. He earned his B.S. at West Chester State University and Ph.D. at the Ohio State University in Zoology (Cell Biology). He served as Coordinator of the Biology Program for 30 years and the Program in Biological Illustration for 10 years. For his service to undergraduate education at the Iowa State, he was awarded the honorary title University Professor. He has taught introductory biology for 37 years, including supervising the offering of labs to thousands of students each year. This lab manual, first published in 1980, is a result of his desire to have students do biological science, distilling the principles that provide the foundation for further studies and productive careers. For this edition, he asked former colleagues at Iowa State to help him achieve that goal.

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