

Animal Locomotion: Physical Principles and Adaptations is a professional-level, state-of-the-art review and reference summarizing the current understanding of macroscopic metazoan animal movement. The comparative biophysics, biomechanics, and bioengineering of swimming, flying, and terrestrial locomotion are placed in contemporary frameworks of biodiversity, evolutionary process, and modern research methods, including mathematical analysis. The intended primary audience is advanced-level students and researchers primarily interested in and trained in mathematics, physical sciences, and engineering. Although not encyclopedic in its coverage, anyone interested in organismal biology, functional morphology, organ systems, and ecological physiology, physiological ecology, molecular biology, molecular genetics, and systems biology should find this book useful.

KEY FEATURES

- Provides state-of-the-art discussions of comparative animal locomotion
- Summarizes the biodiversity, functional morphology, evolutionary history, hydrodynamics, aerodynamics, biomechanics, and kinematics of animal movement
- Includes the mathematical foundation for modeling movement in different environments
- Actively uses principles of biophysics, biomechanics, and bioengineering

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