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On the Cover

Integrating Concepts in Biology (*ICB*) is a new textbook and teaching approach developed by reverse engineering the undergraduate introductory biology course in response to many national calls for teaching reform. As depicted in the diagram, *ICB* divides biology into five big ideas that encompass the entire field: information, evolution, cells, emergent properties, and homeostasis. To emphasize the interconnectedness of all aspects of the biosphere, each of the five big ideas is explored at all levels of life's size scale: molecular, cellular, organismal, population, and ecological system. Students are guided in critical interpretation and quantitative analysis of primary data, often from classic publications. *ICB* stresses the importance of mathematics in biology and the ethical and social implications of biology, while deemphasizing content coverage, memorization, and passive acceptance of information. Barsoum and colleagues (see page 106) report that *ICB* students show significant improvement in critical thinking outcomes and metacognition over comparison group students, while recalling content knowledge at the same level.