Designing a new course is an often underappreciated scholarly effort that can take months (or longer) of iterative work. When done thoughtfully, with the students' needs at the forefront, appropriate course design is the first step toward creating effective learning experiences and student-centered classrooms in higher education.

Vision and Change in Undergraduate Biology Education: A Call to Action (1) recently called for a new template for course design in undergraduate biology classrooms. Unlike traditionally-designed courses, where instructors use the chapters of a textbook to outline the instructional plan, Vision and Change recommended a discipline-based approach to course design. The discipline-based approach to course design is driven by disciplinary themes and the Understanding by Design course model (5). Here, instructors first consider the important disciplinary themes, concepts, and skills for students before considering class situational factors, writing course learning outcomes, determining assessments, and deciding on teaching and learning activities, in that order. Survey data indicate that undergraduate biology educators are largely embracing the course design recommendations from Vision and Change (2, 4).

The course design model in Building a Pathway for Student Learning departs significantly from the discipline-based approach model in two main areas. First, the steps of design deviate between the two models. In contrast to starting course design with applicable overarching disciplinary themes, concepts, and skills, the Building a Pathway model encourages instructors to start with situational factors and learning goals. In doing so, this model neglects the importance of major disciplinary concepts for course design. Second, the authors only considered situational factors related to the student population, such as distinctive characteristics of the student body, their prior experiences, and prior knowledge, skills, and attitudes, which is a major omission. As many undergraduate biology educators have discovered, situational factors unrelated to the student population, such as the characteristics of the teacher, physical classroom space and size, and the nature of the subject matter, almost always affect course design (3).

This book contains many positive features, making it unique among course design books and helpful to novice designers. Most noticeably, the book is written as a workbook with a companion website to assist in the interactive and iterative process. When the reader is presented with a “workbox,” the authors provide clear and effective examples, usually with biology content. I appreciated that the authors provided some literature review of other course design models and recommended resources outside of the authors’ work throughout the book. I was pleased to see the authors emphasize the need for feedback and collaboration in course design with departmental and campus colleagues throughout the book. The authors draw on their experience in leading course design retreats to comment that faculty members’ thinking is often improved when interacting with peers through the design process. Finally, perhaps the most useful chapter to novice designers was also my favorite: “Anticipating the Challenges Ahead.” Here, the authors offer insight into the most difficult challenges almost all faculty members have faced when undergoing a transformative course design process.

Although Building a Pathway for Student Learning has helpful features to assist new course designers in higher education, I will continue to recommend the discipline-based course design model from Vision and Change to undergraduate biology educators because of its emphasis on disciplinary themes, concepts, and skills and its surging usage in undergraduate biology classrooms.

Rachel E. A. Horak
American Society for Microbiology, Washington, DC
E-mail: Rhorak@asmusa.org

REFERENCES