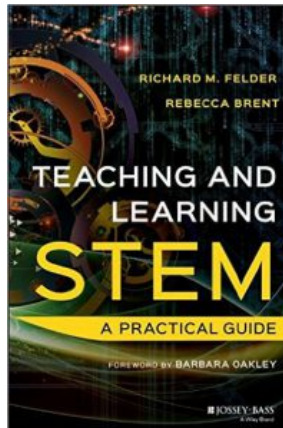


A review of *Teaching and Learning STEM: A Practical Guide*, by Richard M. Felder and Rebecca Brent (2016, Jossey-Bass)*

Posted by [Jody Horn](#)



STEM Student:

“I really hate working on homework in groups—why can’t I work by myself?”

Professor:

“I get that you’re unhappy and I’m sorry about it, but I’ve got to be honest with you—my job here is not to make you happy but to prepare you for your career. Here’s what’s not going to happen on your first day at work. They’re not going to say, “Welcome to the company, Mr. or Ms. Jones. Tell me how you like to work – by yourself or with other people?”

Felder & Brent, 2016, pp. 243-244

STEM students, like most students, often resist different teaching methods. They frequently want to “know,” rather than be responsible for “doing” their discipline. “Would you just tell me what I need to know? My other professors do that.” Integration or application of the discipline knowledge is not easily achievable or even desired (by students). Eric Mazur, physics professor at Harvard University found his students couldn’t “do” their disciplines. They received top grades yet until he changed his teaching method, he discovered, they couldn’t solve problems in the field.

Whether you are recently hired or you were hired years ago, STEM faculty in higher education can discover, in Richard M. Felder and Rebecca Brent’s book, *Teaching and Learning STEM: A Practical Guide* (2016), a multitude of ways to move students from merely knowing the discipline, whether it is biology or chemistry, to being able to “do” the discipline. The authors explain in a clear and transparent manner how to write your learning objectives (Part One), how to plan your course (Part Two), and how to facilitate your course (Part Three). These topics may seem self-evident, yet it is this very reason that faculty often overlook preparation in these areas. Part Two is the heart of the book, how do you teach in a STEM field for effective learning? The suggestions in these chapters are evidence-based methods for students to increase learning in a STEM course, e.g., problem-based or team-based methods. The authors not only cover how we should teach in STEM, but they also offer suggestions for assignments for higher cognitive levels.

If for no other reason, this book should be read by STEM faculty because a plethora of research has found engaged students, compared to non-engaged students, achieve deeper learning, are more able to solve complex problems, and are more motivated to succeed.

* *UCO Transformative Teacher-Scholar*, University of Central Oklahoma, August 23, 2016.