Active Learning in Biol. Engineering: Case Study for a Transport Course

CPD Workshop Tuesday, July 13, 10:00 AM-12:30 PM CDT

Why this workshop

Active learning is the direction the entire educational community is moving toward. The most critical place to implement active learning are the required or core courses. Thus, everyone having a teaching commitment should be interested in how to implement active learning and instructors for core courses in biological or agricultural engineering curricula would relate to it more directly. The course will provide templates that are ready-to-use for a course present in almost all curricula, or the template can be easily adapted to other courses in such curricula.

Learning outcomes

1. Identify the principles of active learning and how it critically benefits every student.
2. Describe several activities and approaches to implement the principles in a core biological engineering course with heat and mass transfer as an example; Activities and accomplishments in a major ongoing university-level project on active learning will be shared.
3. Apply the principles to develop paper- and web-based materials for active learning in your course in both online and in-person delivery.
4. Assess the learning process; Examples of assessment data collected from multiple years will be shared.

Target audience

1. Any teaching faculty, particularly those considering including active learning
2. Prospective faculty, including Ph.D. students and post-doctoral associates

Workshop format

Workshop will be conducted an in Active Learning format. Several active learning strategies will be addressed. After the principles and examples of implementation of an active learning
strategy is provided, the participants will work in a group or by themselves using activity worksheets, for their respective classes. Once everyone had a chance to put their thoughts on paper, we will share and discuss the possible challenges in implementation. We will all benefit from the combined wisdom of the participants.

**Instructor background**

**Ashim K. Datta**, Cornell University, has led the development of core courses in biological engineering, particularly the heat and mass transfer course in biological engineering for 30+ years. He has taught two courses and developed their textbooks during this period, implementing the latest pedagogies for learning. He is currently co-leading a large active learning project funded internally by Cornell University where two courses have been transformed into active learning. He is particularly interested in sharing the development and assessment data to obtain feedback from fellow instructors.

**Mohsen Ranjbaran**, Purdue University, has a Ph.D. in Biological and Environmental Engineering from Cornell University and was a full-time post-doctoral person on the university-funded active learning project. He has intensely worked on the planning of the active learning environment, developing worksheets that provide the students the active learning structure, and detailed analysis of the assessment data.

**Costs**

None

**Questions**

Email Professor Ashim Datta, Cornell University, at akd1@cornell.edu