



Faculty Showcase: Flipped Classroom

Gail R. Ryser, PhD

Director

Testing, Research Support, & Evaluation Center



Background

- ▶ PhD from The University of Texas at Austin in 1990
- ▶ Faculty at Baylor in Department of Educational Psychology
 - ▶ Taught both undergraduate and graduate courses
- ▶ Worked at publishing company as measurement specialist
- ▶ Director of Testing, Research Support, & Evaluation Center



ED 7351

- ▶ ED 7351: Quantitative Research Design & Analysis I (Fall 2015)
 - ▶ Wednesdays, 6:30 to 9:20 pm
 - ▶ Doctoral level course
 - ▶ Combines research design and statistics
 - ▶ Required Course



Typical Course Structure

- ▶ Lecture-based
 - ▶ Computer lab using SPSS
 - ▶ Extra problems when time
- 



Flipped Course

- ▶ Pedagogical model in which the typical lecture and homework elements of a course are reversed.
 - ▶ Requires careful preparation: out-of-class and in-class elements must be integrated
 - ▶ Class time is devoted to assimilating concepts via problem-solving and discussion
 - ▶ Puts more responsibility for learning on students
- ▶ <http://chronicle.com/article/A-Guide-to-the-Flipped/151039/>



Structure of Flipped Course: ED 7351

- ▶ Out-of-class
 - ▶ TRACS: Learning Modules
 - ▶ Recorded short lectures
 - ▶ Hand outs that went along with the lecture
 - ▶ Readings from the book
- ▶ In-class
 - ▶ Quiz
 - ▶ Problem-solving
 - ▶ Labs

TRACS Site

The screenshot displays the TRACS LMS interface for a course titled "Flipping the Classroom". The browser address bar shows the URL: <https://tracs.bstate.edu/portal/site/9aae953d-1824-4c43-b00c-b7720239431/page/8941c92c-ef06-4910-aaf1-99a76724eece>. The page features a navigation sidebar on the left with options like Home, Announcements, Assignments, Calendar, Email, Gradebook 2, Resources, Roster, Syllabus, Learning Modules (highlighted), Forums, Drop Box, Site Info, and Help. The main content area includes a toolbar with actions such as Add Module, Add Content, Left, Right, Sort, Move Section(s), Delete, Archive, Restore, and Import/Export. Below the toolbar is a table listing course sections with their titles, open dates, due dates, and allow until dates. Each section is expandable to show a list of associated content items.

Title	Open	Due	Allow Until	
1. September 9, 2015 Measurement Samples	Sep 03, 2015 08:00 AM	Sep 09, 2015 09:00 PM	Dec 10, 2015 11:59 PM	+
1.1. Power Point presentation				
1.2. Video presentation of Measurement Samples				
2. Sept. 16, 2015: Central Tendency, Variation, Standard Scores	Sep 09, 2015 08:00 AM			+
2.1. Power Point presentation				
2.2. Activity #6				
2.3. Sept. 16 Standard Scores, Part 1				
2.4. Sept. 16 Standard Scores, Part 2				
2.5. Khan Academy videos on central tendency				
2.6. Khan Academy videos on variation				
3. September 30, 2015 Validity, Reliability, Internal Validity	Sep 16, 2015 08:00 AM			+
3.1. Power Point presentation Validity and Reliability				
3.2. Power Point presentation Internal Validity				
3.3. Video presentation of validity				
3.4. Video presentation of reliability				
3.5. Video presentation of internal validity				
4. October 7, 2015 Sampling Distribution of Means/Parameter Estimation				+
4.1. Power Point presentation Sampling Distribution of Means				
4.2. Video presentation of sampling distribution of means				
4.3. Power Point presentation Parameter Estimation				
4.4. Video presentation of parameter estimation				
4.5. Video presentation of parameter estimation 2				
5. Hypotheses October 14, 2015	Oct 05, 2015 08:00 AM			+
5.1. Power Point presentation Evaluating Hypotheses				
5.2. Video presentation Evaluating Hypotheses				
5.3. Video presentation Evaluating Hypotheses 2				
5.4. Power Point presentation Inferences about Means of One Sample				
5.5. Video presentation One Sample Means				
5.6. Video presentation One Sample Means 2				
5.7. SPSS file for lab				
5.8. SPSS lab on sample mean test				
6. October 21, 2015 T tests				+
6.1. Power Point presentation Inferences about Means of Two Independent Samples				
6.2. Video presentation Two Independent Samples				
6.3. SPSS Activity for lab T test				



Lessons Learned

- ▶ Keep recorded lectures short
 - ▶ Hold students accountable
- ▶ Begin class with 10-20 minute Q&A using a novel problem
- ▶ Use bamboo pad or stylus to write equations and draw distributions when recording lectures
- ▶ Provide more outside videos related to each concept
- ▶ Use TRACS forum more effectively



Student Evaluations

- ▶ January 2015 article in Chronicle of Higher Education: “The average score on a student evaluation of a flipped course is about half what the same professor gets when using the traditional lecture...”
- ▶ Some students in my class were resistant because they didn’t think out-of-class videos adequately prepared them for in-class problem solving
- ▶ End of course evaluations
 - ▶ “The thoughtful planning and work that went in to the course design, video tutorials, reading selections, assignments, grading, etc were all really helpful in understanding the material.”
 - ▶ “I really appreciated the idea of a reverse class room which gave us the ability to watch lectures at home and over an [sic] over again until the information finally made sense.”