



THE OHIO STATE UNIVERSITY

University Survey: A Data-Driven Approach to Improving Course Effectiveness

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As a result of this presentation, participants will:

- Recognize the importance of using data to improve first-year courses,
- Be exposed to formal and informal ways to collect and analyze data from first-year courses, and
- Discuss ways in which to make data-driven improvements to first-year courses.



What is University Survey?

ENGR 1100.07:

Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services.



ECE Survey

- Learn about your major and the required curriculum;
- Create a degree plan and start career planning;
- Understand University policies and know important dates and deadlines;
- Familiarize yourself with the University's academic and other resources;
- Learn more about yourself and your identity; and
- Establish a rapport with your Academic Advisor.



ECE Survey

- 4 in-person sections, 1 online section in Autumn 2017
- Each section taught by an advisor and multiple Peer Mentors
- At some point in the semester, each advisor will teach one topic to all the classes



ECE Survey

- International students in sections with domestic students
- Topics specific to our students, including Pre-Major Requirements, Major Exploration, Academic Recovery



Recent Changes

- **Backwards course design**
- **Lesson plans for each week with stated learning outcomes**
- **Redesigning assignments to emphasize experiential learning and reflection**



Methods of Assessment: Ongoing vs. Summative



Ongoing Feedback: Student Questions

- Collect questions from students on first day of class
- Allows students to share what they want to learn about
- Allows instructors to personalize course based on who's in the room



Ongoing Feedback: Mid-Semester Stoplight

- For the rest of this semester, what do you want us to
 - Keep doing?
 - Stop doing?
 - Start doing?
- Allows instructors to take the pulse of the class mid-semester, and make improvements for the second half of the class



Ongoing Feedback: Mid-Semester Stoplight

- **Students appreciated weekly emails with links regarding upcoming events, interactive activities instead of lectures, timely feedback on assignments**
- **Some classes wanted to stop doing as many icebreakers**
- **Some classes wanted more regular in-class reminders of upcoming deadlines**



Ongoing Feedback: Mid-Semester Stoplight

**You don't always have to wait until the next semester
to make improvements!**



SEIs

- **Student Evaluation of Instruction**
- **Since questions must be general enough to fit all courses, they are not always the most helpful**
- **Ex: “This course was intellectually stimulating.”**



End-Of-Course Evaluation

- **Allows us to look at actual course learning outcomes to see which ones we're succeeding at, as well as which ones we could improve upon**
- **Provides data to help narrow down specific areas of improvement for the next year**
- **Allows us to ask questions we want to know the answers to**



End-Of-Course Evaluation

- **Are there differences in effectiveness between in-person and online sections?**
- **Is the course more or less effective for different types of students? (NFYS, International, Transfers)**
- **What are the strengths of each instructor in terms of topics?**



Creating the Evaluation

- **Compiled course and lesson learning outcomes, mapped questions to each outcome as well as additional course details**
- **Provided opportunity for open-ended feedback**
- **Utilized a paper evaluation to increase participation**



Analyzing the Data

- Combined results for questions on similar topics to ensure wording wouldn't throw off results
- Looked at mean and standard deviation for each question
- Used SPSS to do different statistical analyses (correlation, ANOVA, descriptive statistics by factors)



Results

**Are there differences in effectiveness between
in-person and online sections?**



Results

- Online section scored higher than expected
- Only one statistically significant difference (Major Exploration) – online was significantly higher!
Average of 8.917 (Online) vs. 7.125 (One In-Person Section) out of 10
- Could be due to population of students in online section
- Planning to keep online section for next year



Results

Is the course more or less effective for different types of students? (NFYS, International, Transfers)



Results

- Couldn't evaluate for International NFYS – only one participant
- NFYS scored statistically significantly lower on Major Exploration and General Education than did Transfer or International Transfer students



Results

- Major Exploration (Out of 10)

| | NFYS | Transfer | Int'l Transfer |
|------|-------|----------|----------------|
| Mean | 7.690 | 8.640 | 8.571 |

- Could be that some students don't feel the need to explore yet, since they haven't received any final grades yet
- Plan to focus on improving this metric for the next year



Results

- General Education (Out of 15)

| | NFYS | Transfer | Int'l Transfer |
|------|--------|----------|----------------|
| Mean | 11.977 | 13.400 | 13.286 |

- But, looking at each question:

| | #13 | #14 | #15 |
|------|-------|-------|-------|
| Mean | 4.198 | 3.786 | 4.262 |



Results

- **Students understand the requirements and how to find courses that meet the requirements, but not necessarily the value of the General Education**
- **Transfer students have had opportunities to take G.E. courses and see benefit, while NFYS students might not have**
- **With new General Education in the works, how to address this is a question**



Results

What are the strengths of each instructor in terms of topics?



Results

- Still analyzing this data
- Didn't find any significant differences, though we all used the same lesson plans
- Plan to discuss scores with other advisors to see where they want to improve



Other Interesting Findings

- **Students suggested changing the assignment due dates/times and the late submission policy**
- **Students felt like some assignments were busy work**



Student Quotes

“Despite being early in the morning, I enjoyed the class and found it very informative and helpful.”

“Taught me everything I needed to know about how OSU works.”



Student Quotes

“Learning about other people setbacks and know that you are not only one who is struggling.”

“I was overwhelmed by all the resources available, but now it doesn't seem as bad, and I know how to use them.”



Student Quotes

“The best part was getting to interact with an advisor consistently, which helped to make her seem more approachable.”

“Sincerely would probably not have reached out to my advisor if I had not first met them in a survey class like this one. This kind of survey class is invaluable in engineering degrees because of the non-direct admit program.”



Limitations

- Don't have a pre-evaluation for comparison
- Relies on self-reported data at one point in time
- Class attendance policy



Limitations

- Knowledge of statistics required
- Time is a scarce resource!
 - Taking Stats course, developing evaluation, entering in the data, reviewing the feedback



Questions?



THANK YOU!

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