Identify early, retain early: best practices from an introductory food science class

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Outline

• Challenges in an introductory level food science class
• Best practices to improve retention
• Final thoughts
Current challenges

• Approximately 40% of the students enrolled in the Fundamentals of Food Science course have limited background in basic science courses such as chemistry or biology

• We have observed that non-science students have difficulty in understanding the science concepts
Challenges in FDSC 1133

- F and W rate in FDSC 1133 class during 2012-2013 was 6-10%
- Several reasons for F and W

Cowboy Data Roundup dashboards (https://irim.okstate.edu/cdr)
Overall goal

- To report some of the best practices that resulted in improved retention in a freshman level introductory food science class (Fundamentals of Food Science; FDSC 1133)
Methodology

• FDSC 1133 class is taught both in spring and fall

• Current observation is from 1100 students enrolled during 11 semesters (spring 2013 to spring 2018) at Oklahoma State University.

• Average class size in fall is 122 and in spring is 85

• Students come from 12 different majors, three colleges, and range from freshman to seniors.
• Only lecture component (3 credits)
• Consisted of
  • Exams
  • Quizzes
  • Assignments based on demonstrations
  • Real-time quizzes
  • Group projects
Background

• Start each semester with a survey to understand student interest and to know the reasons for taking this class.

• Some students indicate their challenges in learning.
Active learning: students studying the effects of pH on protein denaturation and enzymatic activity
Background

Active learning: examples of 3D models used in class

Photo courtesy: Mr. Todd Johnson, Photographer, Agricultural Communications Services, Oklahoma State University
Personalized email

- Personalized email to those who performed excellent in exam and also to F students

- Response rate from F students are very low; texting or a phone call works better

- Mail merge for personalized mail
Additional assignments to improve grade

- Non-traditional assignments to improve interest and test grades
- Majority students prefer additional written assignments
Changes in retention (F and W rate)

- Current F and W rate is < 3.5%
- Spring semester has the challenge

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Retention in Ram's FDSC 1133 end of course
Best practice 1 | Creating rapport with students

• Creating rapport with students has resulted in better communication and students feel comfortable to discuss some of the challenges faced in the food science course.

• The personal connection is achieved by getting to know students by their names, providing a short survey at the beginning of each semester, small talks before each lecture, and/or email communications (welcome emails).
Best practice 2 | Proactively reaching out to students

- If a student performs poorly on the first two quizzes indicate that the student needs help.

- The students are contacted either by email, phone call, or talking to them directly in class either before or after the lecture.

- Reaching out and providing additional assignments has helped 60% of poorly performing students to gain interest in the subject and improve overall performance.
Best practice 3 | Preparing students for exams

- The current cohort of students do not like surprises
- The syllabus should be very clear and transparent
- The students need to be updated with current grade or where they stand during each month of the semester
- The students are prepared for exams by providing review questions at the end of each lecture, practice tests, or giving optional review sessions before each exam
Summary

• Personalized attention, reaching out early, and flexibility in teaching or assessment can enhance student retention up to 95-98% in a freshman level introductory food science class.

• All these effort takes tremendous amount of time, but my experiences indicate it can impact student learning and retention!
Thank you for your attention!