

Summary of Undergraduate Course Development

New Courses

The 5-year external review report recommended that adding more statistics courses such as non-parametric statistics and Python programming will benefit students. To enrich the current statistics curriculum and respond to the external reviewers' recommendations, I developed three new courses to add to the current undergraduate curriculum. The guiding principles of designing these courses are:

1. Including all topics suggested in the 5-year external review report.
2. Included topics must reflect the recent development in the fields, particularly, the interdisciplinary and data-driven features.
3. Included topics should reflect the highly demanding techniques in the local job market.

Based on these guiding principles, I developed three new undergraduate courses

1. STA 3XX: Intermediate Data Analytics – *Using a programming language and appropriate software tools to perform basic tasks in data analytics such as data wrangling and integration, exploratory and visual analytics, statistical models, and algorithms to solve real-world analytics problems.*
2. STA 3XX: Statistical Process and Quality Control - *This course will take a modern approach to cover classical techniques in process and quality control and emphasize their applications not only in the traditional manufacturing fields but also in other industries such as service industries and related scientific fields.*
3. STA 4XX: Introduction to Modern Regression Analysis – *Primarily focuses on diagnostics of linear regression models, and nonlinear, and nonparametric regression analysis.*

Revised Courses

I have been teaching STA 490 Statistics Capstone every year since 2019. Starting in 2020, I used a project-driven approach to deliver the course material described in the catalog and highlight project report writing. After COVID-19, I introduced modern web-based technologies and used them to improve students' communication and presentation in 2022. In the fall semester of 2022, the department wanted to convert relevant upper-level courses to writing and speaking emphasis courses. STA 490 is suitable for conversion. The revised STA490 with SE and SW was approved by the department and is pending CAPC approval.