

## **Team 21 Project Proposal : UCSD Undergrad Course Analysis (ECE, CSE, MAE)**

### **Problem:**

As a team we found it interesting to analyze the quality of the courses offered in the UCSD undergraduate engineering programs in ECE, CSE, and MAE departments based on the feedback of students who experienced the course throughout various quarters. We would also like to analyze the quality of the courses and performance of the professors during the quarters available in the dataset.

### **Dataset:**

Dataset size: 4445 rows by 9 columns.

Dataset link: Click [here](#) to access the dataset.

Dataset description: This dataset is the data extracted from CAPEs for all undergrad classes in ECE, CSE, and MAE departments. The dataset includes attributes such as instructor name, course number, class description, quarter the class was offered, class size, grades expected, grades received, etc.

### **Proposed Solution and Real world Application :**

The purpose of this project is to answer some of the most popular questions about UCSD engineering programs, courses, quality, and professors. The solution of our project can be used to:

1. Provide a statistical result for students and help them decide on quarter and professor of the course
2. Learn what courses are more popular and find out the trend of research field that is popular in each department.
3. Provide valuable feedback to professors about the course quality and possible improvements
4. Provide feedback to the departments about the faculty teaching undergraduate courses in the 3 departments and also provide insights into course logistics planning

Some useful applications in regards to the study of this dataset our team will analyze and find answers for, include the following questions:

- Best ranked courses in each department based on student evaluations and grades received in each department
- How consistent are expected grades with received grades?
- What are the courses with most variance in grades in each department?
  - What are the common factors? (ie, hours studied, professors, class size)
- Based on the evaluations for the quality of classes rank the departments
- What percent of the professors in each department are recommended?
- What percent of the professors in each department are not recommended?

- What quarter has the highest grades in each department
- What quarter has the lowest grades in each department
- Is it true that some classes are easier if taken during summer?
- Top 10 courses that expected gpa and actual gpa have the large variance
- Is there a relationship between grade received and whether the students recommend the professor? (obviously high grades probably mean more recommendations but there may be some surprises)
- [Possible Question]: Which department has had the most feedback over the years based on the evaluations received - size of the dataframe after separating them by the department using the groupby function

### Project Steps:

Step	Estimated completion time	Person(s) in charge
Dataset clean up	1 week	Everyone
Data extraction to answer intended questions in the proposal	2.5 - 3 weeks	Everyone
Data visualization	1-2 weeks	Everyone
Final report and presentation practice	1-2 week	Everyone