UCSD Course Description and CAPE Data Analysis

Group 5

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Problem Statement

How do UCSD students select a course to take?

- Degree Requirement
- Course Content
- Grade
- Time Spent

Our Goal: To propose an optimal class selection strategy.

Datasets

UCSD Course Catalog

Undergraduate course descriptions from the ECE, CSE, MATH, and COGS departments.

ECE 143. Programming for Data Analysis (4)
This course covers the fundamentals of using the Python language effectively for data analysis. Students learn the underlying mechanics and implementation specifics of Python and how to effectively utilize the many built-in data structures and algorithms. The course introduces key modules for data analysis such as Numpy, Pandas, and Matplotlib. Participants learn to leverage and navigate the vast Python ecosystem to find codes and communities of individual interest.
Prerequisites: ECE 16.

Datasets

UCSD CAPE Reviews

CAPE reviews for the ECE, CSE, MATH, and COGS departments.

Classes without CAPE reviews were assigned the department median.

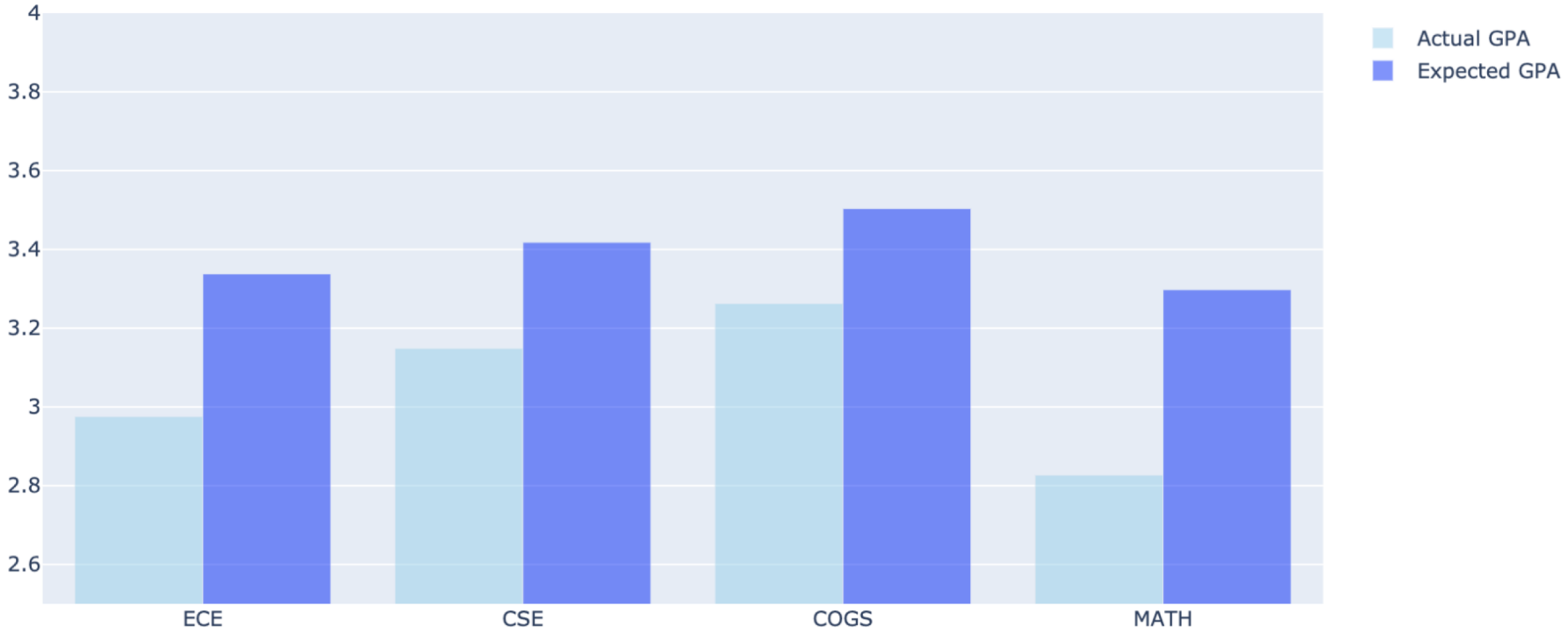
Instructor	Course	Term	Enroll	Evals Made	Rcmnd Class	Rcmnd Instr	Study Hrs/wk	Avg Grade Expected	Avg Grade Received
Sievenpiper, Daniel F.	ECE 100 - Linear Electronic Systems (A)	FA19	144	62	96.7 %	93.2 %	8.03	B (3.25)	B- (2.95)
Siegel, Paul H.	ECE 101 - Linear Systems Fundamentals (A)	FA19	154	113	83.9 %	91.1 %	8.19	B- (2.90)	B- (2.96)

Departmental Analysis

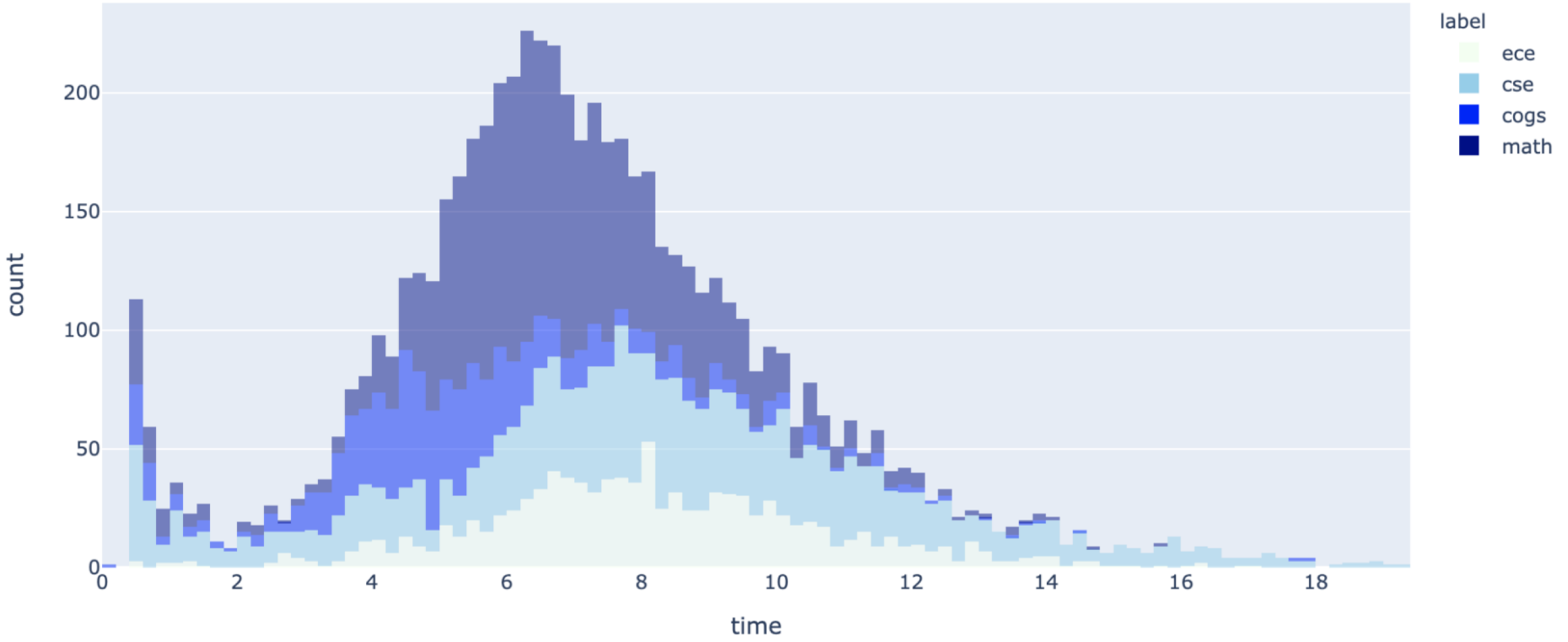
Factors Explored:

- Actual and Expected GPA for four departments
- Time Spent on courses.
- Unique and shared keyword analysis.

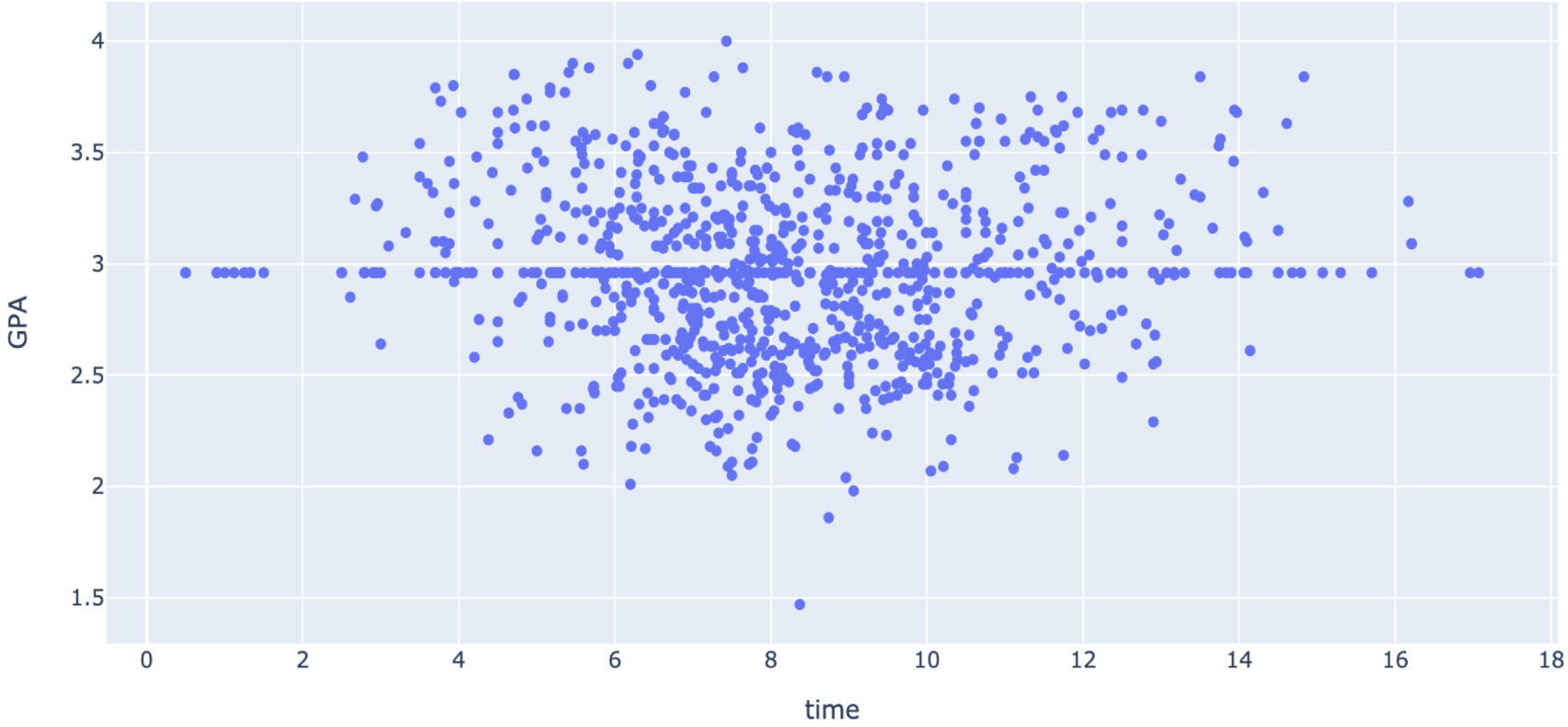
Actual and Expected GPA per Department

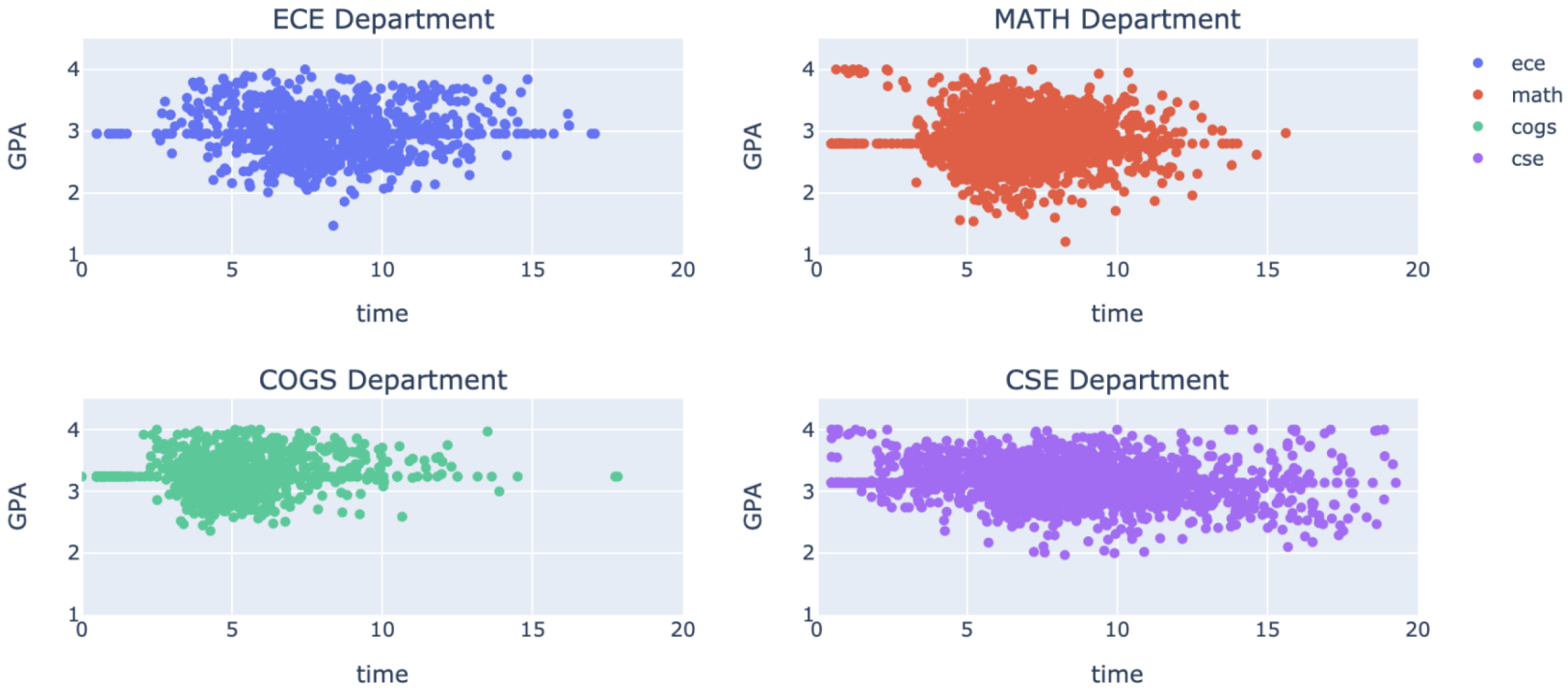


Time Spent per Week per Department

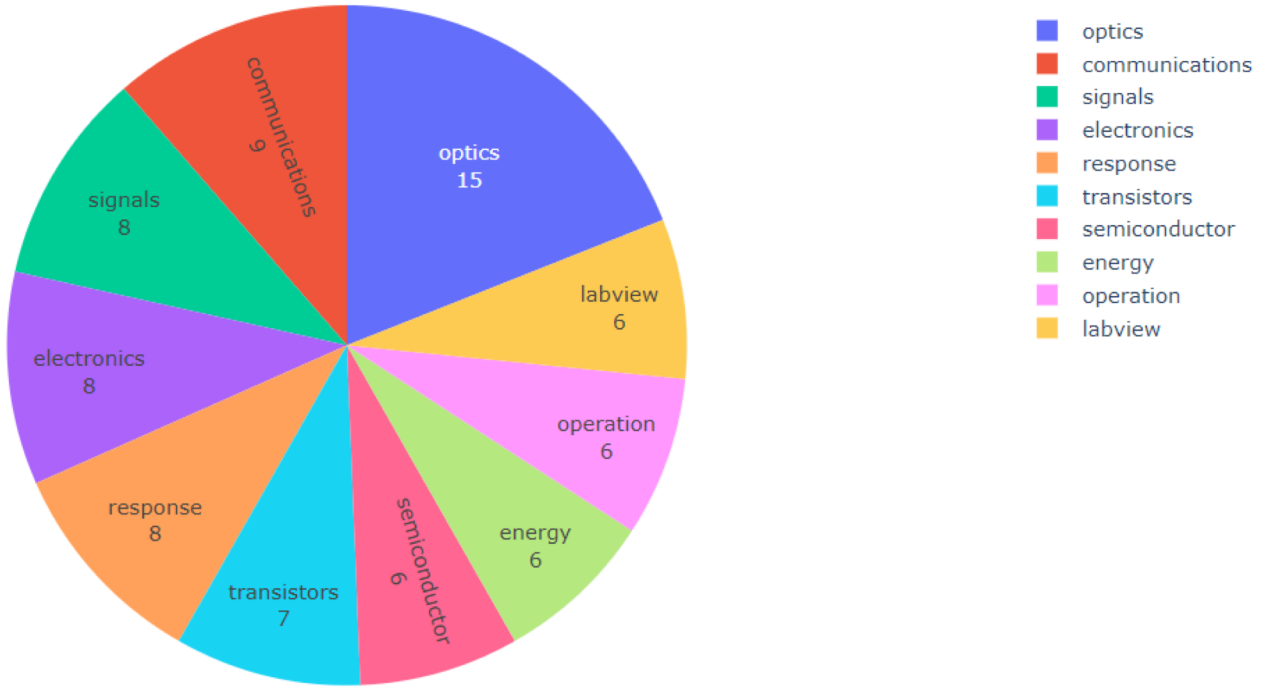


GPA and time spent distribution for ece department

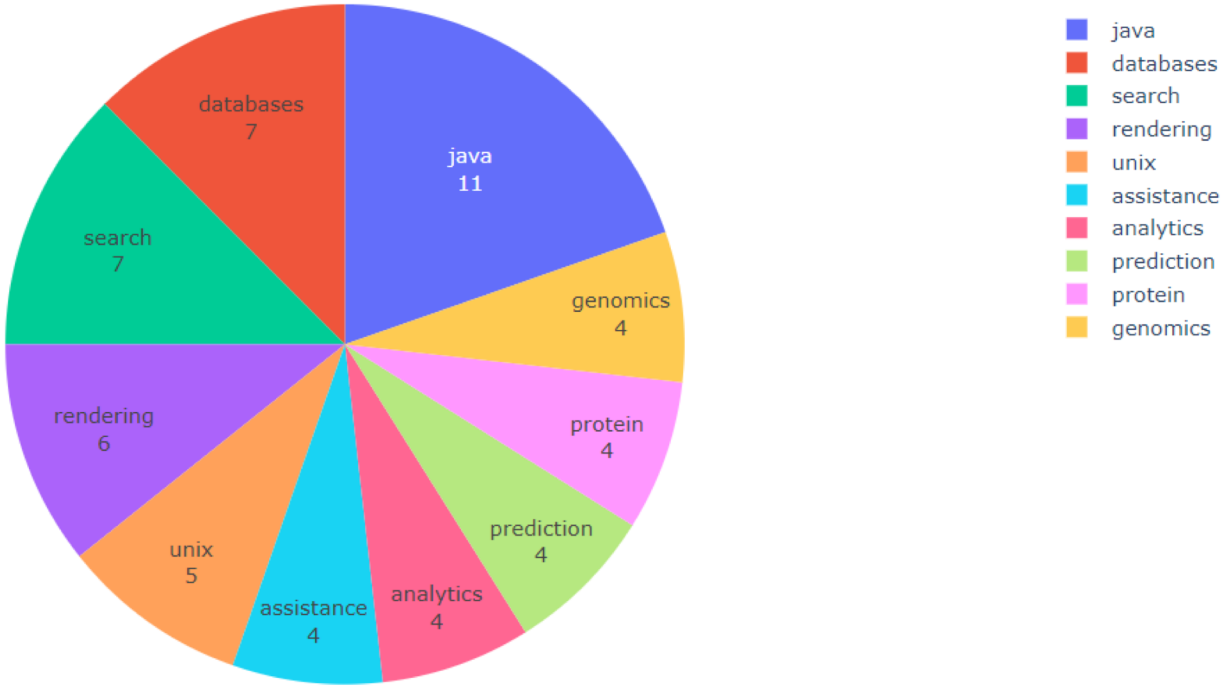



ECE Department
MATH Department
COGS Department
CSE Department
GPA
time
ece
math
cogs
cse

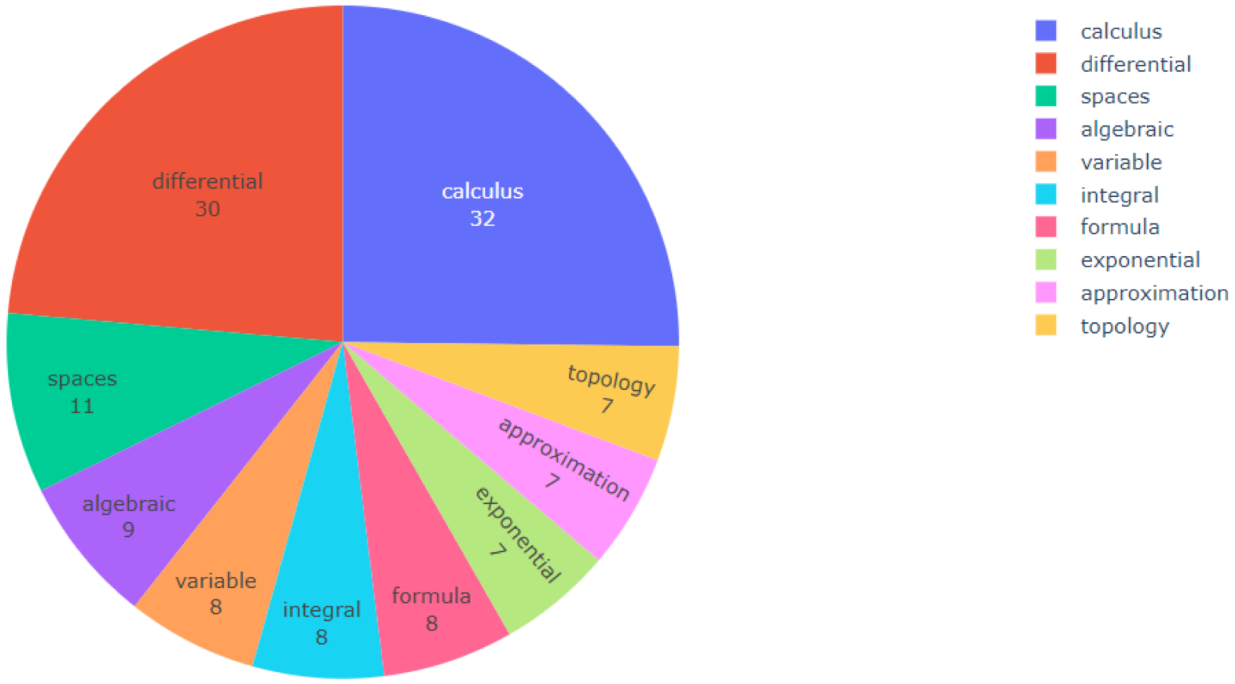
Top 10 Keywords in ECE Department



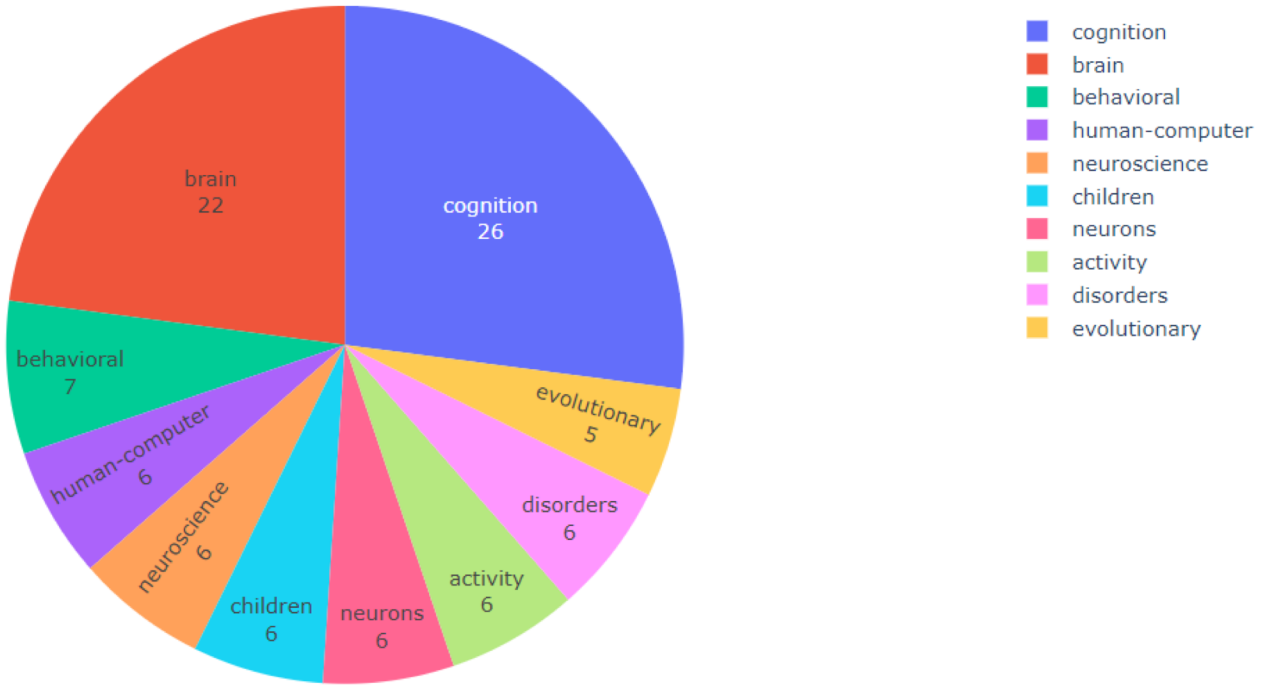
Top 10 Keywords in CSE Department

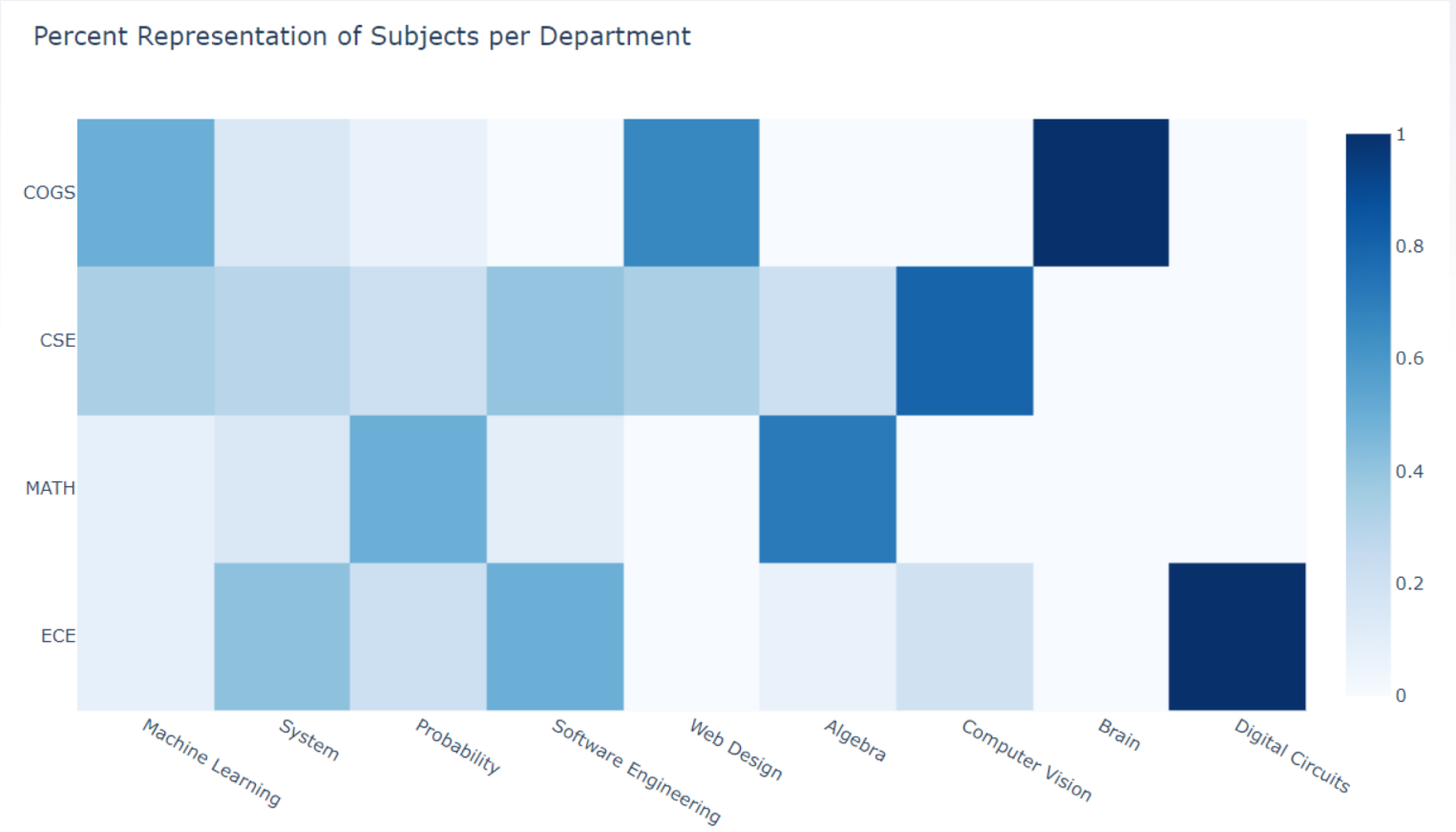


Top 10 Keywords in MATH Department



Top 10 Keywords in COGS Department



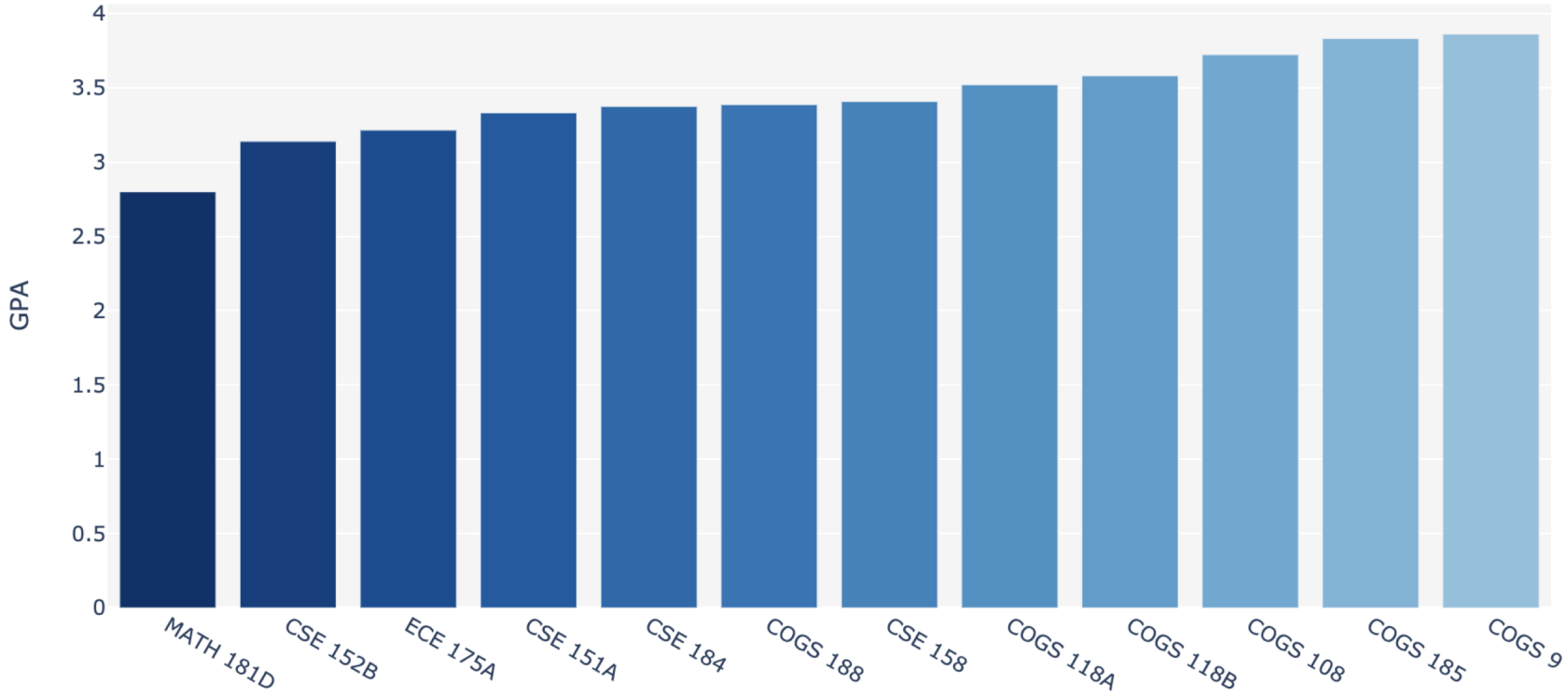

Percent Representation of Subjects per Department
COGS
CSE
MATH
ECE
Machine Learning
System
Probability
Software Engineering
Web Design
Algebra
Computer Vision
Brain
Digital Circuits
1
0.8
0.6
0.4
0.2
0

New Triton

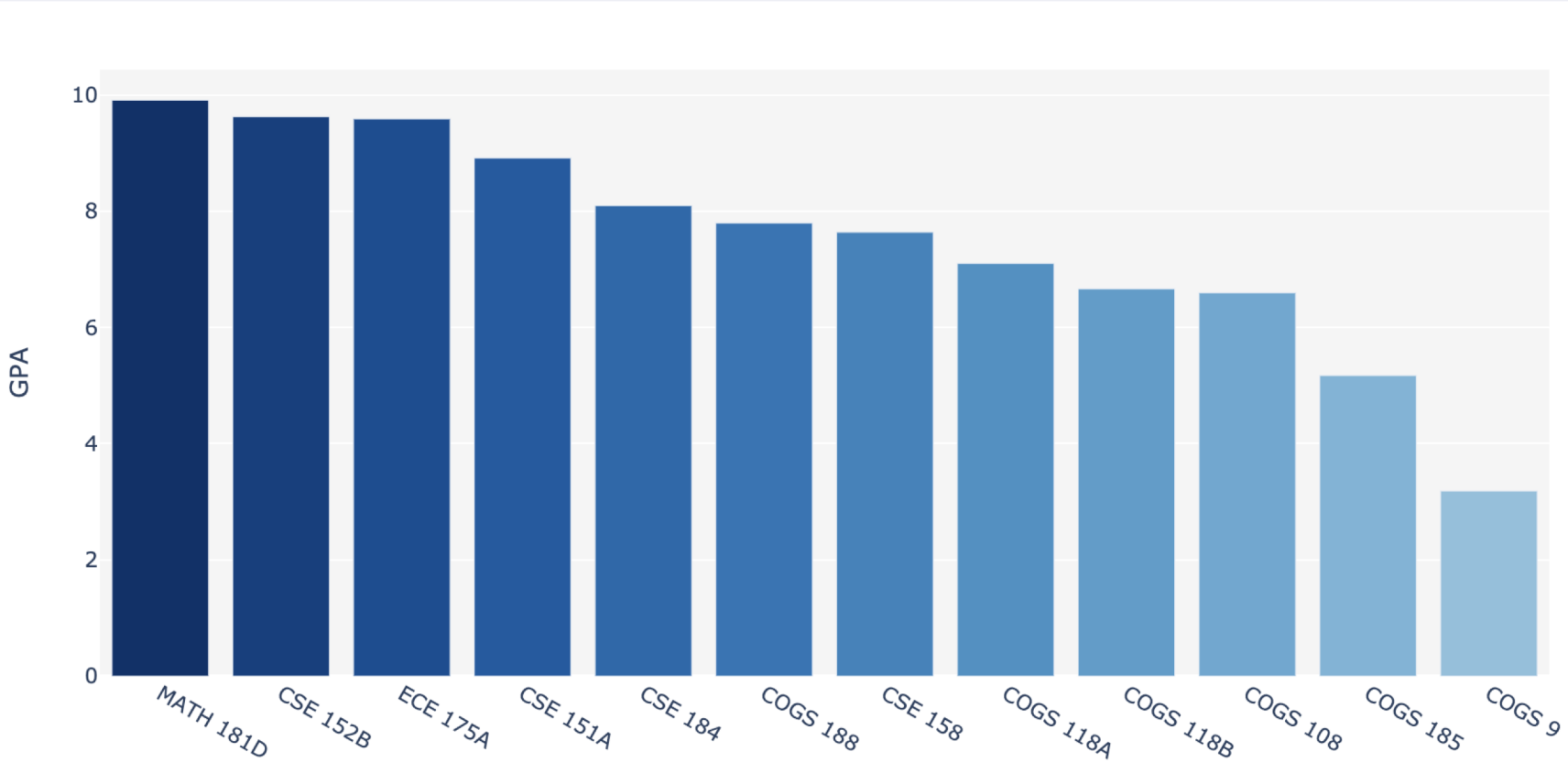
Interested in Machine Learning

What class should the student select?

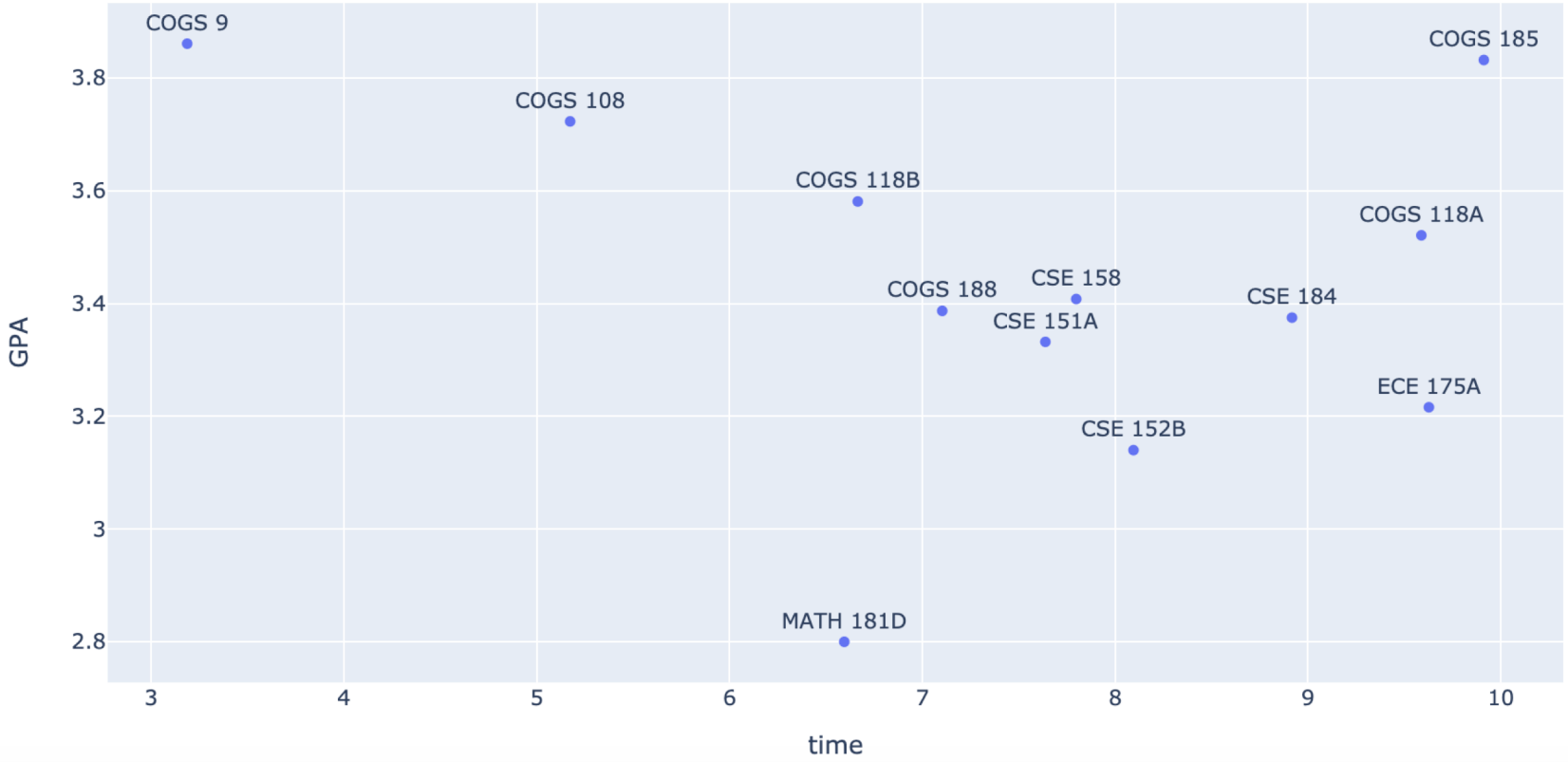
Average Earned GPA in Machine Learning Courses



Average Time spent in Machine Learning Courses



GPA and time spent for Machine Learning Courses



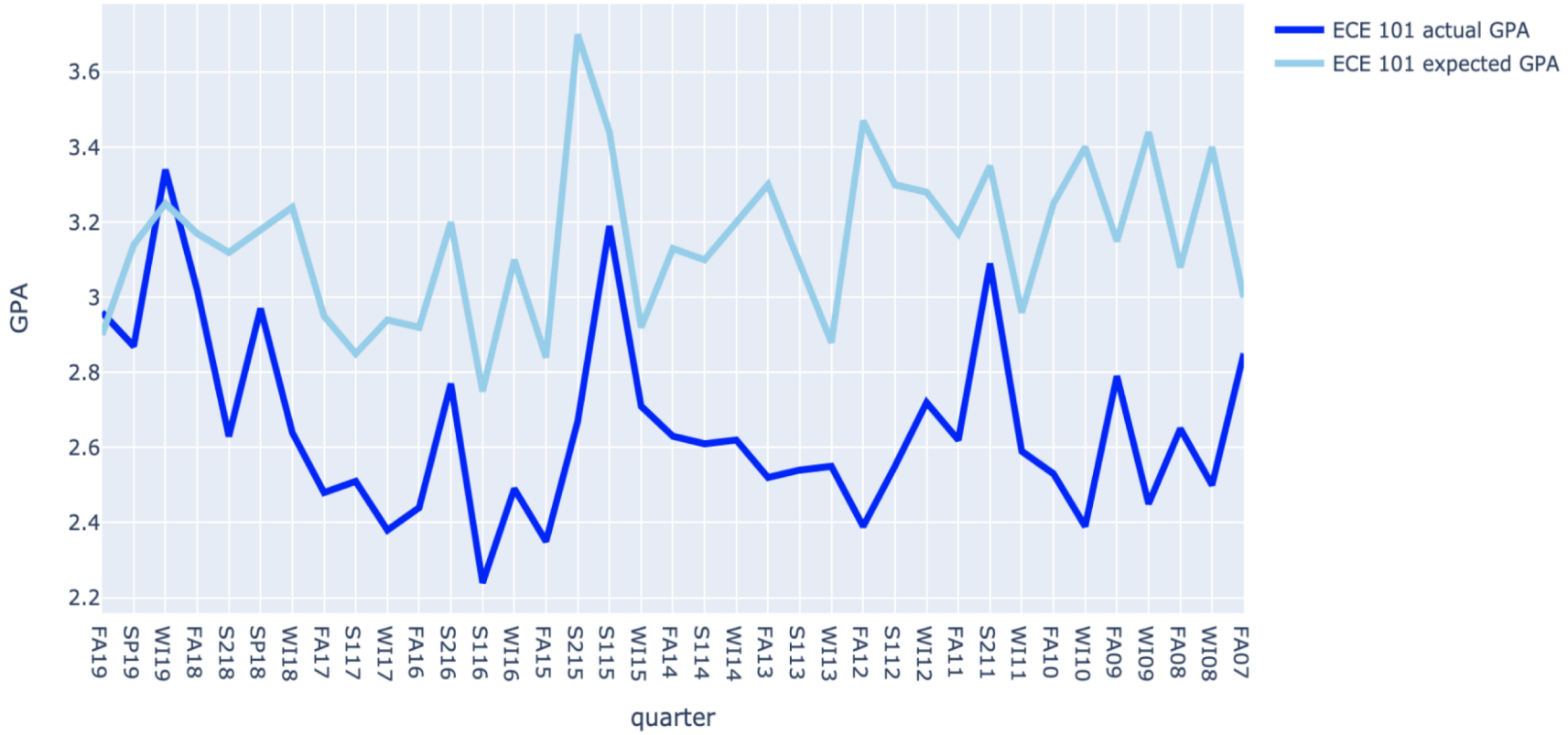
What about Mandatory Courses?

Some courses are required by degree, but can still be planned carefully.

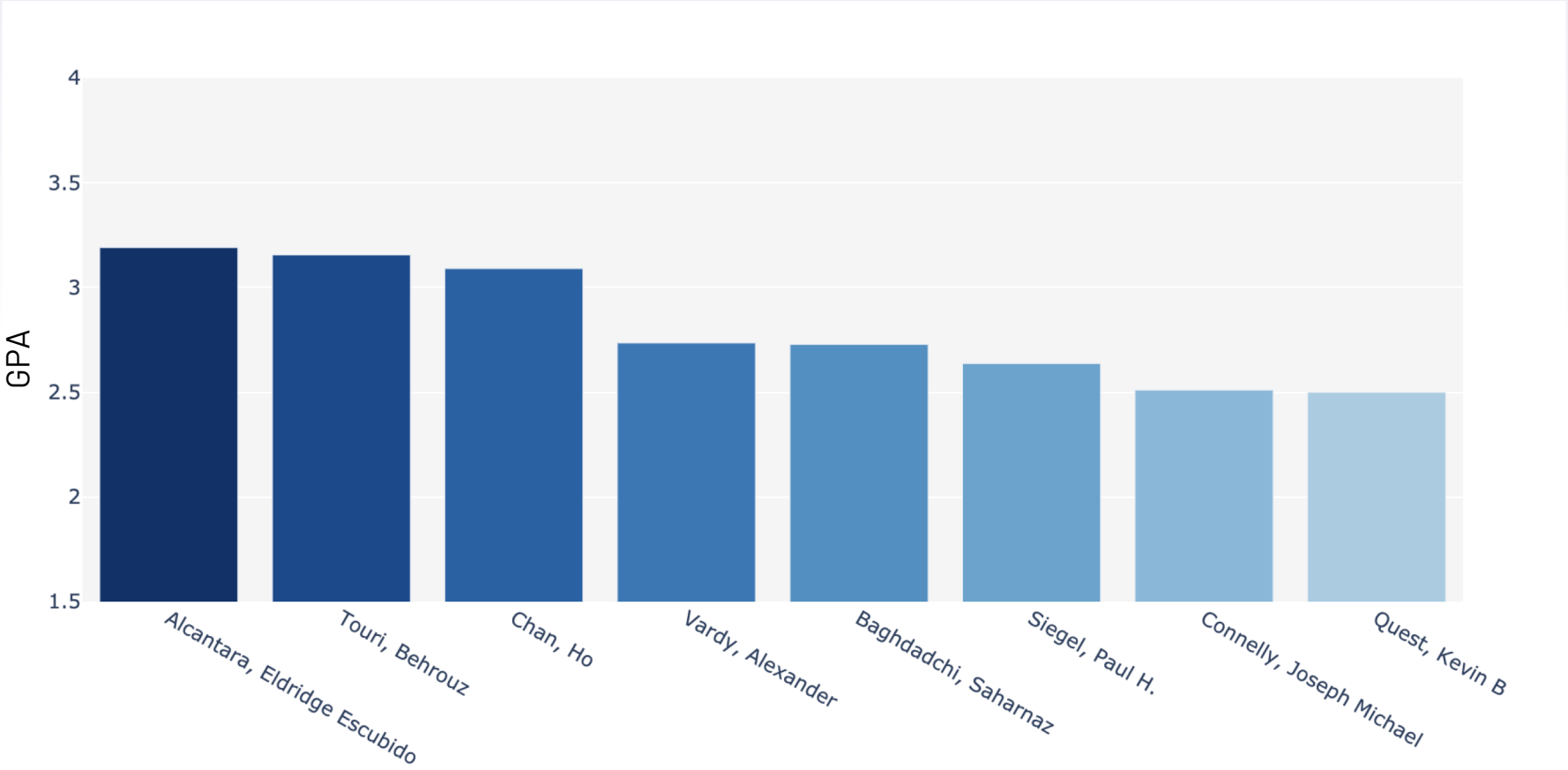
We explore the following factors:

- Different quarters
- Different professors

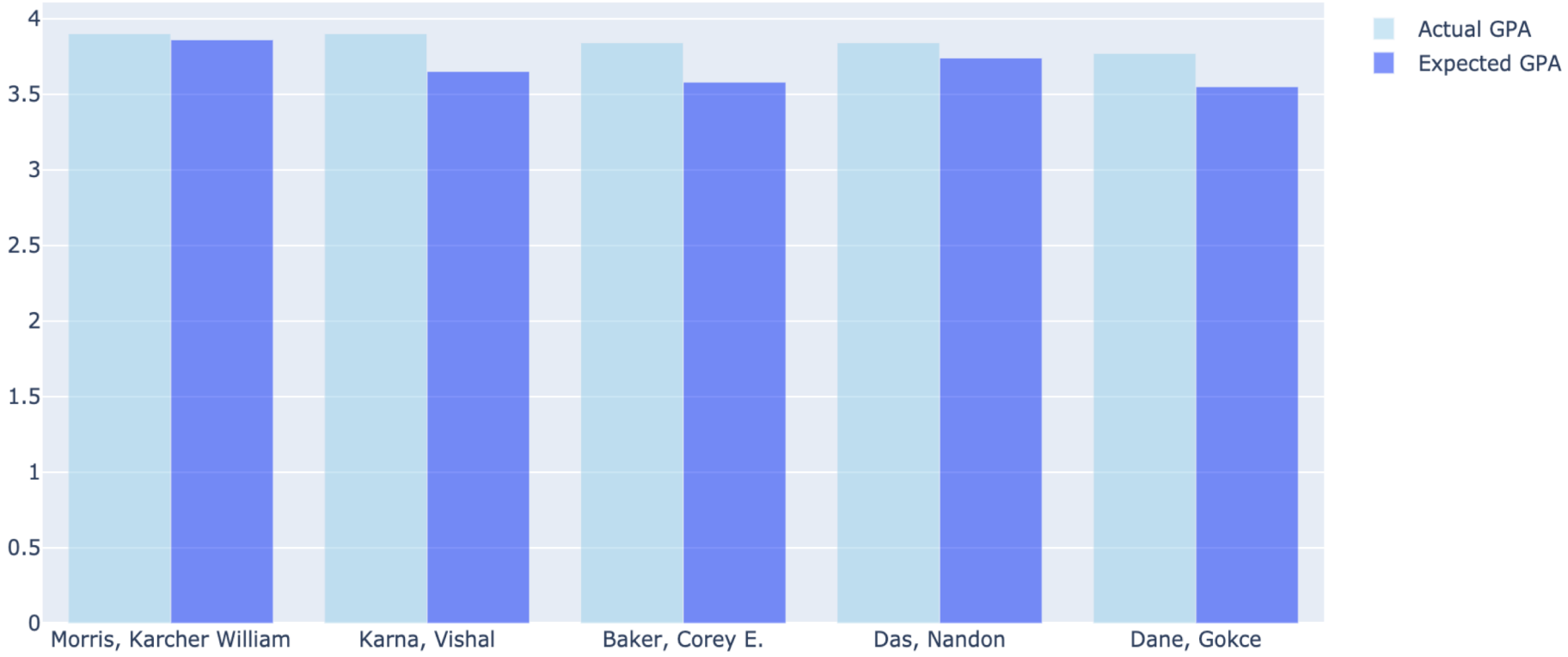
GPA History of ECE 101



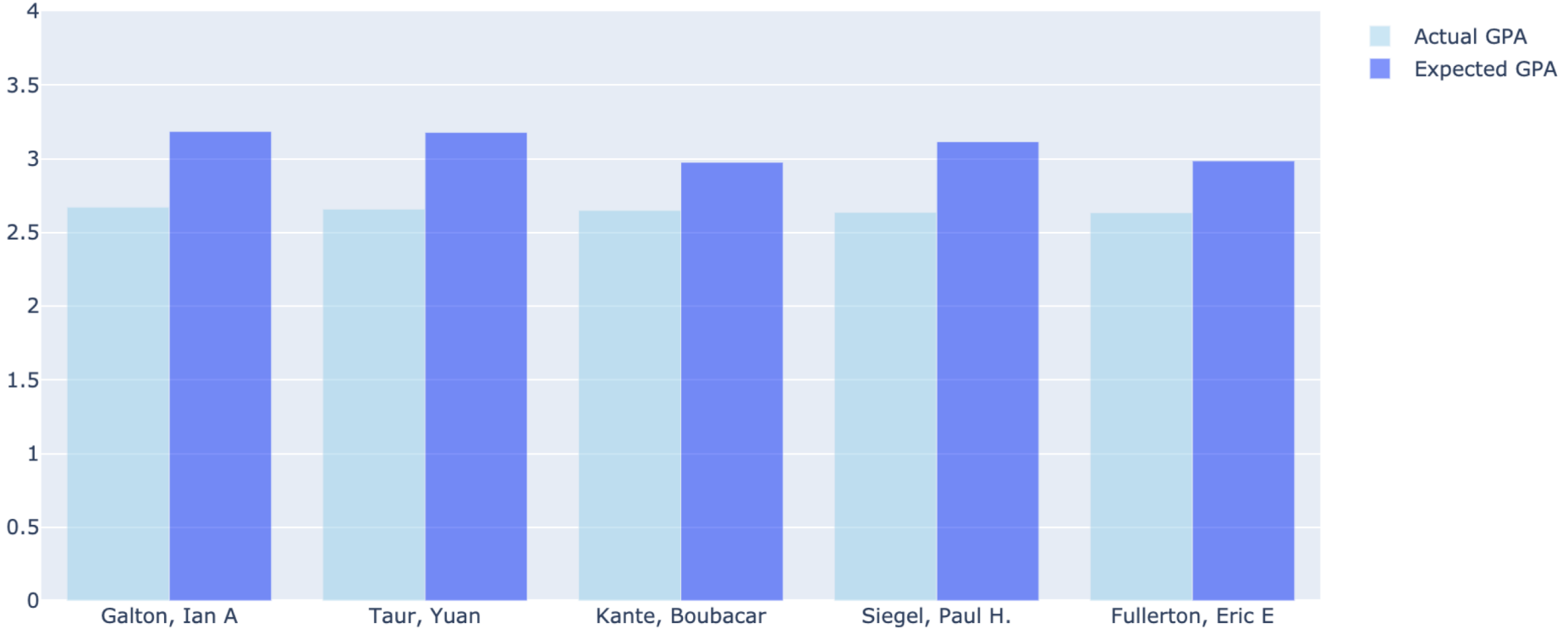
GPA vs Professor (ECE 101)



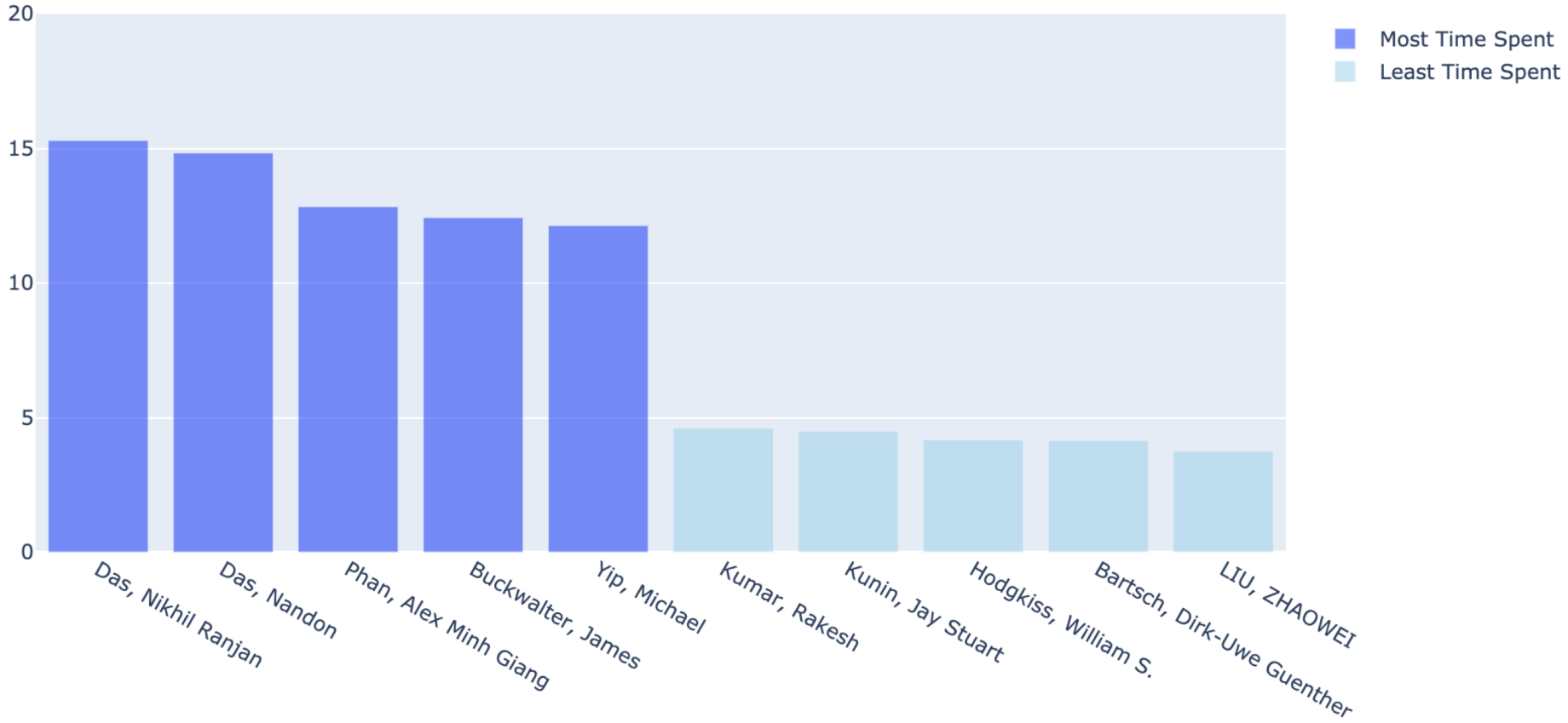
Top 5 professors based on GPA



Bottom 5 professors based on GPA



Top 5 and bottom 5 professors based on Time Spent



Conclusion

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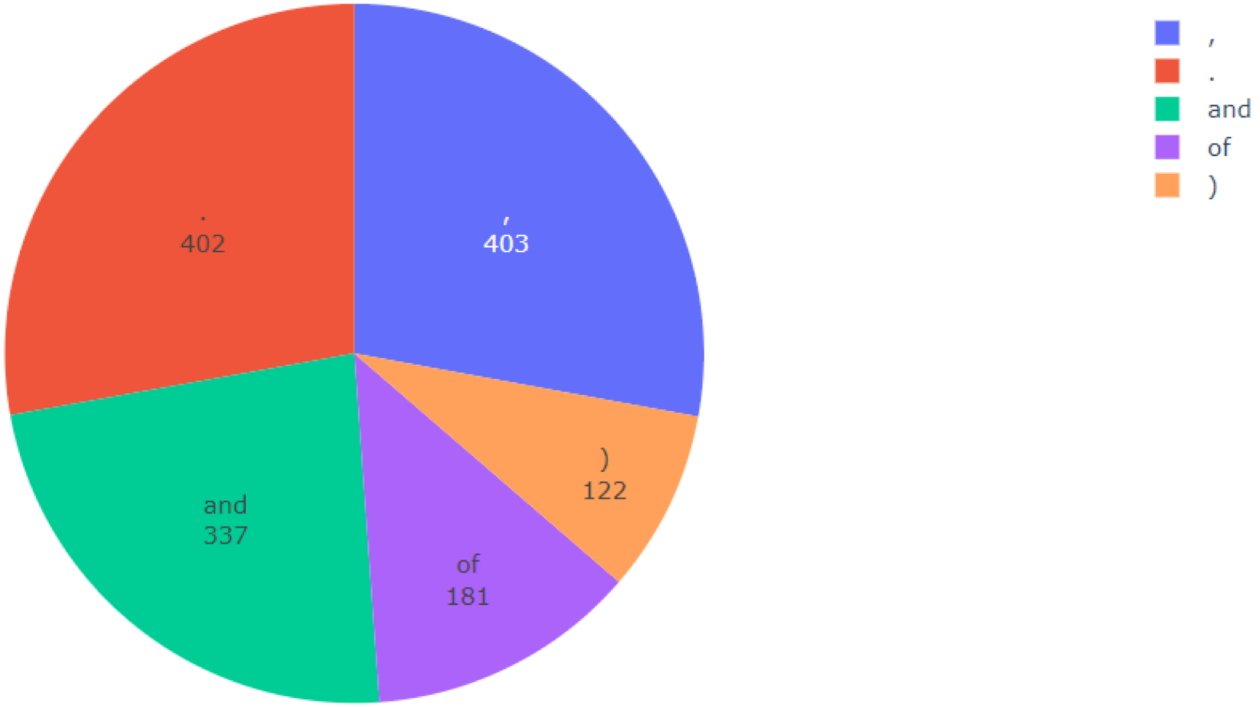
There are clear factors to look at in order to lower time spent on classes and to raise GPA

- Search based on interest should always be done across departments.
- Search based on required classes should be done by professor.

Top 5 Shared Keywords in ECE Department



THANKS!

Any questions?

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