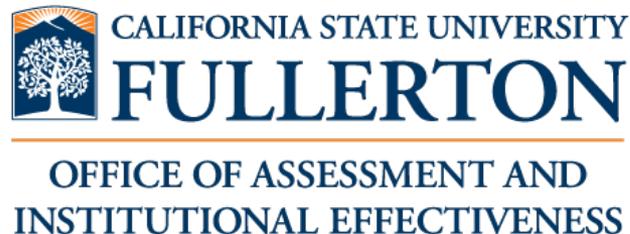


AAC&U Conference on General Education, Pedagogy, and Assessment (GEPA)

Using Python to Improve the First-Year Experience Program
2022 Conference | San Diego, CA



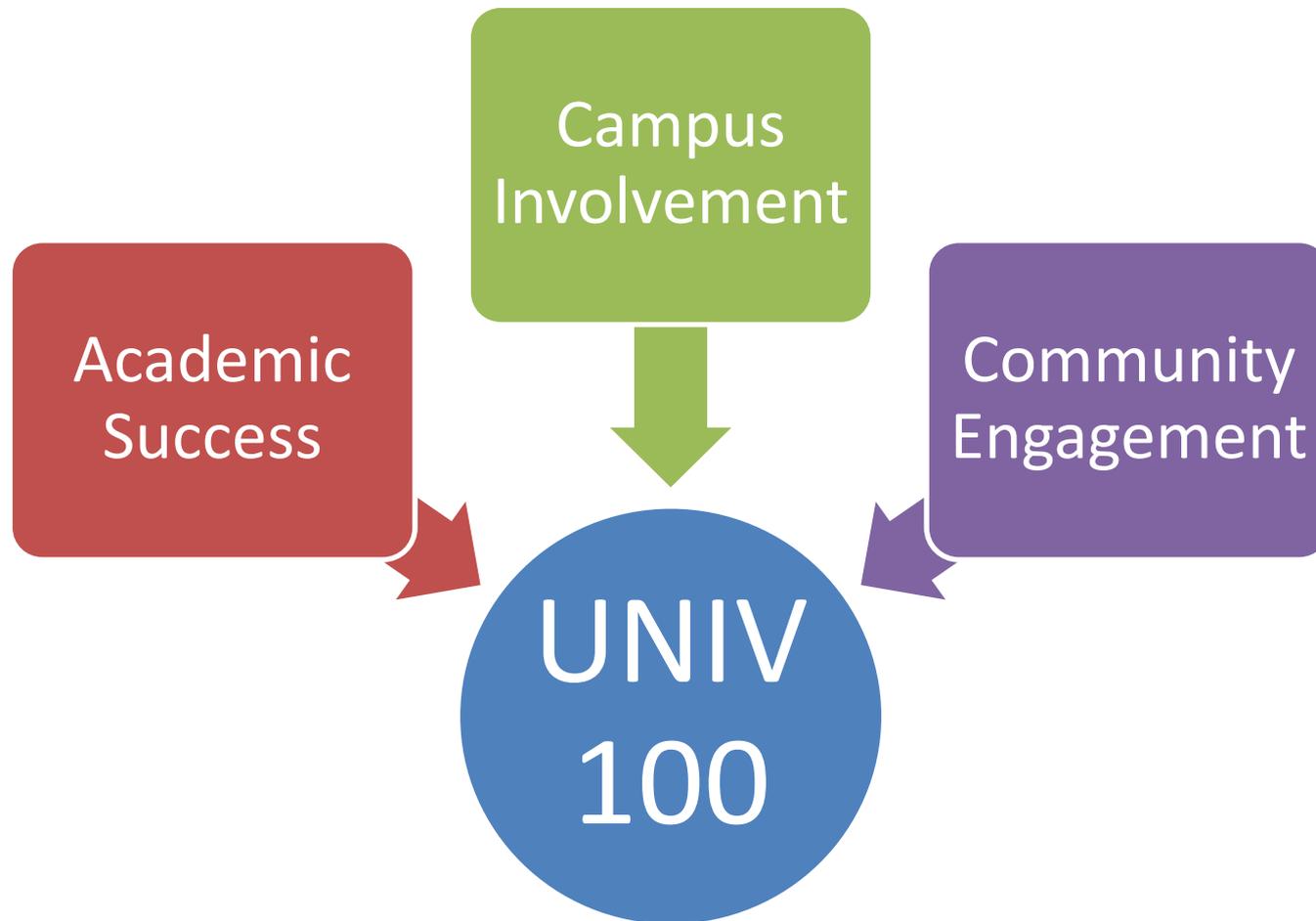
Michael Biesiada, Noha Abdou
Office of Assessment and Institutional Effectiveness



Outline

- UNIV 100 Background
 - Scope of program
- Objective
 - Analyze UNIV 100 survey feedback
- Method
 - Use python for both quantitative and qualitative analyses
- Findings
 - Summarize adjustments for future course offerings

Why Enroll in UNIV100?



UNIV 100 At CSUF

CATALOG YEARS FALL 2021 & BEYOND 48-49 Units Total

Area A - Core Competencies 9 units

Oral Communication	A.1
Written Communication	A.2
Critical Thinking	A.3

Area B - Scientific Inquiry & Quantitative Reasoning 12-13 Units

Physical Science	B.1
Life Science	B.2
Laboratory Experience	B.3
Mathematics/Quantitative Reasoning	B.4
Implications & Explorations in Natural Sciences & Math/Quantitative Reasoning++	B.5

Area C - Arts & Humanities 12 Units

3 units from C.1; 3 units from C.2; 3 units from C.3; and 3 units from either C.1 or C.2**

Introduction to the Arts	C.1
Introduction to the Humanities	C.2
Explorations in the Arts or Humanities ++	C.3

**Designated high-unit majors may waive this requirement. See an advisor for more info.

Area D - Social Sciences

9 Units

Courses must be completed from at least 2 different disciplines

Introduction to the Social Sciences	D.1
American History, Institutions & Values	D.2
Explorations in Social Sciences++	D.3

Area E - Lifelong Learning & Self Development 3 Units

Area F - Ethnic Studies 3 Units

Area Z - Cultural Diversity

One GE Course in B, C, D or E must double-count as a Z

Graduation Requirement

An American Government course is required for students in this Catalog Year

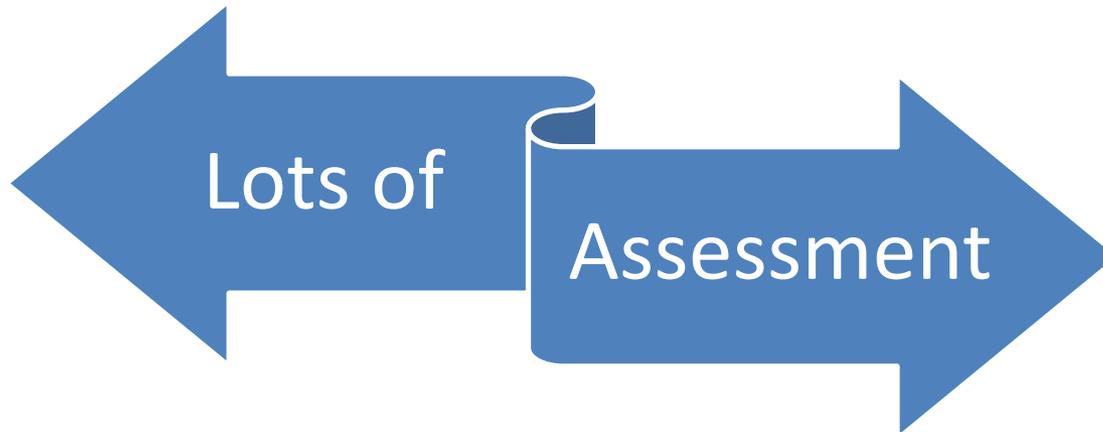
Courses in the following areas require a grade of C- or higher to earn GE credit:

- A.1 Oral Communication
- A.2 Written Communication
- A.3 Critical Thinking
- B.4 Mathematics/Quantitative Reasoning

All other GE courses require a grade of "D" or higher to earn GE credit

++ upper-division categories; 3 units required in each

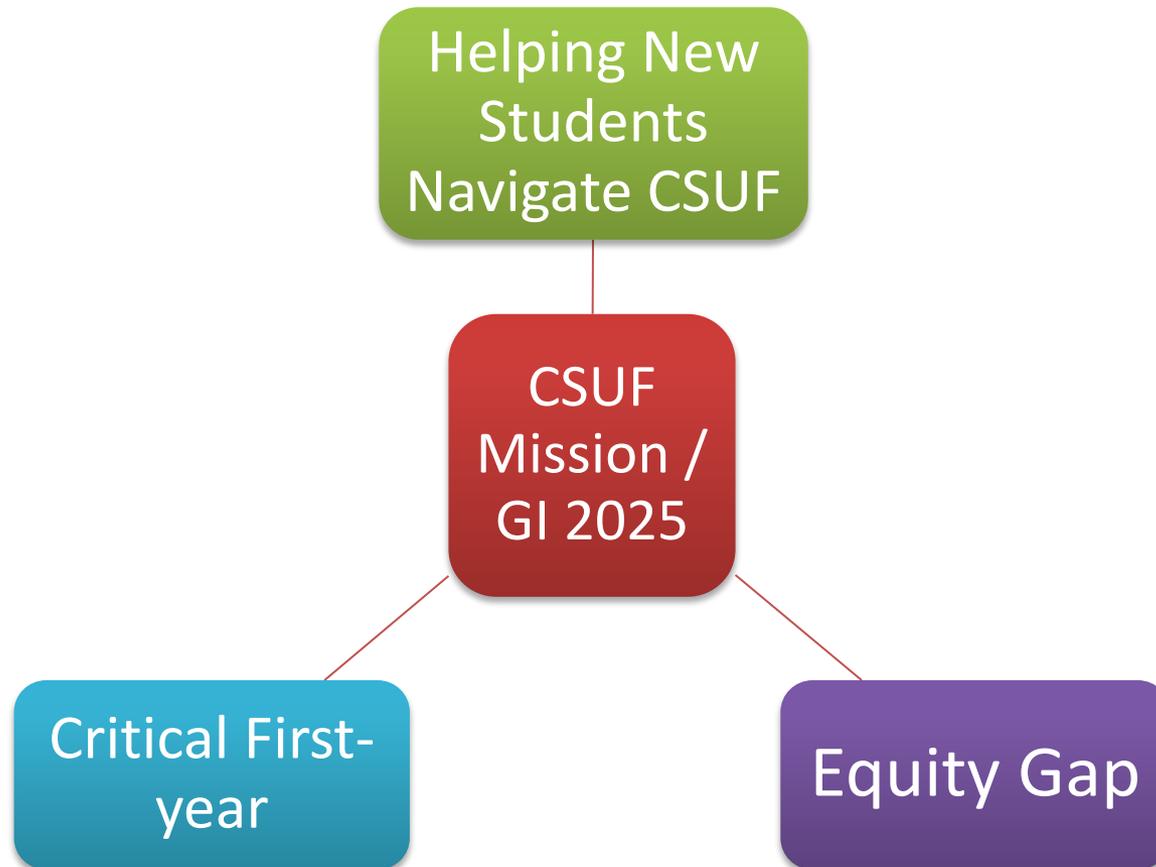
Elements of UNIV 100



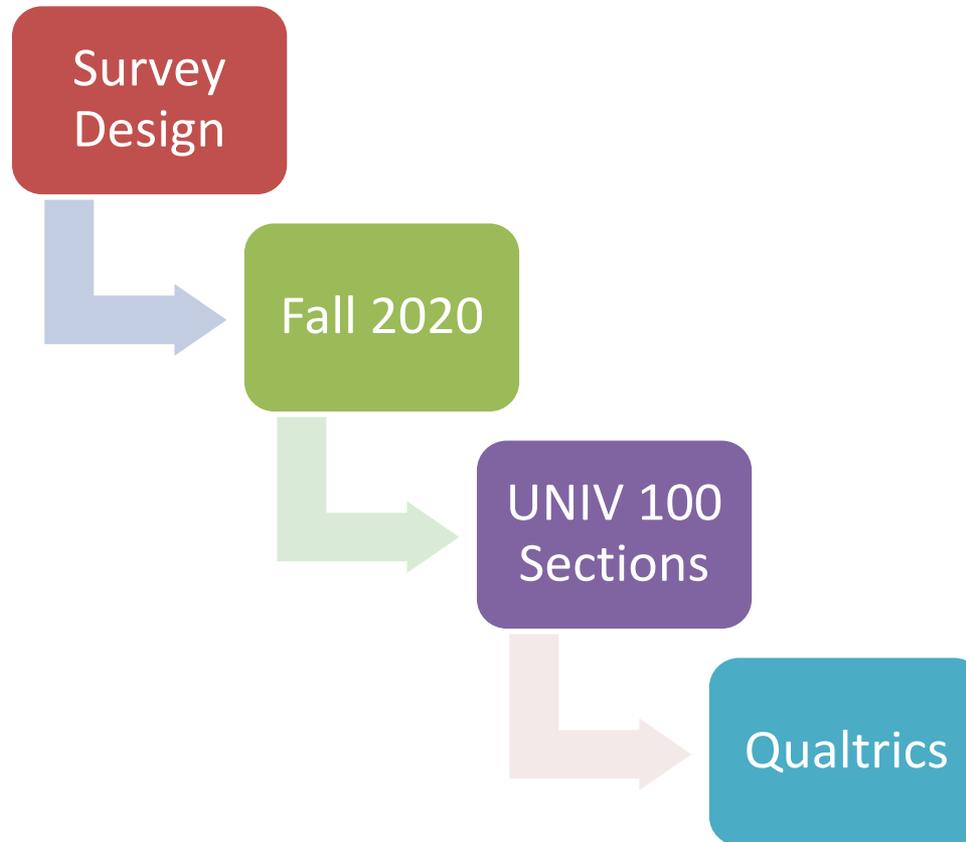
Peer Mentor



Why Research UNIV100?



Data



Citation: Ganem & Manasse (2011), Toutkoushian et al., (2019)

Survey Implementation

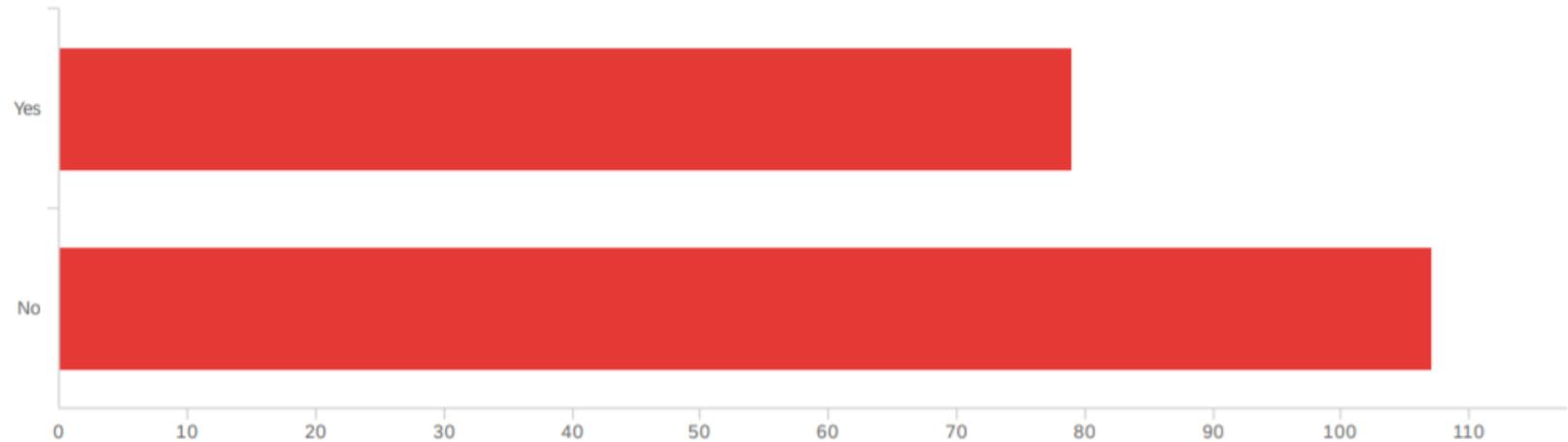
- UNIV 100
- 186 Respondents
- 22 questions
- 21 Quantitative
- 1 Qualitative



Sample Question 1

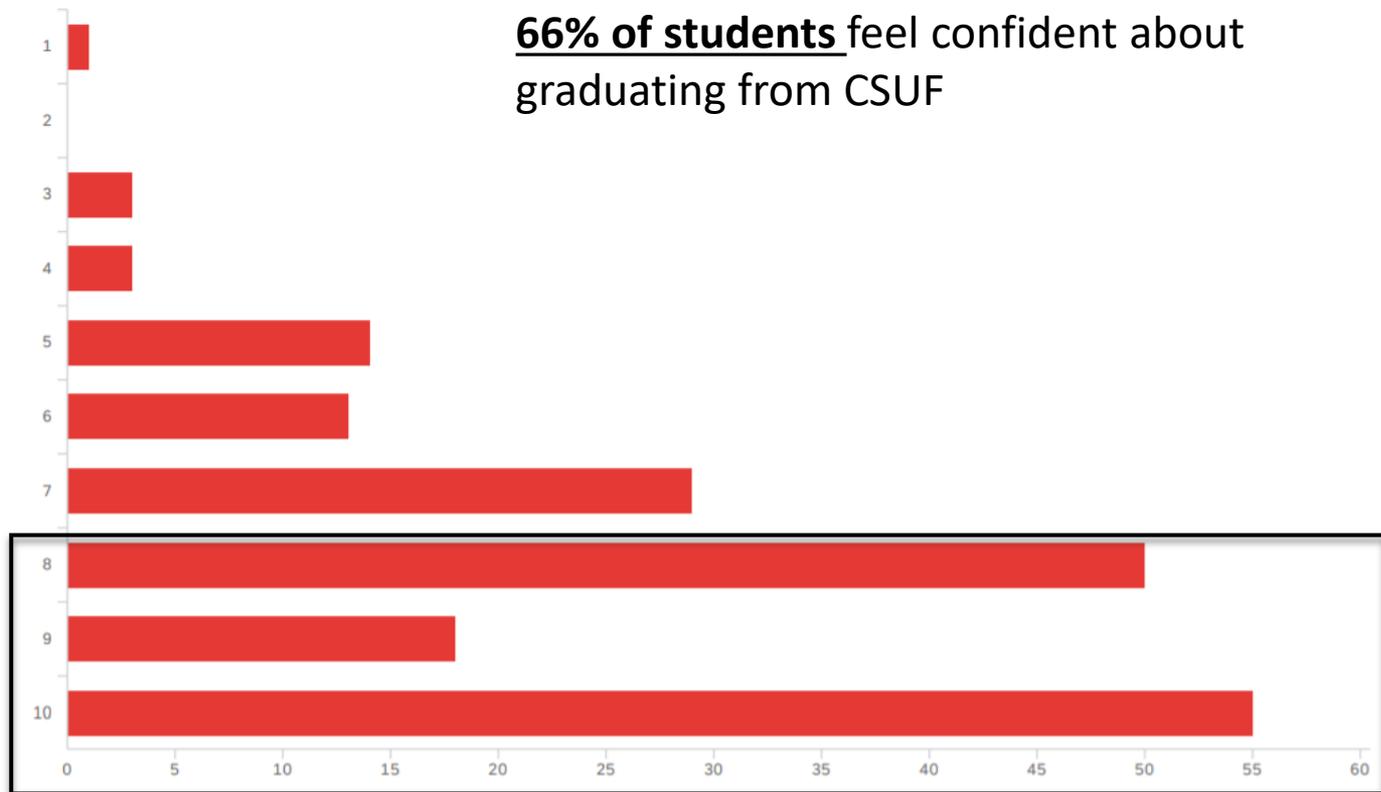
Did you decide on a major by the end of the semester?

Only 42% of students were able to declare majors



Sample Question 2

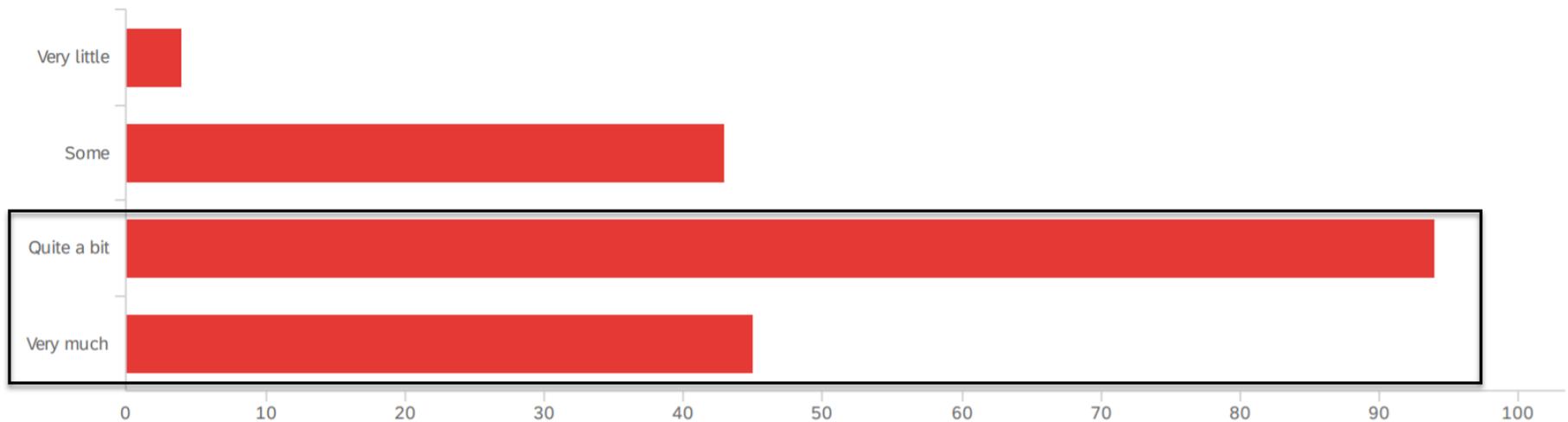
You feel confident about completing your undergraduate degree at CSUF (where 1 is not confident and 10 is confident)



Sample Question 3

You analyzed an idea, experience, or line of reasoning in depth by examining its parts

75% of students analyzed an idea using critical thinking skills



Text Analytics with Python



Introduction to Text Analytics

Anaconda Distribution

The World's Most Popular Python/R Data Science Platform

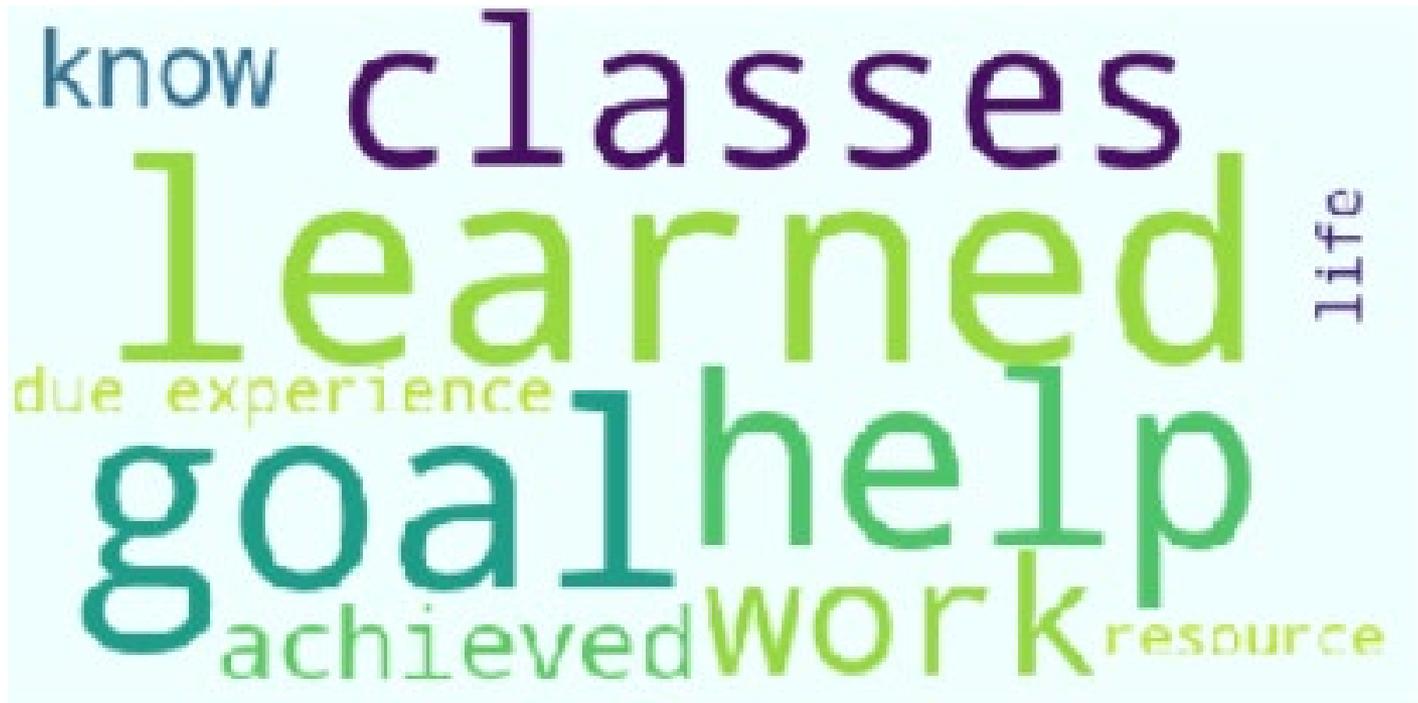
Download

The open-source Anaconda Distribution is the easiest way to perform Python/R data science and machine learning on Linux, Windows, and Mac OS X. With over 11 million users worldwide, it is the industry standard for developing, testing, and training on a single machine, enabling *individual data scientists* to:

- Quickly download 1,500+ Python/R data science packages
- Manage libraries, dependencies, and environments with Conda
- Develop and train machine learning and deep learning models with `scikit-learn`, `TensorFlow`, and `Theano`
- Analyze data with scalability and performance with `Dask`, `NumPy`, `pandas`, and `Numba`
- Visualize results with `Matplotlib`, `Bokeh`, `Datashader`, and `Holoviews`

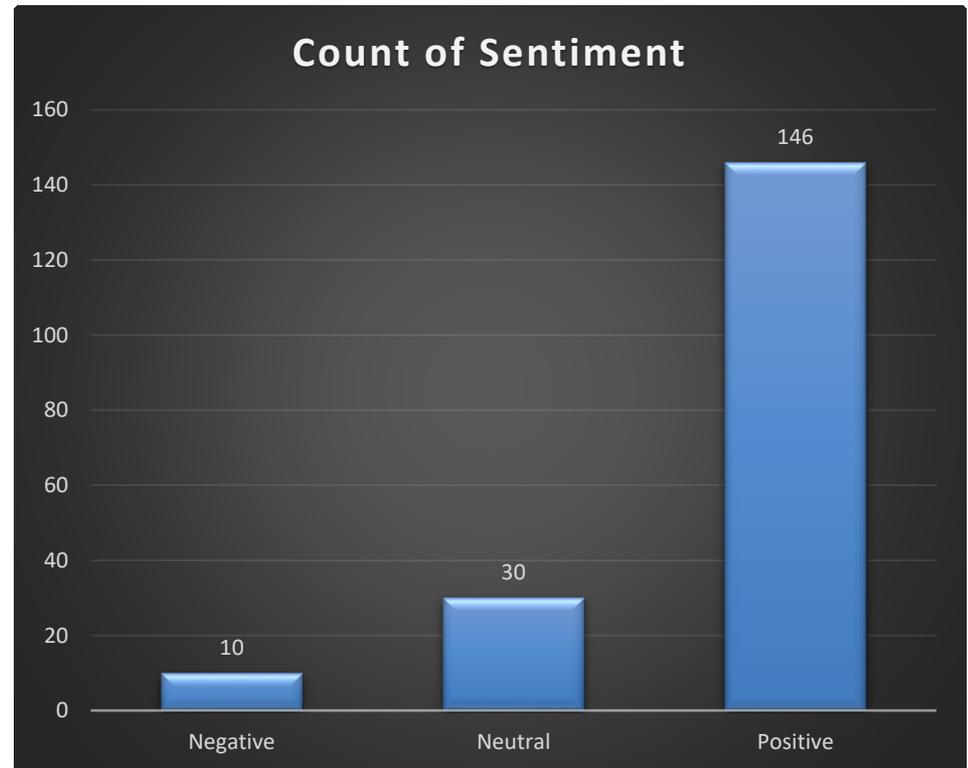
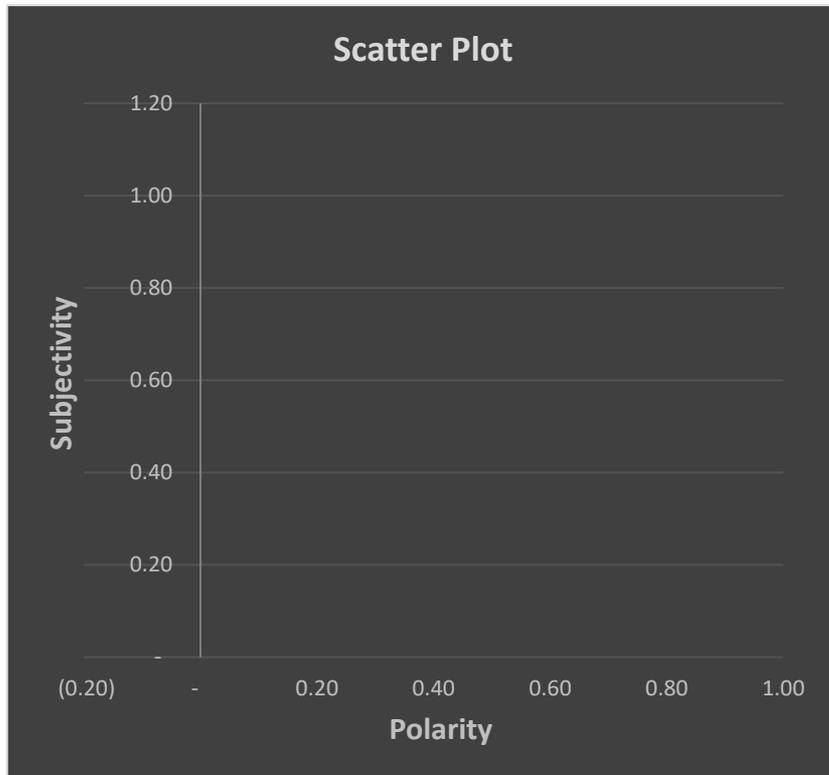
Qualitative Analysis 1 | Word Cloud

Students cited “learned”, “goals”, and “help” the most



Qualitative Analysis 2 | Sentiment Analysis

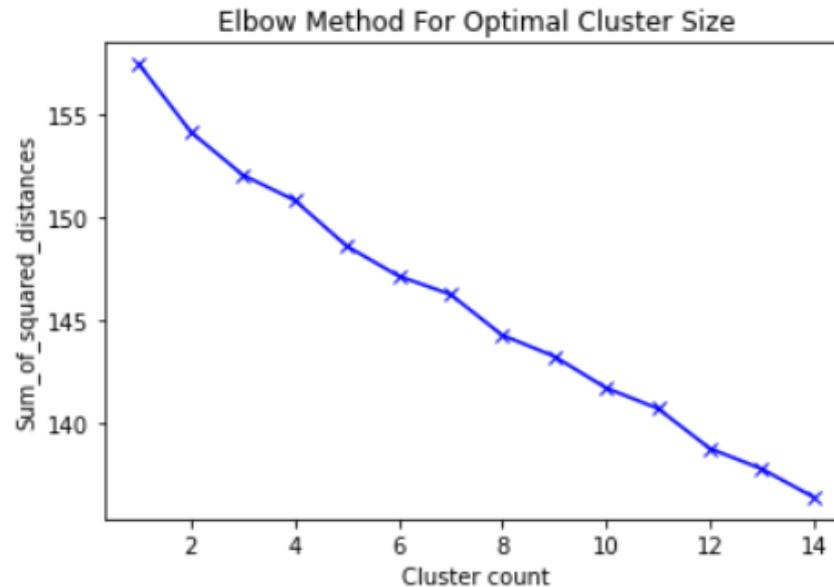
~78% of students had positive sentiments about course



Qualitative Analysis 3 | Cluster Analysis

3 groups emerged from cluster analysis across all sections

Group	Group Label	Text Comment	Connection to Adjustments
0	Resume Building	"I revised my resume using Vmock"	Resume Program
1	Time management	"I achieved better time management"	Library Modules
2	Improving organizational skills	"Gave me more insight on my habits"	Capstone Project



Adjustment 1 | Resume Workshop Using AI



Adjustment 2 | Library Modules



The screenshot shows a video player interface with a dark blue background. The main content area features a large blue semi-transparent banner with the text "FINDING ARTICLES & DATABASES" in white, bold, uppercase letters, and "Pollak Library" in white, lowercase letters below it. A mouse cursor is visible over the text. To the right of the banner is a large white circle containing a grey right-pointing arrow. Below the banner, there is a smaller white semi-transparent banner with the text "Pollak Library Spark Tutorials" in a grey, italicized font. Below that is another white semi-transparent banner with the text "Credits" in a grey font. The bottom of the player has a dark blue bar with a speaker icon on the left and a "NEXT >" button on the right. The word "Resources" is visible in the top right corner of the player frame.

Resources

FINDING ARTICLES & DATABASES
Pollak Library

Pollak Library Spark Tutorials

Credits

NEXT >

Adjustment 3 | Capstone Using Adobe Sparks



This is from CSUF's 2021 Convocation and State of the University. In this section of the convocation President Virjee discusses how CSUF has made the transition back to in person classes and how it is so important that this step was taken after the still ongoing struggles from the pandemic.

Sarah

Networking: Many people work in Mechanical Engineering, such as: William Purpura, Jesus Gonzalez, Garrett Yniguez, Justin McGregor, and John Chen. The companies they work for are: Boeing, A.S.K. Technologies, Edwards Lifesciences, Fluid Research Corporation, and Starrett.

Career: Currently I am most interested in working at Boeing, since I want to focus on aerospace. Similar to starting internship, my responsibilities would be to develop, integrate, and document mechanical, fluid systems, and thermal environment requirements.

Interhips: Boeing offers interships in Palmdale, CA, as well as the Huntington Beach area. At this internship, I would develop structural designs that translate into factory hardware tooling structures. I would also develop concepts and design/analyze factory equipment and tools to produce aerospace products.

Graduation: I would graduate the College of E.C.S. with a B.S. in Mechanical Engineering in 2025. I may double major or minor in another field depending on time available and the requirements of said field. If I do double major, my second field would be a B.A. Instead of a B.S., such as Art, Business, Communications, or Humanities.

Certifications: There are many certifications available in my field, specifically the Six Sigma Master Black Belt. To earn this certification, you must pass the IASSC Certified Lean Six Sigma Black Belt Exam. It is a 150 question, closed book, proctored exam with a 4 hour allotted time. Upon successful achievement, Professionals will receive IASSC Black Belt Certification issued by the International Association for Six Sigma Certification.



William Purpura PE, PMP, RIA (ret)

Managing Partner at Dargon Development
Anaheim, California, United States · [Contact info](#)

500+ connections

Connect

Message

More

Closing thoughts

Identifying major → improve



Graduating from CSUF → high



UNIV 100 sentiments → positive



Citation: Clark & Cundiff (2011)



Thank you for attending

- Questions?