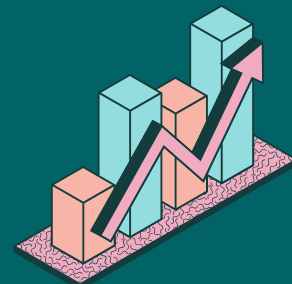# Are PAC Students developing effective empirical and quantitative reasoning skills?

Learning Outcome

Palo Alto College students manipulate and analyze numerical data or observable facts resulting in informed conclusions.

Rubric Criteria

Identification: The student can gather, identify, or recognize appropriate qualitative or quantitative information.

Synthesis: The student can process, synthesize, or manipulate appropriate numerical data or observable facts.

Conclusion: The student can interpret, analyze, or explain numerical data or observable facts culminating in one or more relevant conclusion(s).
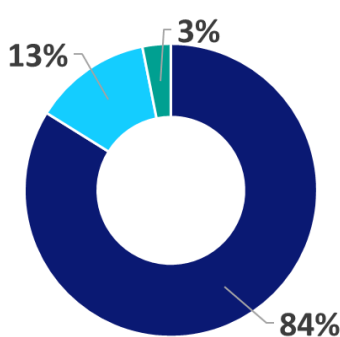
Target

70% of student work meets standard in each criteria

Each piece of student work was rated individually by 2 faculty members using PAC's institutional rubric for communication.
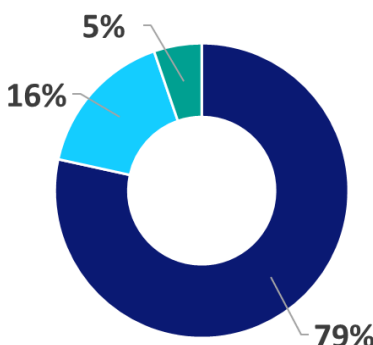
Student work <u>met target</u> in 2 criteria.
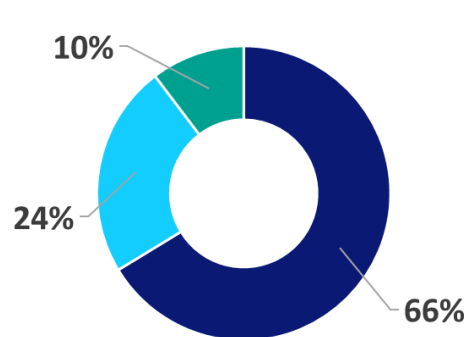
RESULTS

Identification
n = 192

- 84%
- 13%
- 3%

Synthesis
n = 190

- 79%
- 16%
- 5%

Conclusion
n = 184

- 66%
- 24%
- 10%

Met Standard · **Middling** · **Did Not Meet**

What do the results mean?

Met Standard
Student work was rated Developing or Advanced by both raters.

Middling
Student work was rated Met Standard by one rater and Did Not Meet Standard by the other.

Did Not Meet
Student work was rated Emerging by both raters.

371
pieces of student work

218 sample size

222 submitted student work

17 faculty raters

1132 dual ratings

90% rater agreement

This means that a majority of the time, our faculty raters were within one point of each other when scoring the same artifact.

Rater norming was very successful!

Points to Ponder

- Does the performance target need adjustment?
- How can we improve the alignment of assignment instructions to increase ratability of artifacts?
- How do we support student ability to draw conclusions from data or an analysis?

Questions?

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