Is STEM Experience Related to Student Grades in Food and Agricultural Chemistry?

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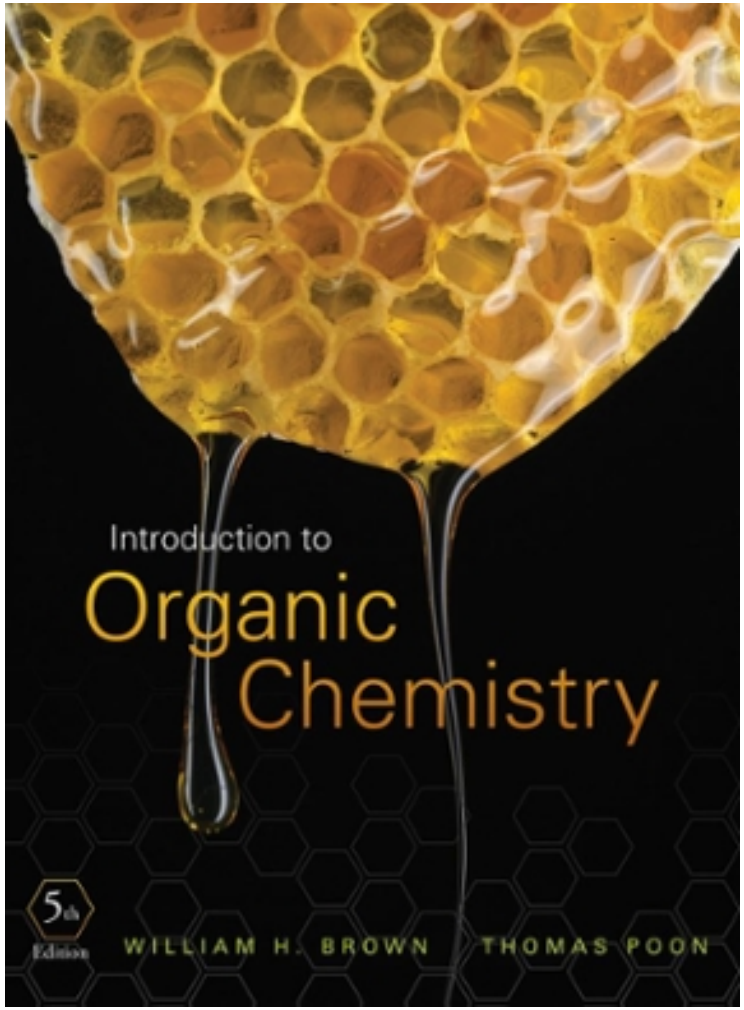
65th Annual NACTA Conference

Missouri State University

AGR 300: Food and Ag Chemistry

- Typically taken during junior year
- Tailored to meet needs of Agriculture majors
  - Emphases applied organic chemistry and biochemistry



Objective

- Evaluate relationship between prior academic preparation and student performance in AGR 300

- Hypothesis
  - Students with more STEM experience will earn better grades

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Methods

VARIABLES

- Age
- Credit Hours
- Pre Test Scores
- GPA
- ACT
- Amount of STEM classes

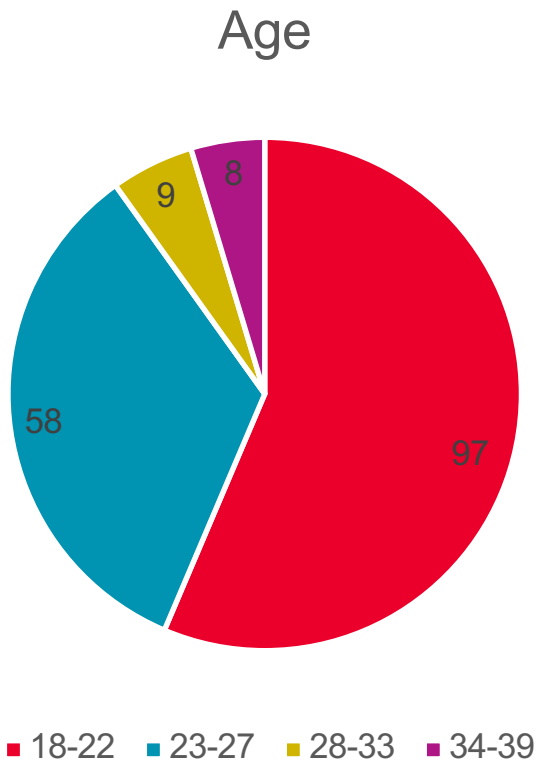
Methods

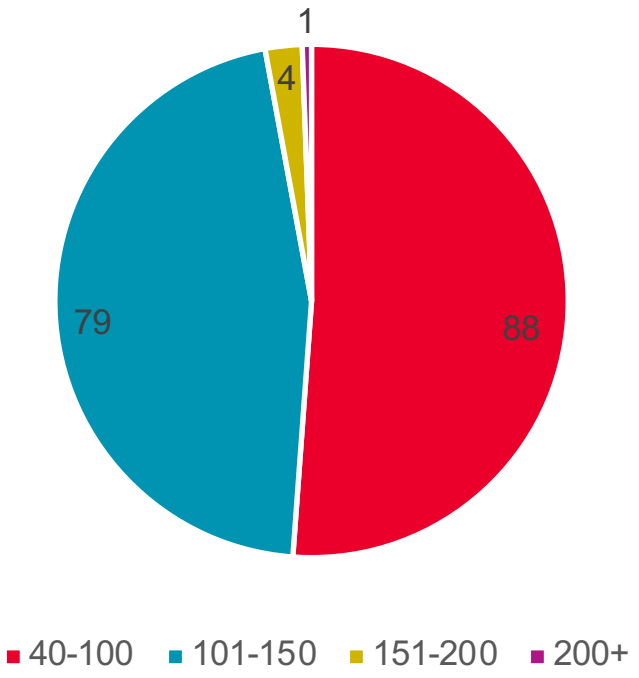
DATA ANALYSIS

- Analysis of Variance
- Correlation
- Stepwise Regression

Results

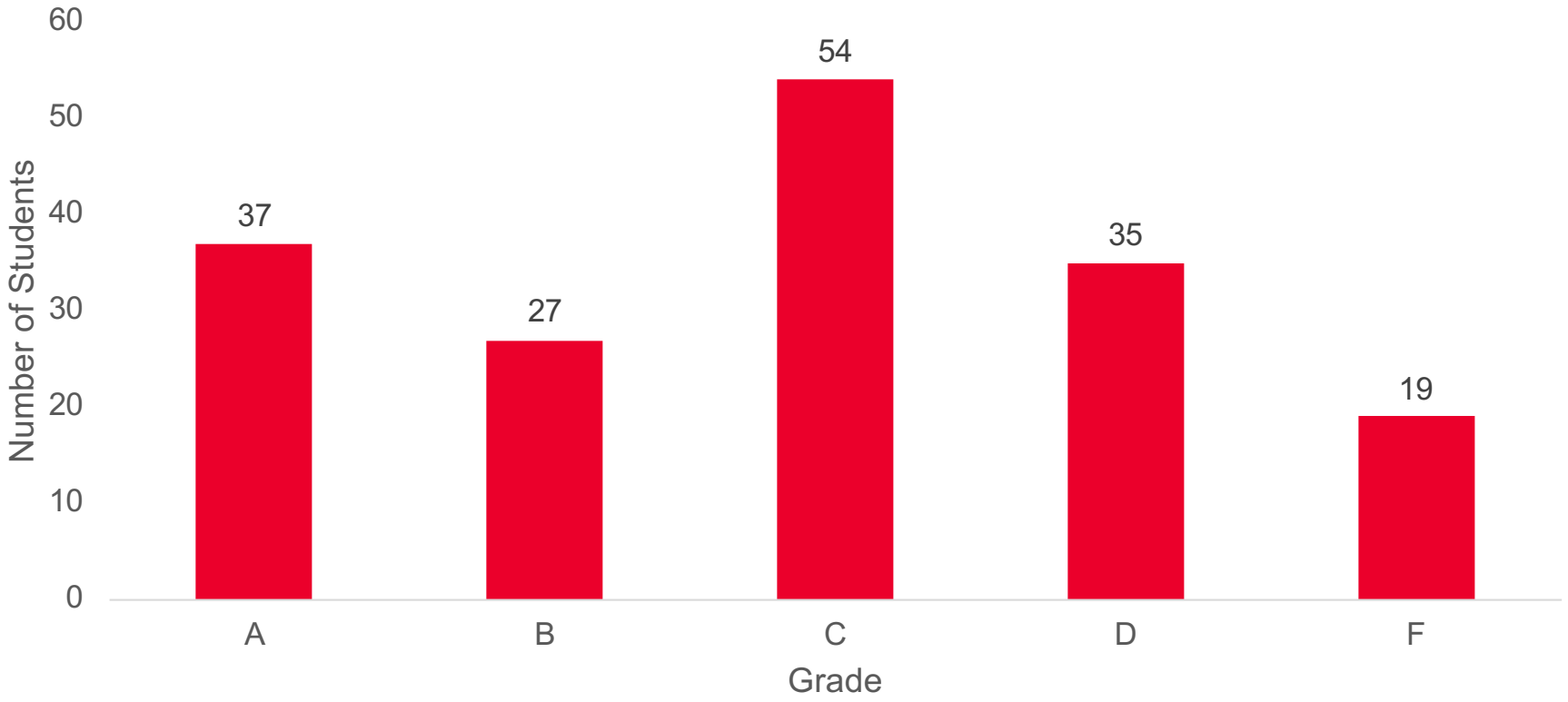
STUDENT BACKGROUNDS





Average Student Grade

FOOD AND AGRICULTURE CHEMISTRY



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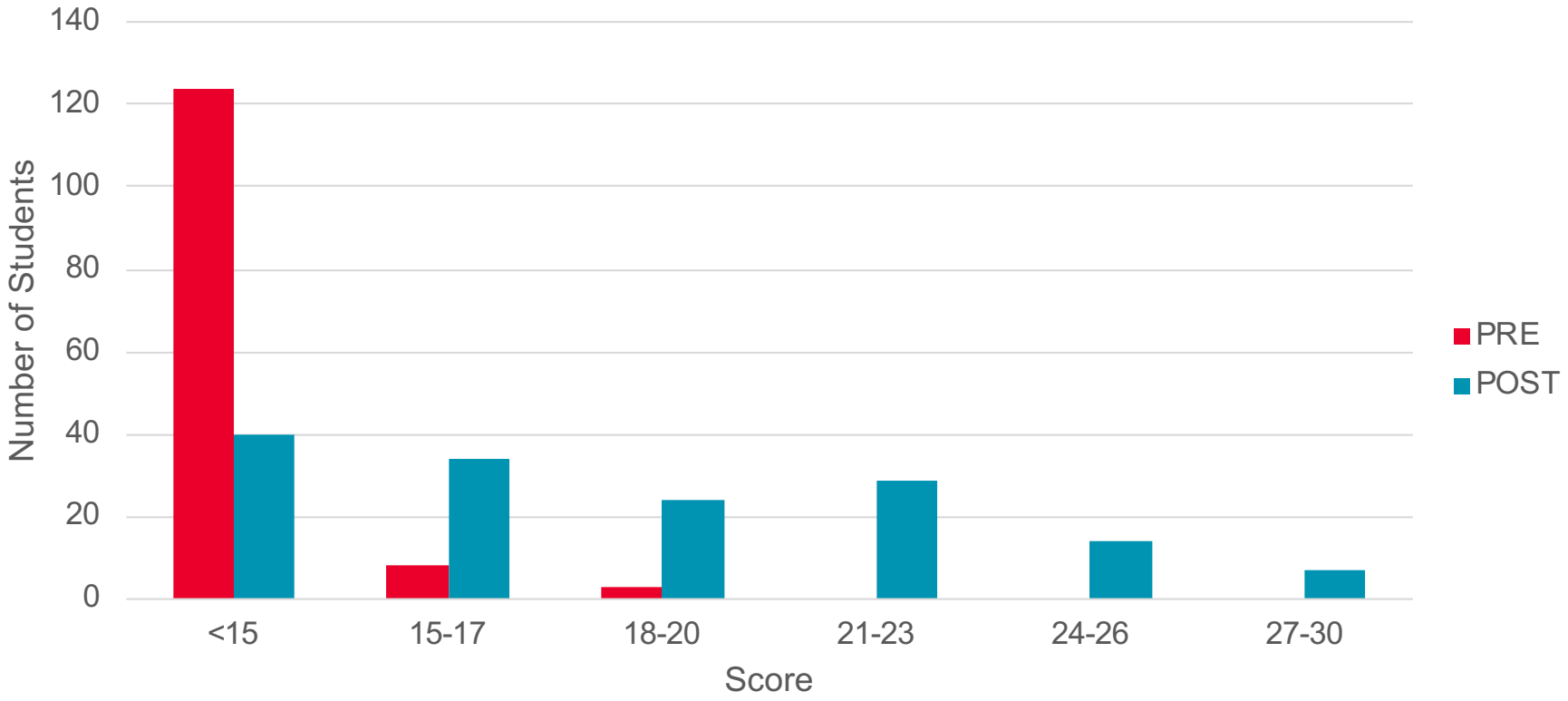
N=172; 4 semesters represented

Results

PRE/POST TEST SCORES



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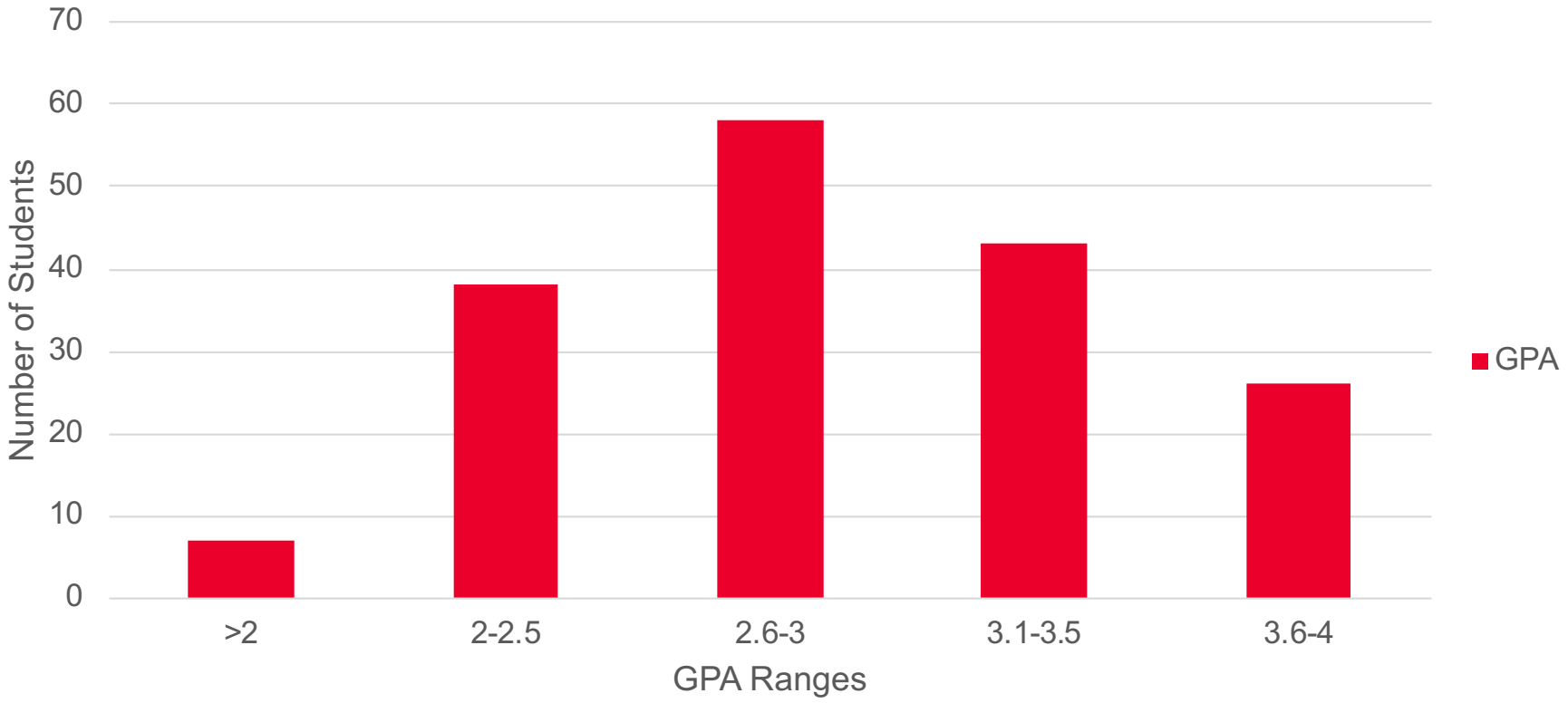
Results

GPA



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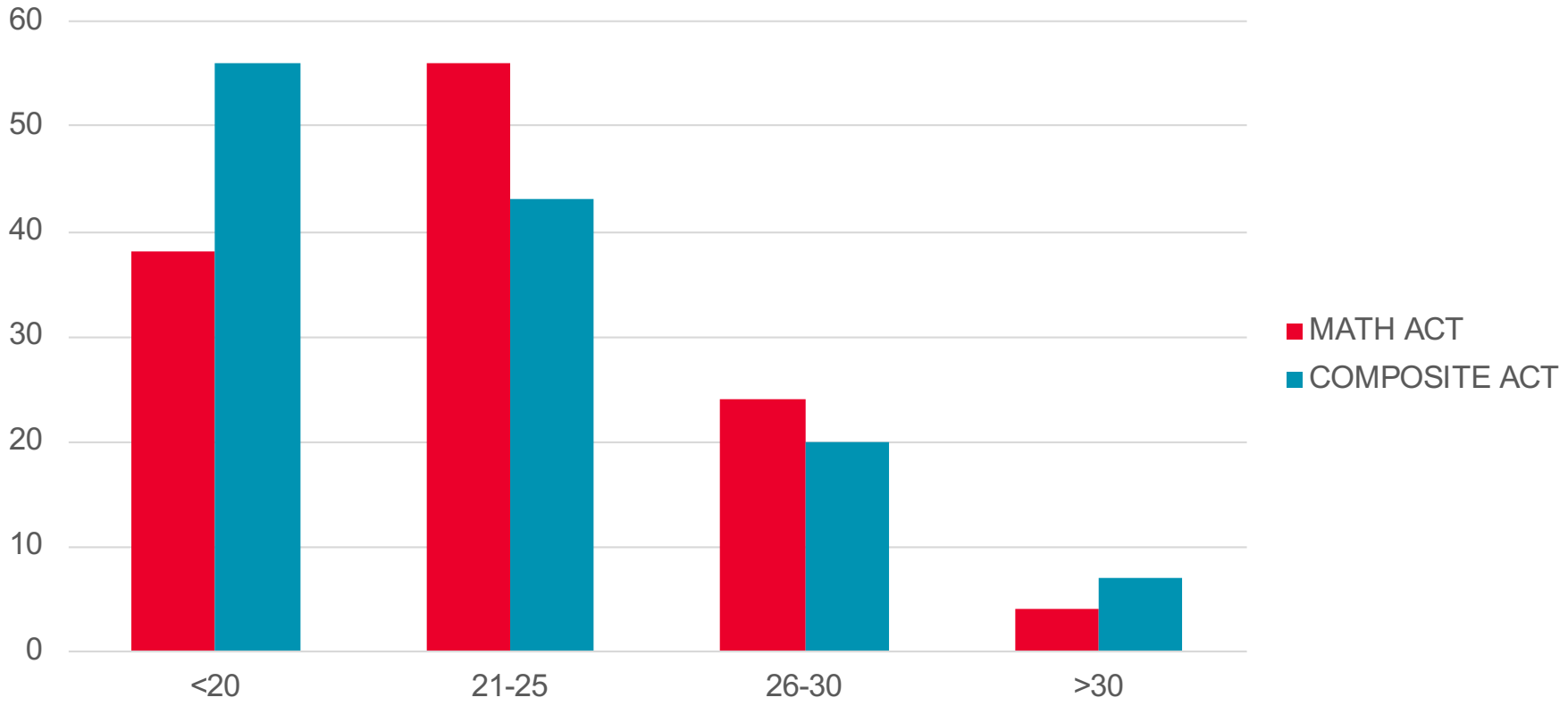
N=172; 4 semesters

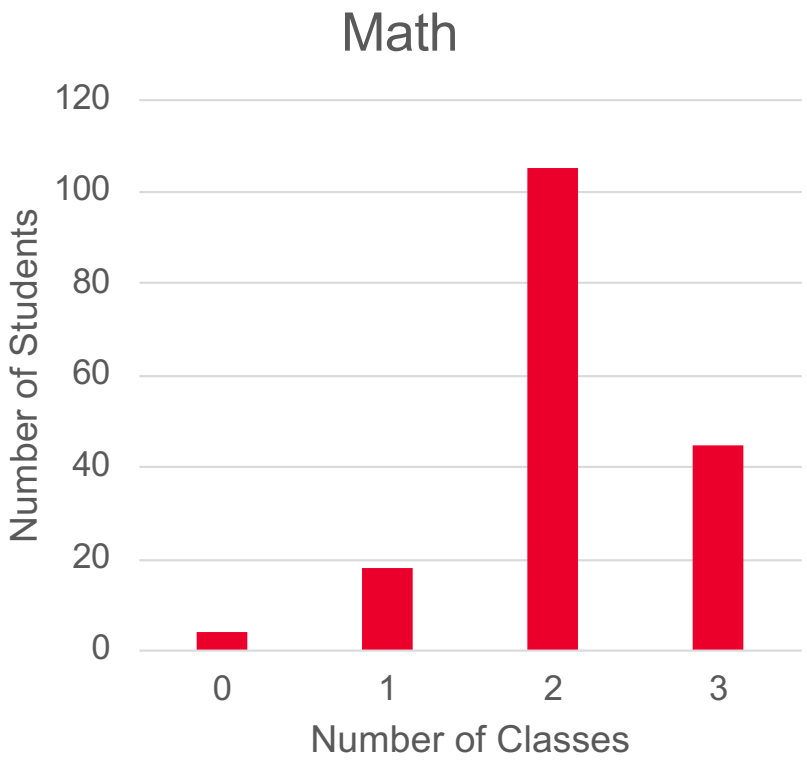
Results

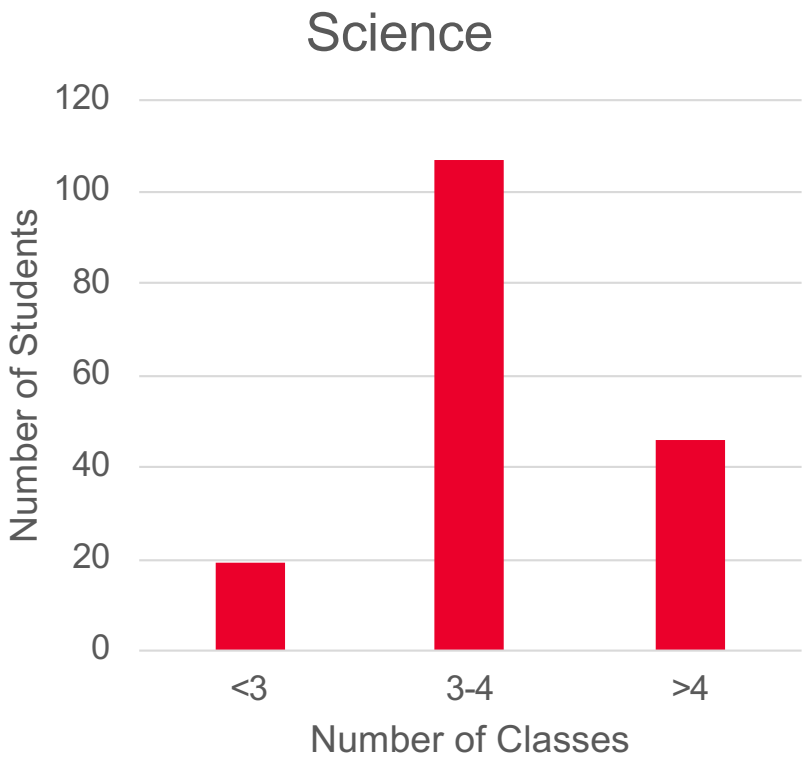
ACT SCORES



Results

PRIOR STEM COURSES





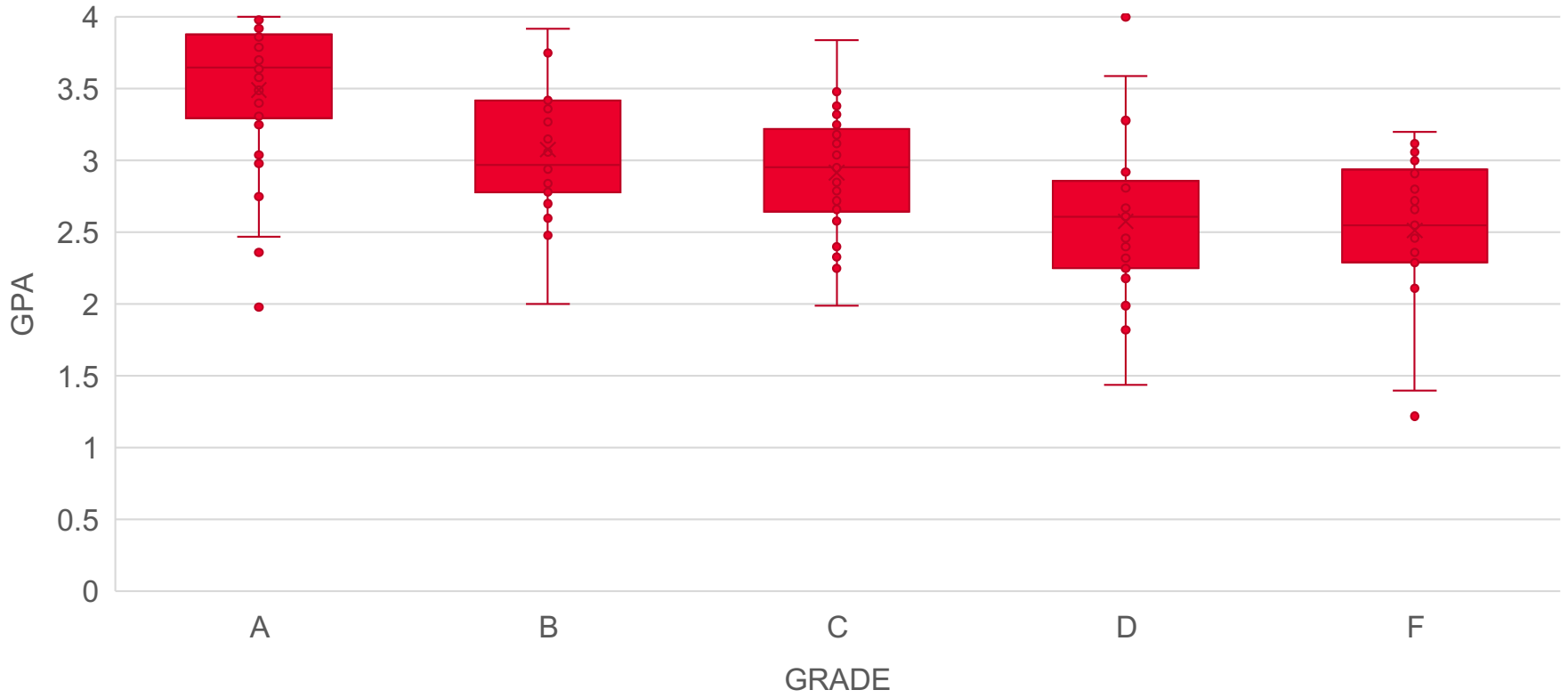
Regression Analysis

MODEL R^2 0.40

Variable	Partial R^2	F value	Pr>F
GPA	0.35	50.41	<0.0001
Pre test	0.05	7.35	0.0080

Grade = -1.222±0.22*GPA - 0.097±0.04*Pretestscore+7.448

Student Grade and GPA



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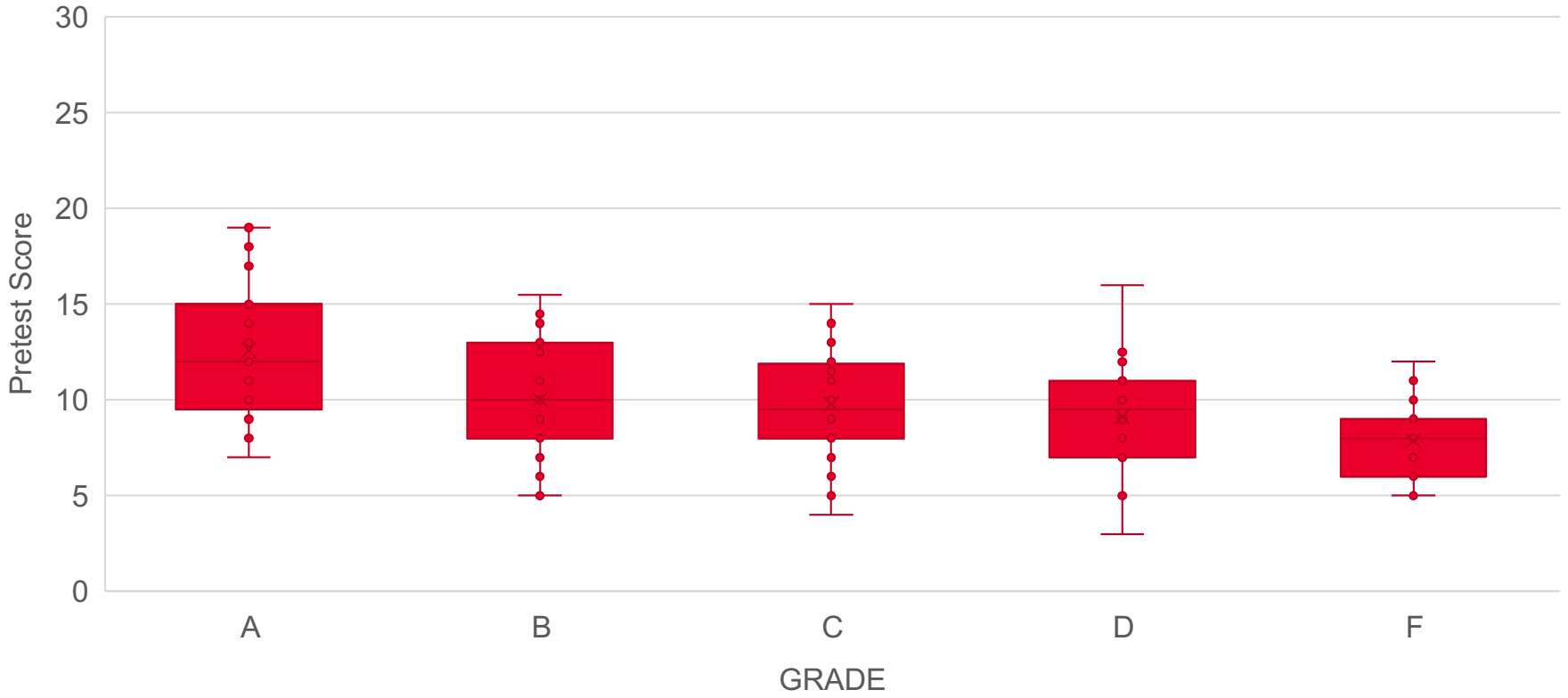
Student Grade and Pretest Score

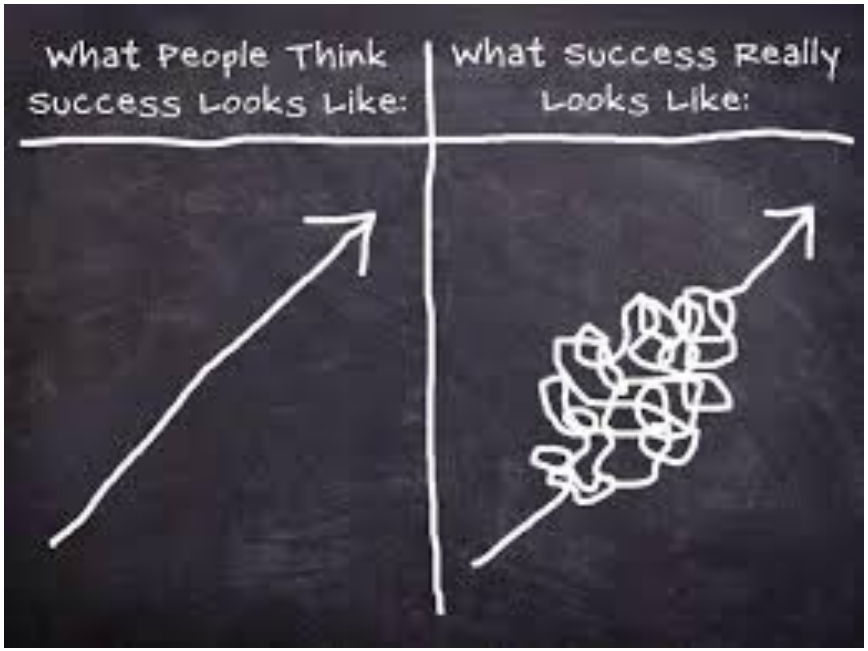


Conclusions

- Number of STEM courses had little effect
- Student GPA prior to course was best predictor
- Grit is more important that ability?

Future Research

- Consider ‘highest’ STEM course and grades
- Measure grit



https://www.psychologytoday.com/us/blog/unmapped-country/201708/grit-grittier