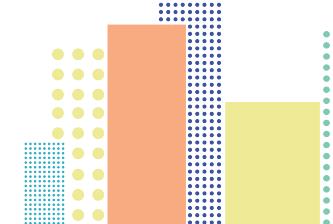


Standardized Testing & College Grades

A Look at Their Association and Why Authentic Student Work is Important

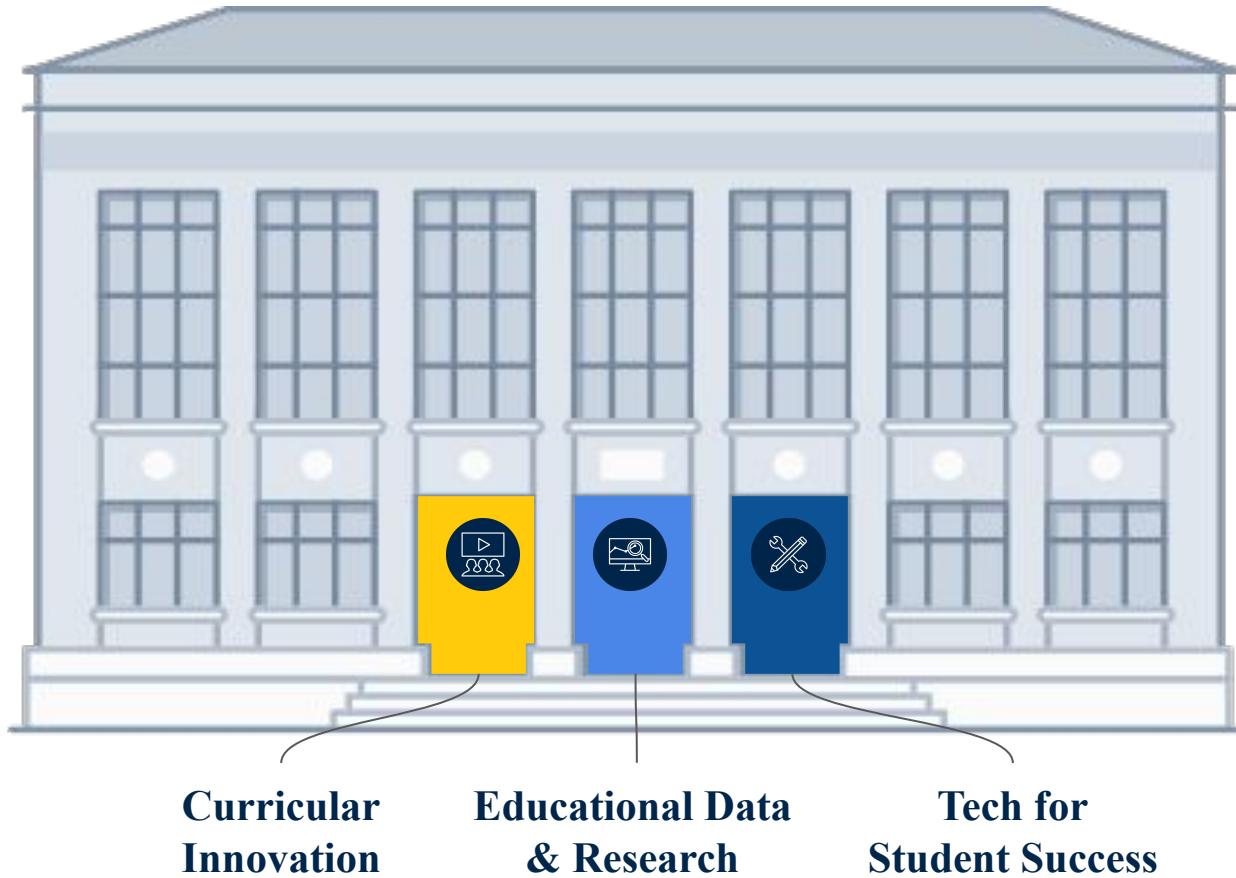
Blaire Moody Rideout, PhD
Director of Undergraduate Admissions
University of Michigan Ross School of Business

Mark Mills, PhD
Data Scientist, Center for Academic Innovation
University of Michigan



Center for Academic Innovation

ai.umich.edu/



We are known for **three different domains of work** on campus

Collaborators often discover they know us primarily by the ‘door’ of work through which they entered!

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Curricular
Innovation

Educational Data
& Research

Tech for
Student Success



Teach-Outs
New model for
participatory
public
engagement



MOOCs
Targeted open
learning



Specializations
Deep dive
skill-building



Collections
Curated short
form
interdisciplinary
educational
content



MasterTrack
Cohort-based
pathway to
advanced degrees
and career
advancement



Online Degrees
Fully online
degree programs
and learning
communities

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Curricular
Innovation

Educational Data
& Research

Tech for
Student Success

Personalized Learning at Scale



ECoach
Personalized messaging to
students



Atlas
Academic data to help make
choices



Problem Roulette
Practice Problems for Exam
Preparation



Spire
Planning and reflection to foster
skill development

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Curricular
Innovation

Educational Data
& Research

Tech for
Student Success

Personalized Learning
at Scale

Technology for
Innovative Pedagogy



ViewPoint
Role-playing simulations



GradeCraft
Gameful pedagogy for learning



Tandem
Supporting productive and
equitable group work



Lettersmith
Showing how writing works so
students can learn to write

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Personalized Learning
at Scale

Technology for
Innovative Pedagogy

Tools for
Online Learning



Michigan Online
Making our elite public research university's learning experiences accessible at scale

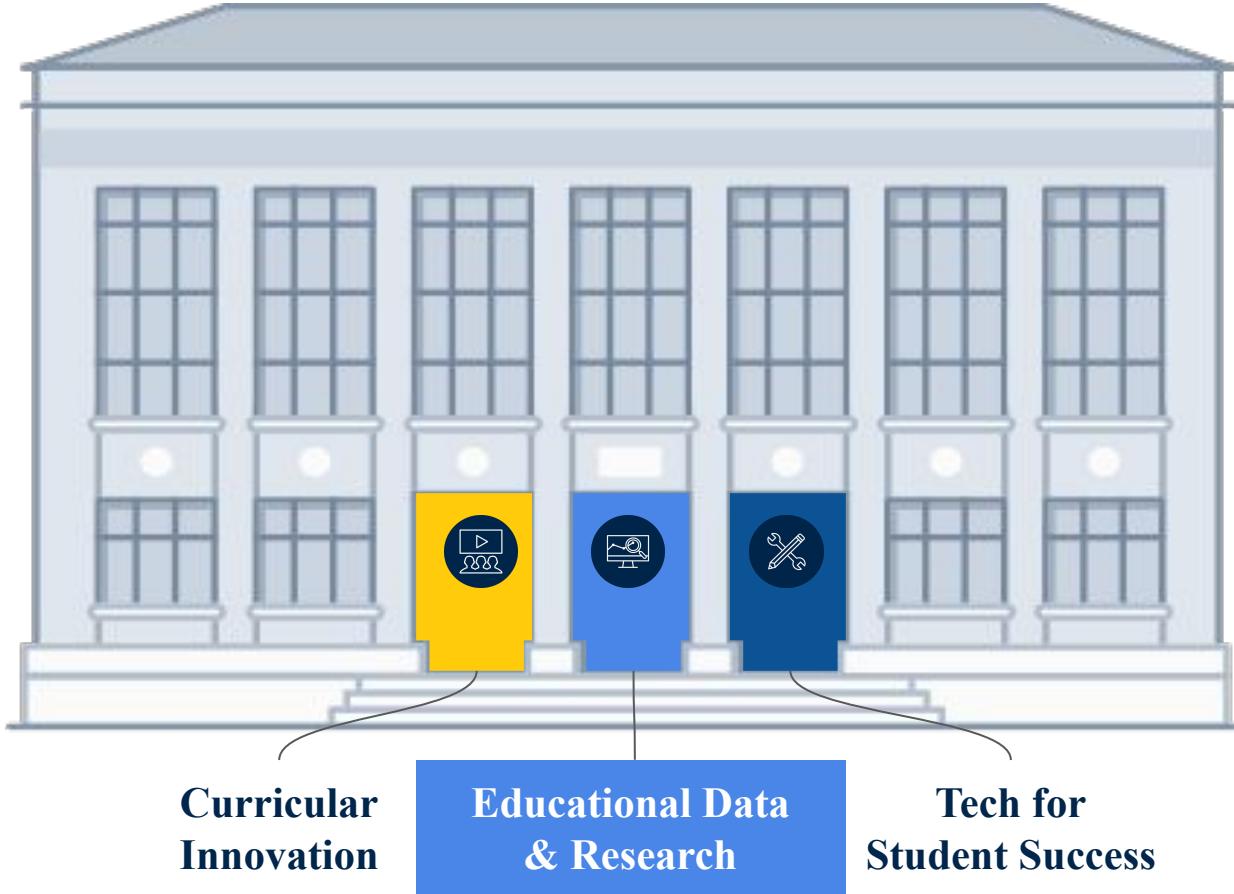


Gamut
Technologies to expand the capabilities of online learning



Online Teaching
Sharing the expertise of CAI with a broader community of instructors

Center for Academic Innovation's R&A Team



Our team studies all the things CAI does

We do research on the **experience and efficacy of student learning**, particularly leveraging **big data** and considering **impact through an equity lens**



Center for Academic Innovation & Ross Partnership

CAI partners with units to facilitate and collaborate on projects

310 Projects / 391 Proposals received

- Architecture & Urban Planning: 9
- Art & Design: 5
- Business: 28
- Dentistry: 6
- Education: 10
- Engineering: 25
- Environment & Sustainability: 9
- Information: 31
- Kinesiology: 6
- Law: 5
- LS&A: 52
- Medicine: 21
- Music, Theater & Dance: 12
- Nursing: 5
- Pharmacy: 3
- Public Health: 30
- Public Policy: 11
- Rackham: 2
- Social Work: 15

Analytic Method

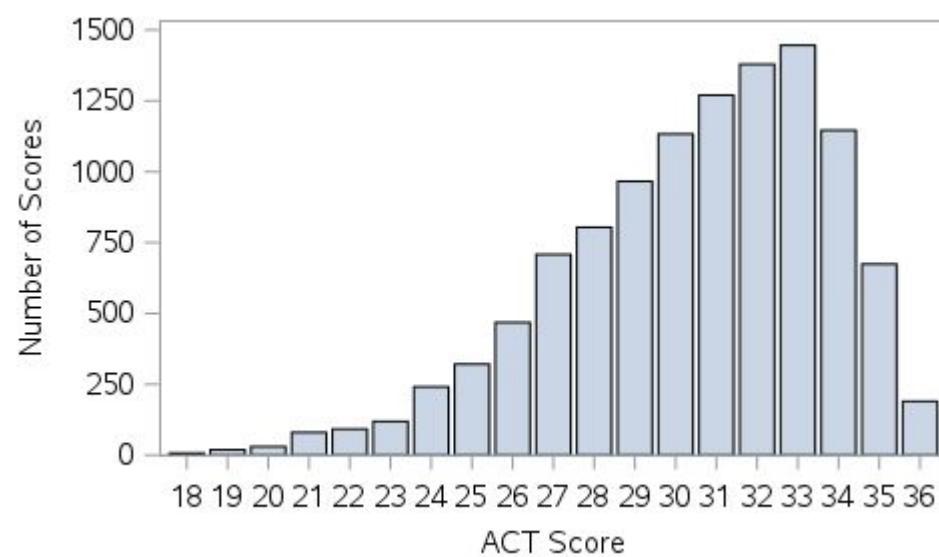
Examined association between standardized test scores (ACT/SAT) and course grades (0 - 4.0 scale)

28 years of data (Fall 1995 - Winter 2023)

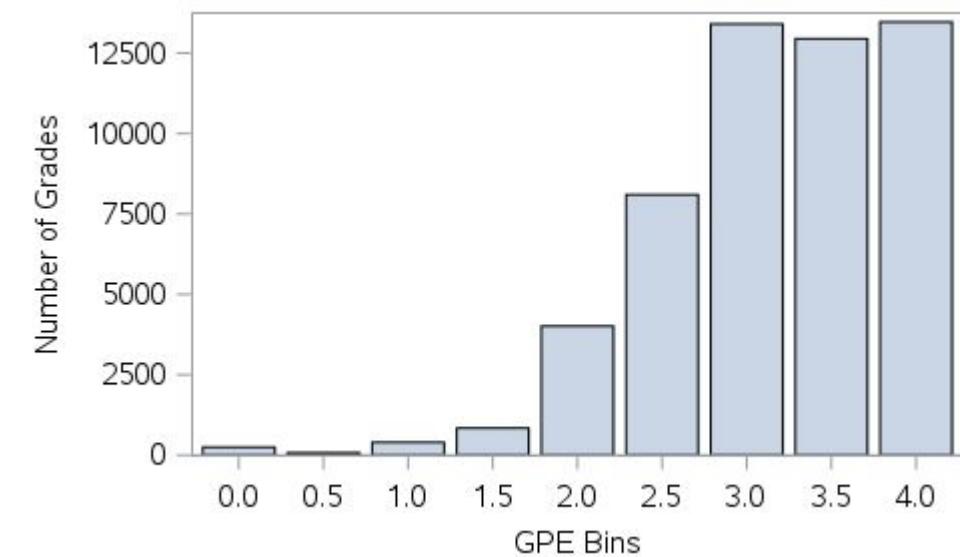
13,934 unique student records (Ross Business School undergraduates)

SAT scores were converted to ACT units via concordance tables ([CollegeBoard, 2018](#))

ACT Distribution ($M = 30.51, SD = 3.08$)



Grade Distribution ($M = 3.51, SD = .53$)



Analytic Method

Examined association

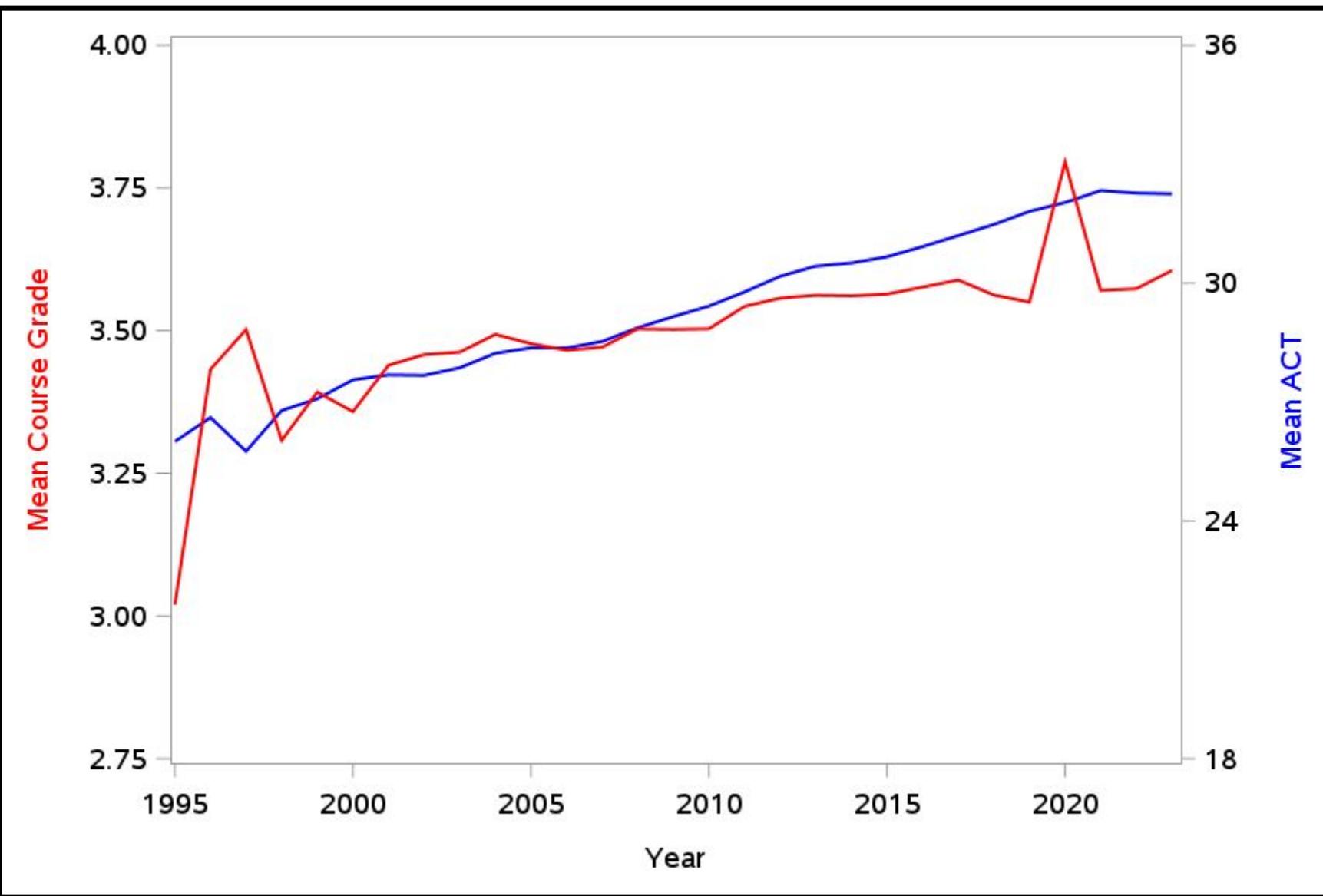
28 years of data (Fall

13,934 unique studen

SAT scores were corr

ACT Dis

Number of Scores



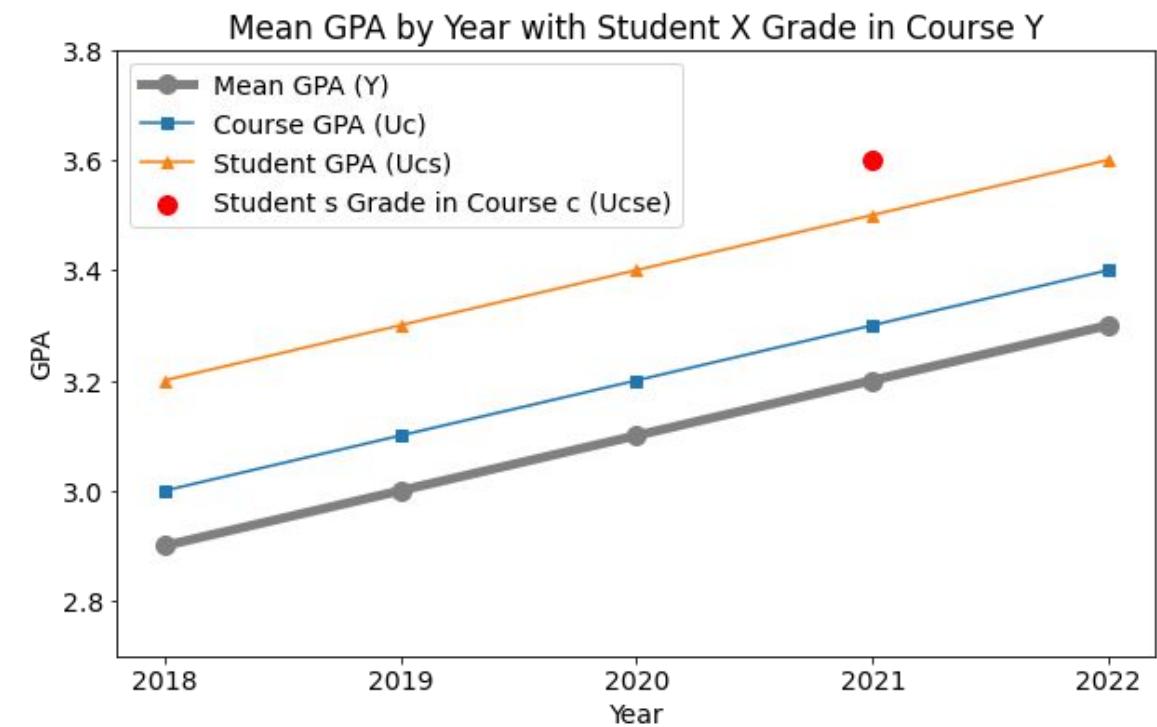
Analytic Method

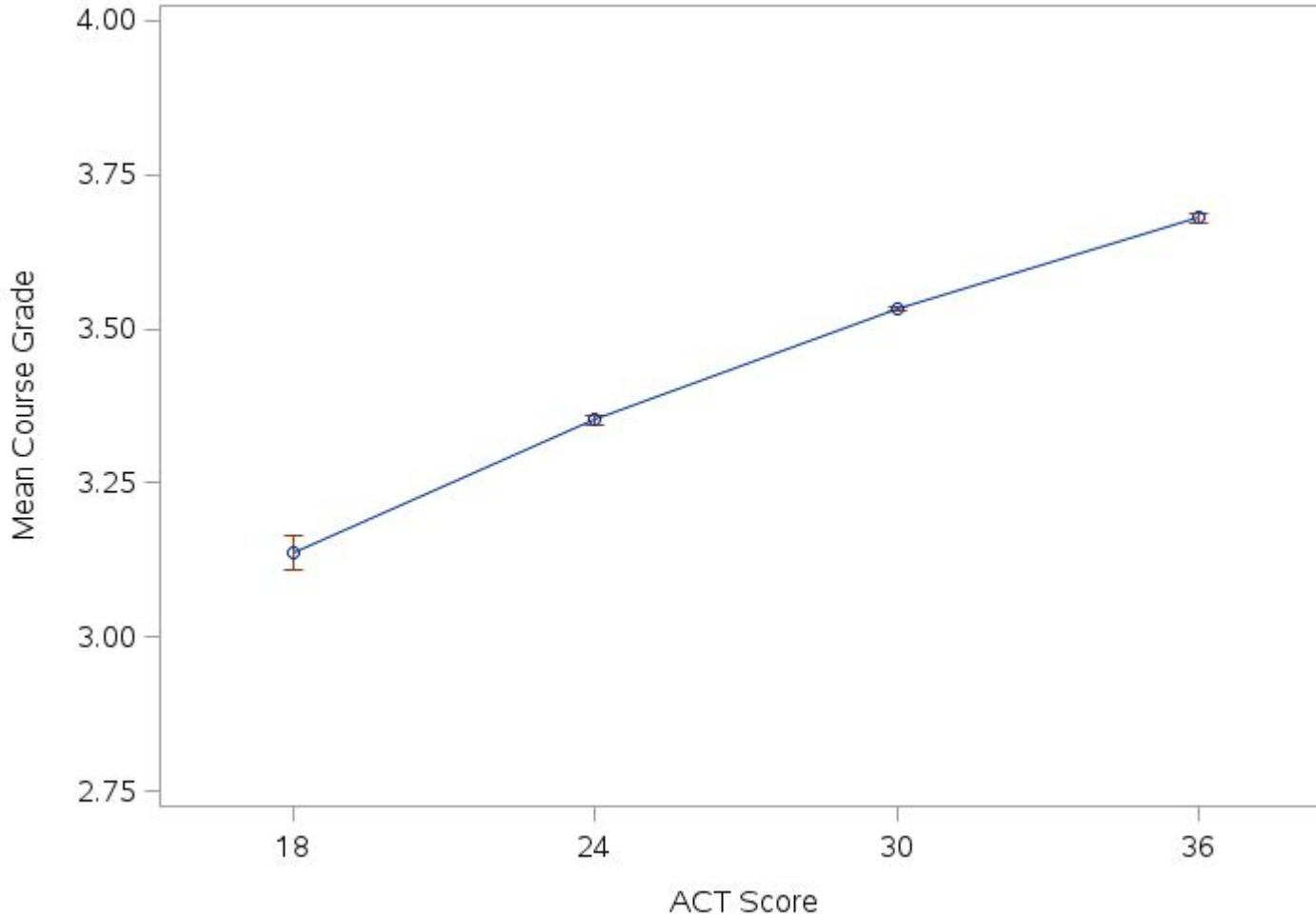
Multilevel modeling used to predict course grade from ACT over time

$$Y = \beta_0 + \beta_1(\text{ACT}) + \beta_2(\text{ACT}^2) + \beta_3(\text{Year}) + \beta_4(\text{ACT} * \text{Year}) + \beta_5(\text{ACT}^2 * \text{Year}) + U_c + U_{c(\text{ACT})} + U_{cs} + U_{cse}$$

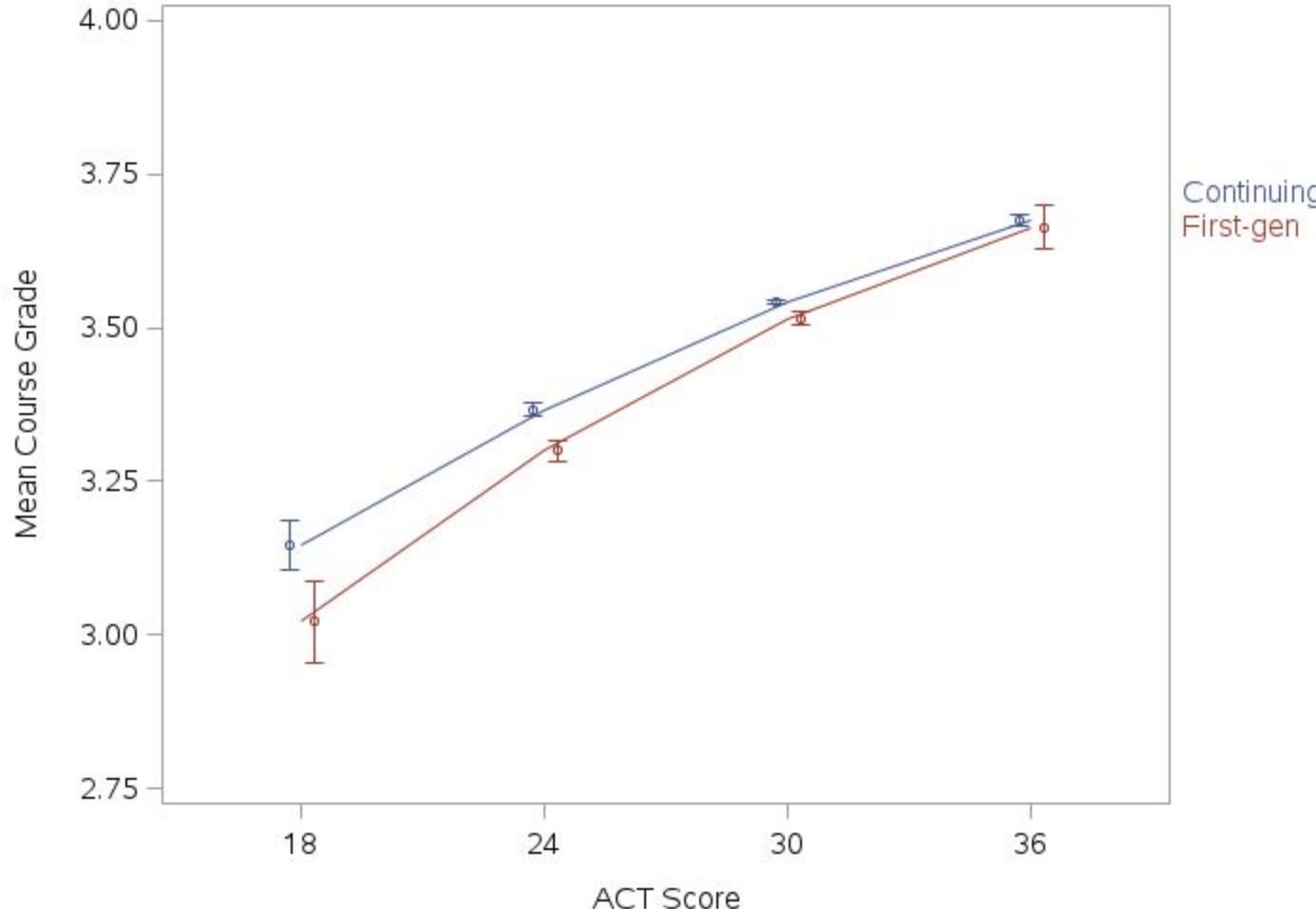
Where:

- Y is predicted course grade
- β_0 is the intercept
- β_1 is the coefficient for ACT
- β_2 is the coefficient for ACT^2
- β_3 is the coefficient for Year
- β_4 is the coefficient for the interaction between ACT and Year
- β_5 is the coefficient for the interaction between ACT^2 and Year
- U_c is the random intercept for course-level variation
- $U_{c(\text{ACT})}$ is the random ACT slope for course-level variation
- U_{cs} is the random intercept for student-level variation in course c
- U_{cse} is the residual variance for within student variance



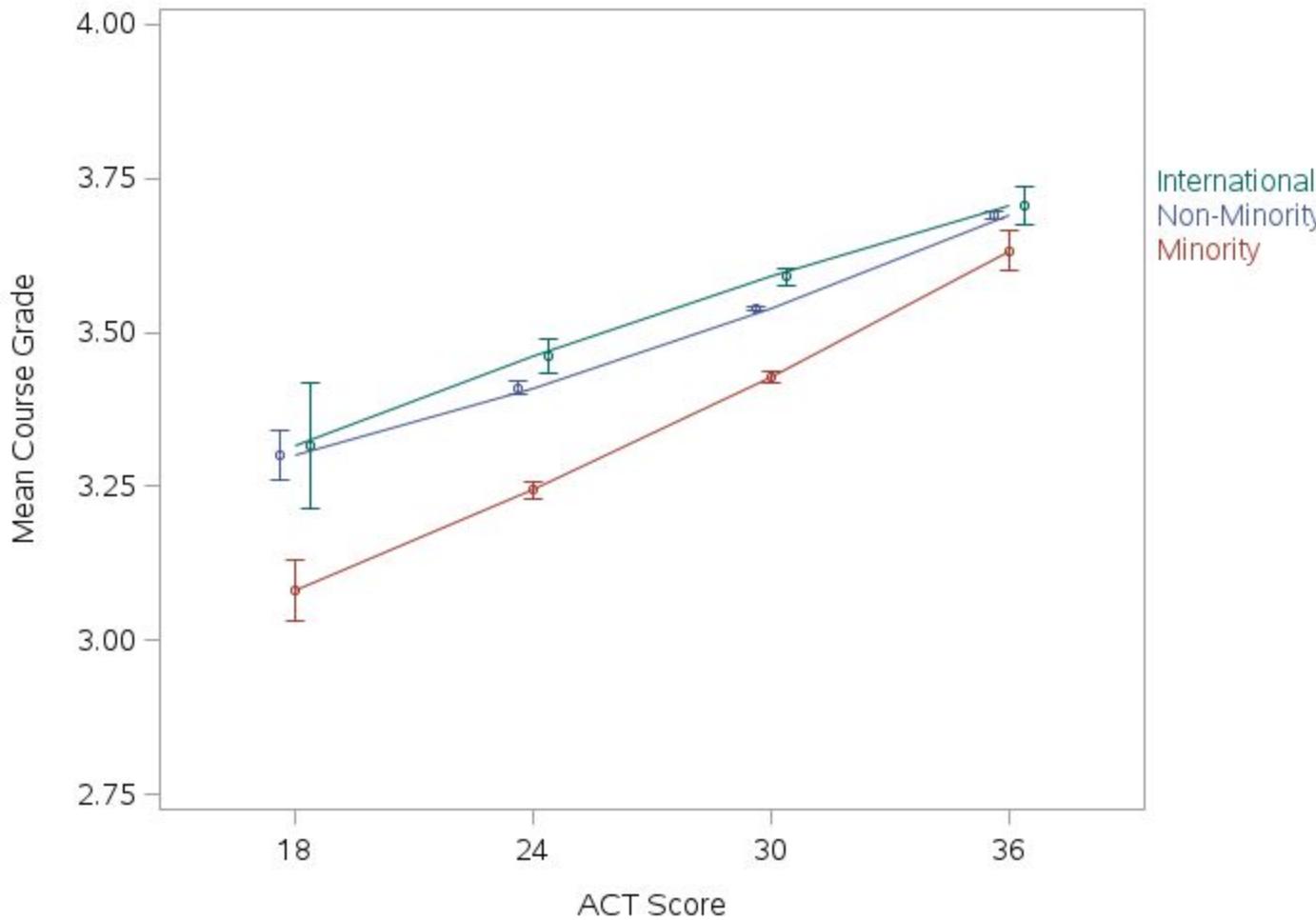


There is a positive association between test scores and course grade – the higher the ACT, the higher the course grade



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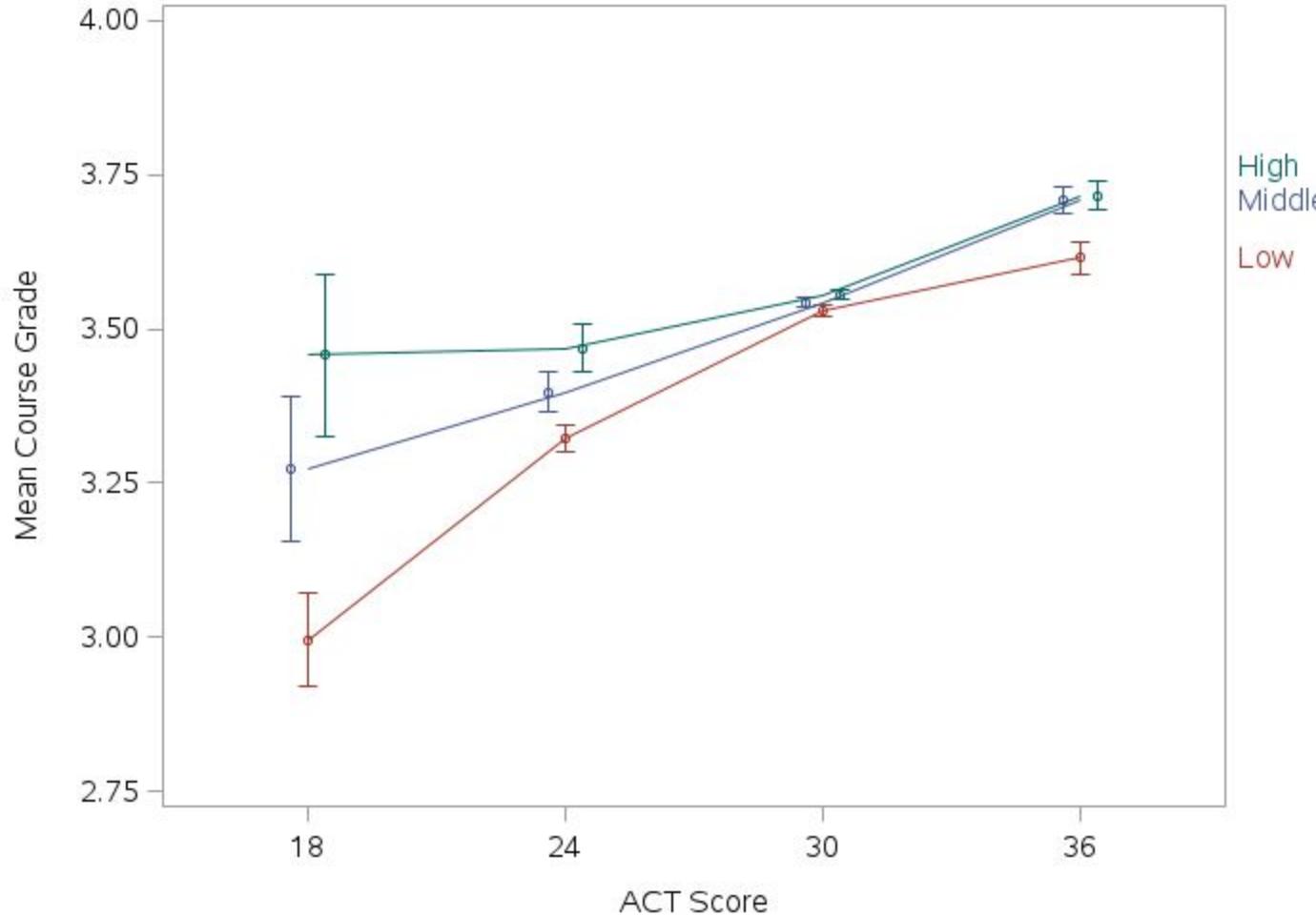
Stronger for first-generation students



There is a positive association between test scores and course grade – the higher the ACT, the higher the course grade

Stronger for first-generation students

Stronger for racially minoritized identities

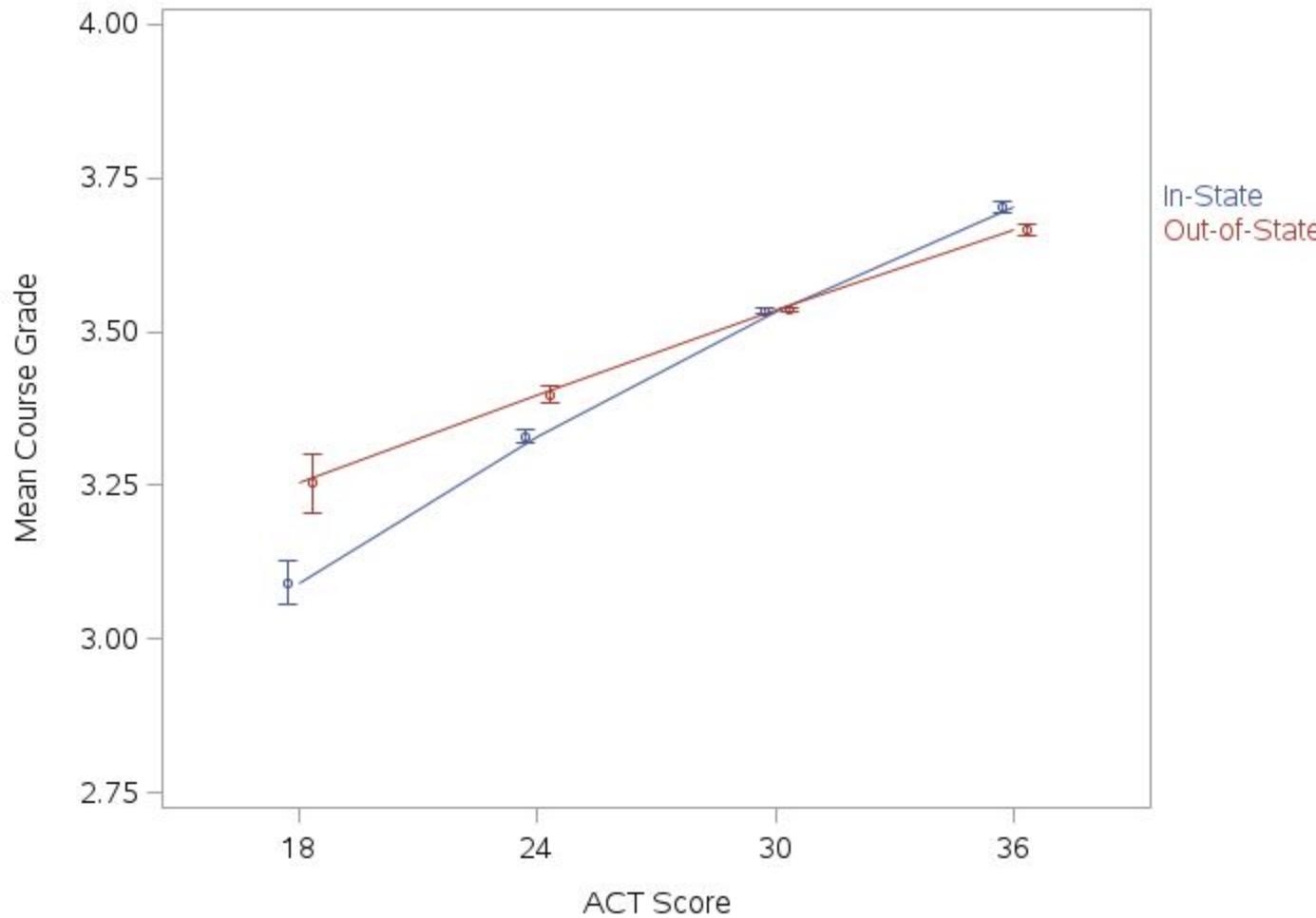


There is a positive association between test scores and course grade – the higher the ACT, the higher the course grade

Stronger for first-generation students

Stronger for racially minoritized identities

Stronger for limited income students



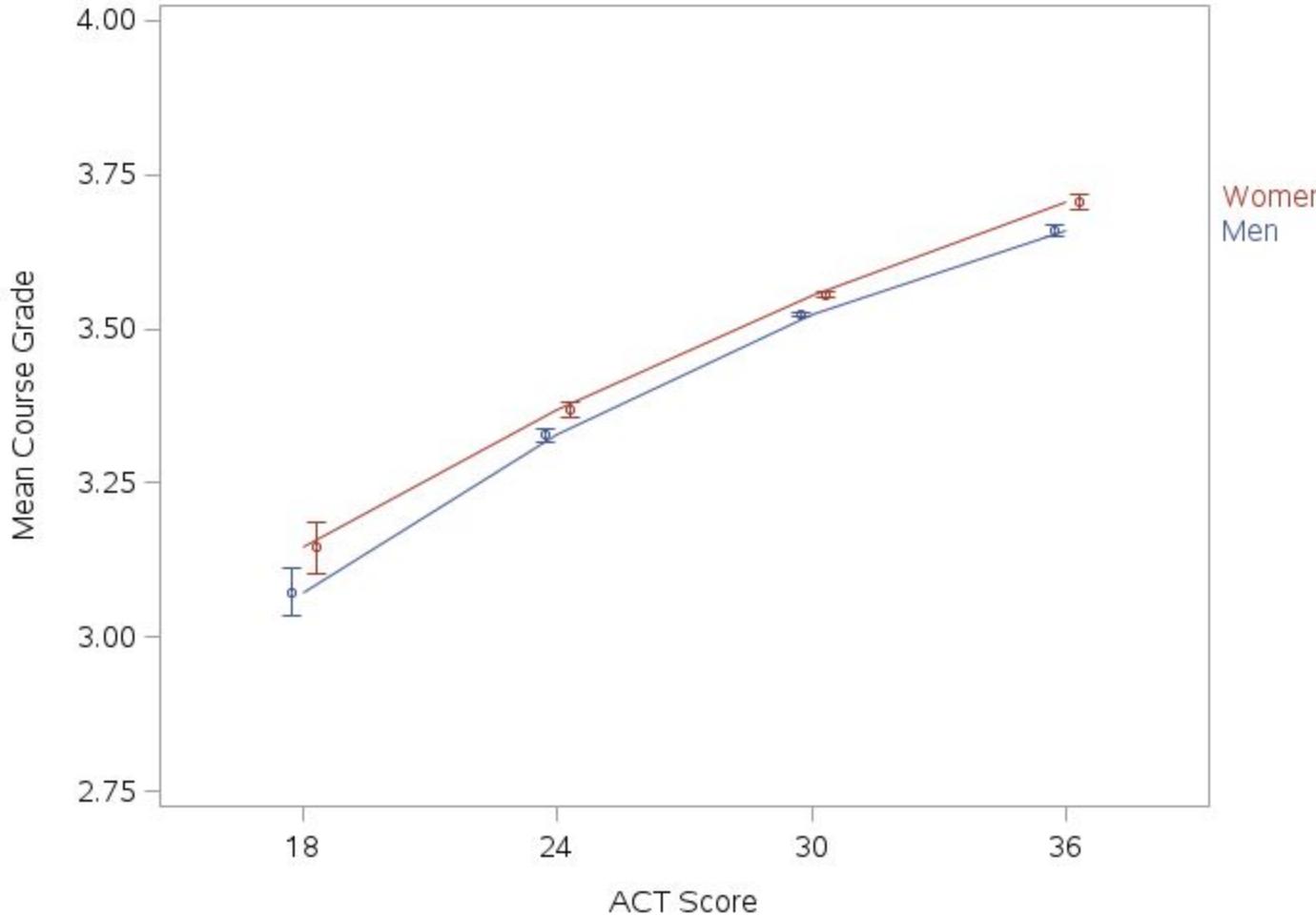
There is a positive association between test scores and course grade – the higher the ACT, the higher the course grade

Stronger for first-generation students

Stronger for racially minoritized identities

Stronger for limited income students

Stronger for students with in-state residency



There is a positive association between test scores and course grade – the higher the ACT, the higher the course grade

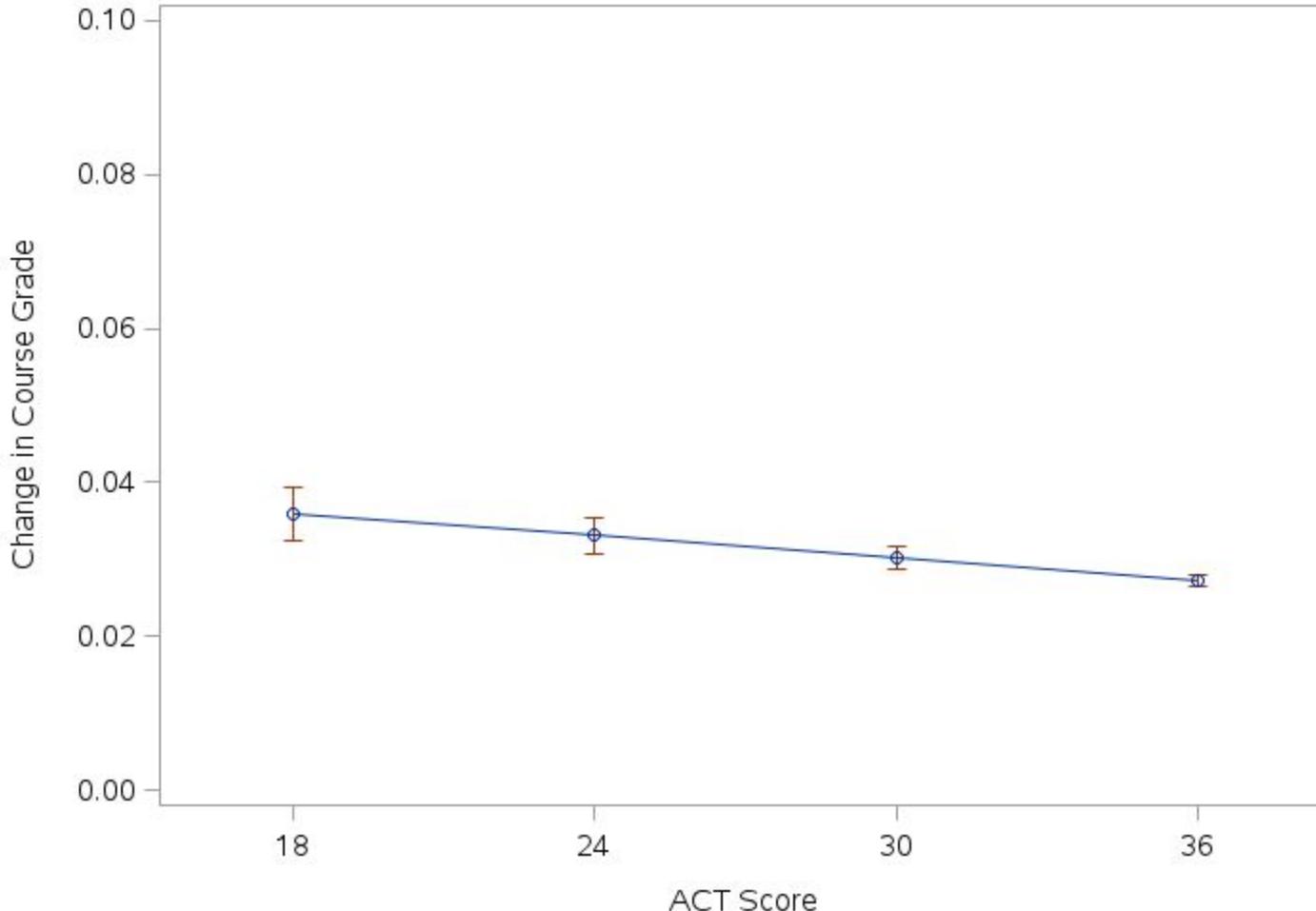
Stronger for first-generation students

Stronger for racially minoritized identities

Stronger for limited income students

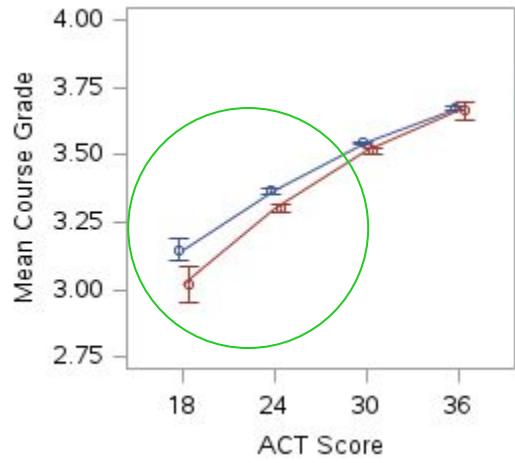
Stronger for students with in-state residency

No difference in the strength of association between men and women

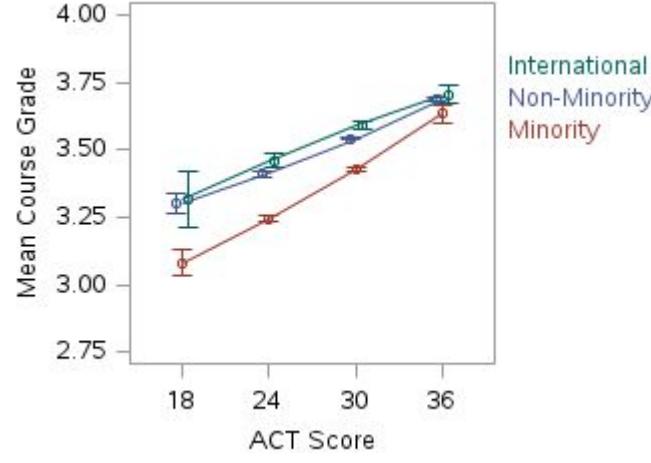


Limitations of standardized testing:

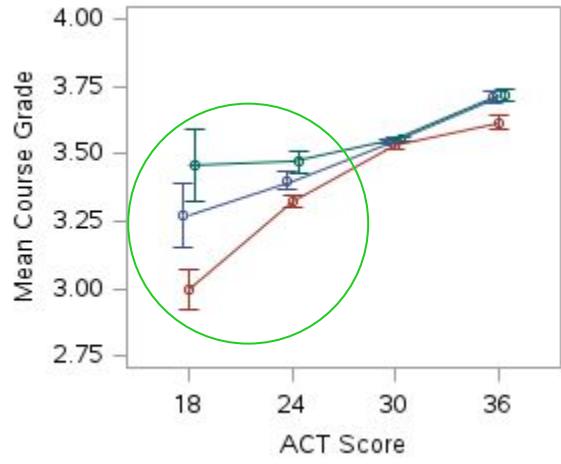
The higher the ACT score, the weaker the association between ACT and course grade (i.e., *higher scores are less predictive of course grade*)



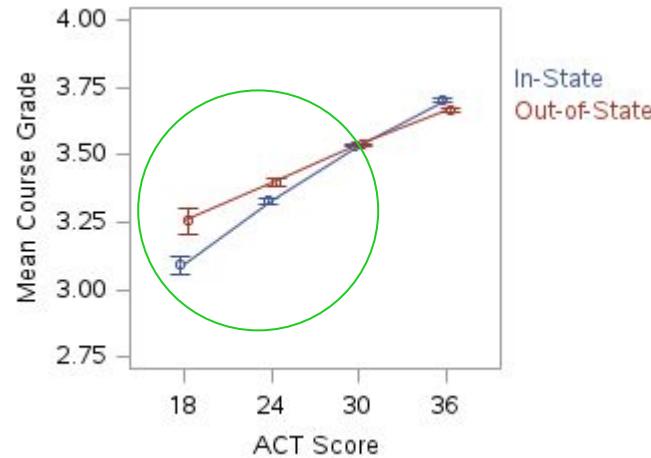
Continuing
First-gen



International
Non-Minority
Minority



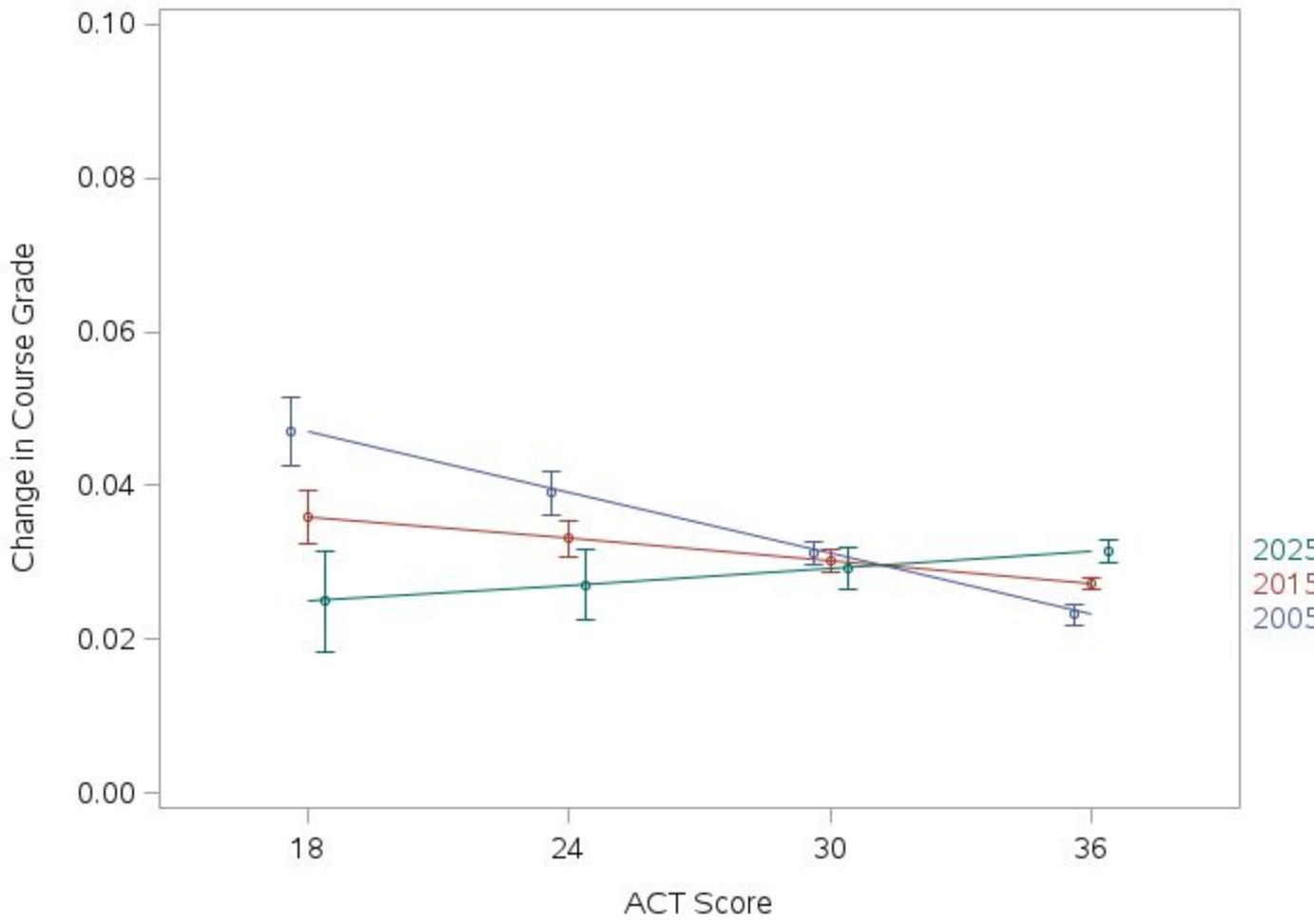
High
Middle
Low



Limitations of standardized testing:

The higher the ACT score, the weaker the association between ACT and course grade (i.e., *higher scores are less predictive of course grade*)

Likewise, although marginalized student identities show the strongest association, this association is *primarily at lower test scores*



Limitations of standardized testing:

The higher the ACT score, the weaker the association between ACT and course grade (i.e., *higher scores are less predictive of course grade*)

Likewise, although marginalized student identities show the strongest association, this association is *primarily at lower test scores*

Finally, the association between ACT and course grade has weakened over time

By 2025, the association will be nearly non-existent (3-5 times weaker than in 2005)

Test scores are associated with course grades, but...

- Mostly for those in the lower range of test scores (e.g., less than 24 on the ACT)
- Mostly for marginalized identities and backgrounds
- Test scores are less useful for predicting course grades today than in the past

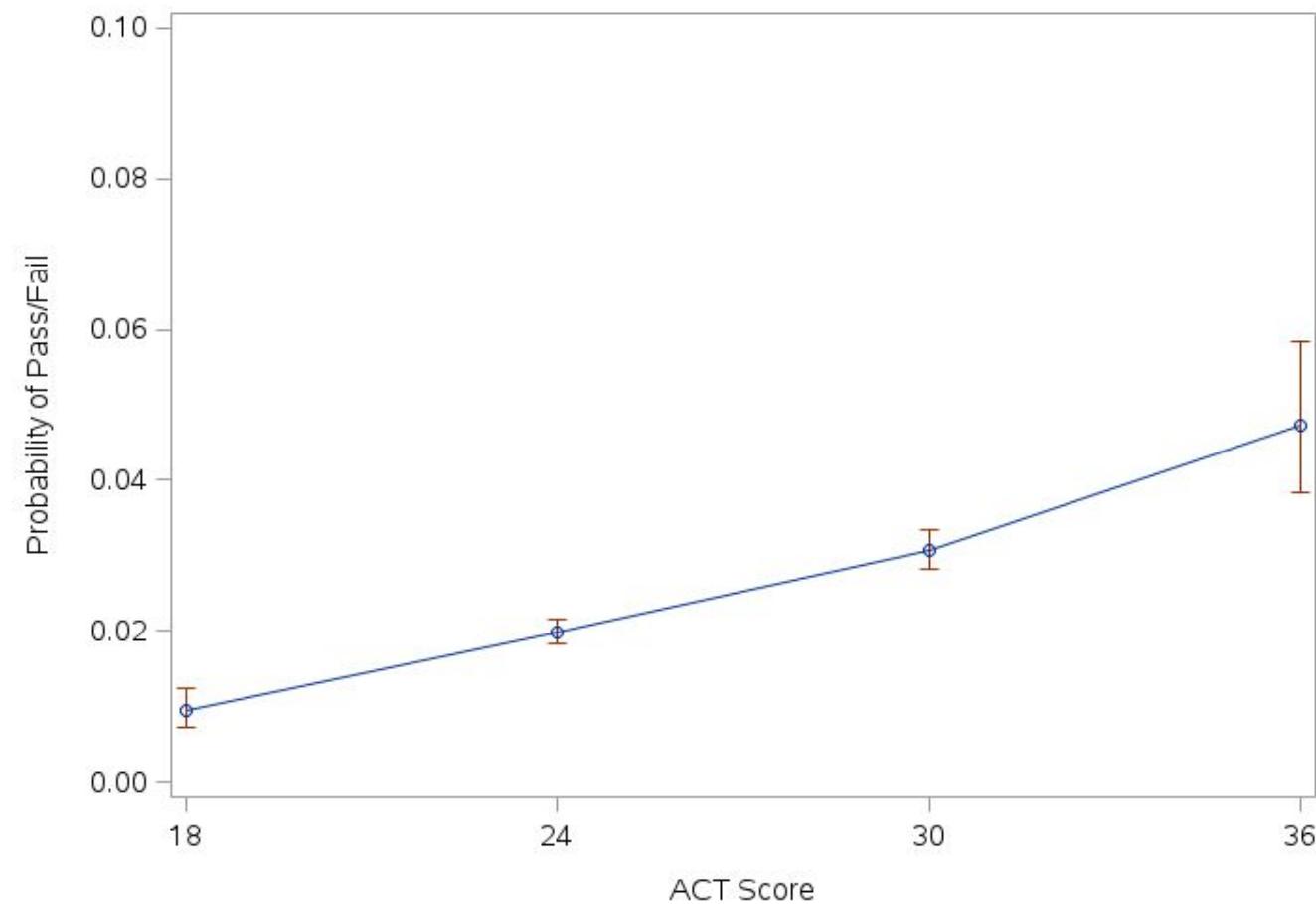
Test scores are not entirely fruitless...

Test scores are associated with course grades, but...

- Mostly for those in the lower range of test scores (e.g., less than 24 on the ACT)
- Mostly for marginalized identities and backgrounds
- Test scores are less useful for predicting course grades today than in the past

Test scores are not entirely fruitless...

Test scores predict the likelihood of electing to take a course pass/fail such that *Ross students with higher test scores are up to five times more likely to take a course pass/fail*



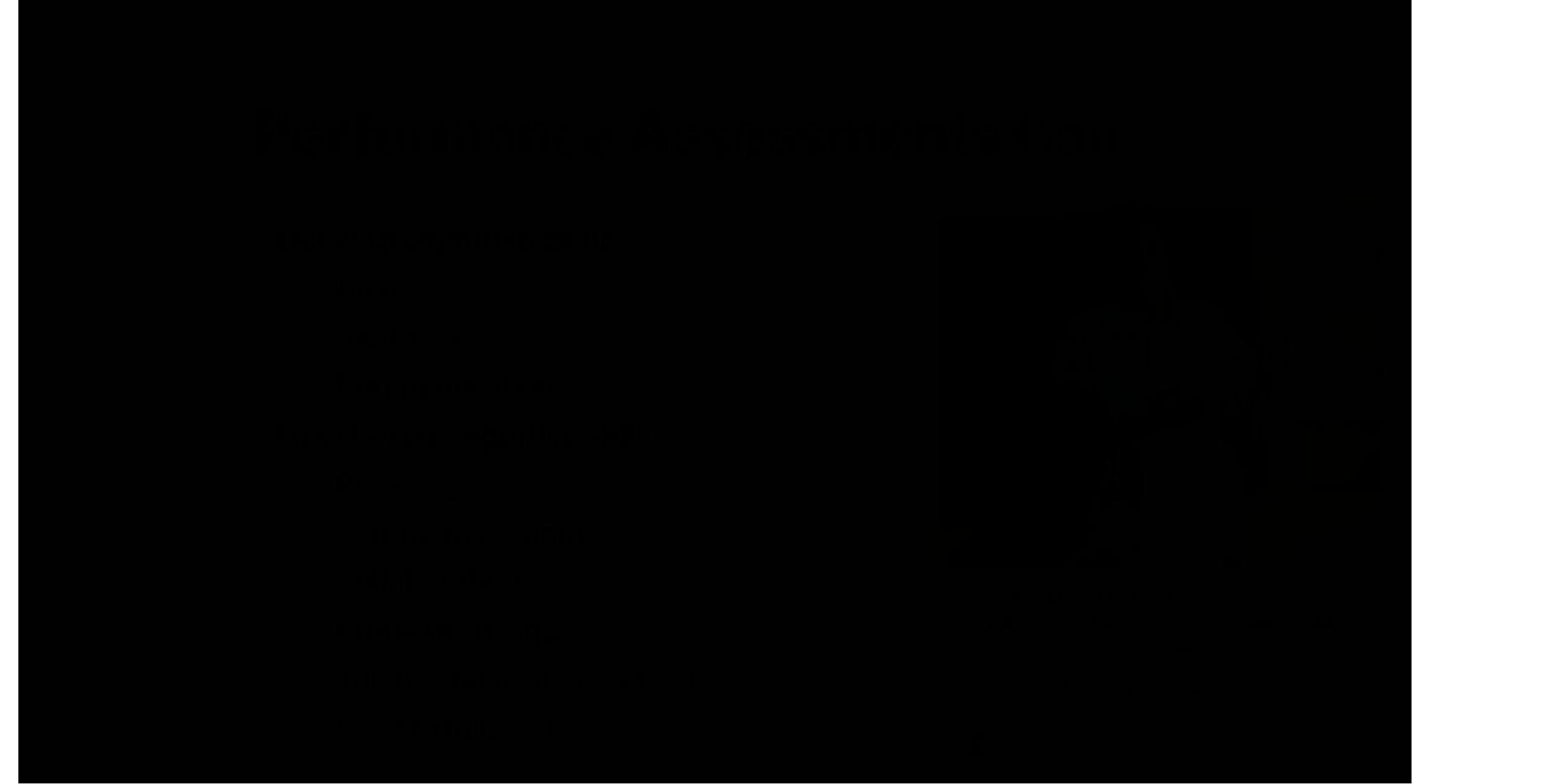
Data Summary

Test scores and course grades are associated...

...but comes at a cost

- Weaker association at higher test scores (inflection point = 34.5)
- Weaker association over time (3-5 times weaker today than 2005)

Suggests test scores can be used to predict lower grades rather than as a predictor of student success or as a metric of student achievement in admission processes





The Shift to Authentic Student learning

Ross Admissions Portfolio via [SlideRoom](#)

Is a personal, open-ended way to share more about who you are and why you're interested in a business education at Ross.

2015

A Change Begins

Seeking a more intentional applicant after a rise in apps and lack of differentiation.

2016

Portfolio Implementation

Gain an authentic understanding of applicants beyond test score and GPA.

2017

Review Modifications

Less emphasis on testing, rigor, and recs. More emphasis on reflections, artifacts, demonstrations of learning.

2024

Diversity & Community

Enrollment increases for women, racially minoritized identities, first generation, and limited income.

What was driving the change?

Intentions

High achieving students with multiple priorities.

Readiness

For an action-based learning classroom.

Excellence

We value multiple forms of academic excellence.

Student Centered

Placing authentic student work at the core of review.



What is the Ross Admissions Portfolio?

1) Business Case Discussion

- Choose a current event or issue in your community and discuss the business implications. Propose a solution that incorporates business principles or practices. The review panel will look for creativity, drawing connections, and originality.
- Please limit this response to approximately 500 words.

2) Artifact

- Upload a document or artifact that represents something significant about your life to show your learning in action. Describe how your artifact demonstrates your learning in action.
- Please limit this response to approximately 250 words.

Artifact Examples

School Based Projects



- A video she recorded as part of a project on hair braiding. The student wrote about their Nigerian heritage and the importance of braided hair within their culture.
- Self-published children's books focus on race, religion, gender, and sexual orientation.

Extracurricular Activities



- An image of scout badges that they were awarded after teaching younger scouts STEM and coding skills. To explain the concepts of computer science and coding, they used honeybees and honeycombs as a way to engage younger scouts.
- A compilation of videos from a student who was the sports broadcaster for his award-winning high school news show. It also shows growth of his skill set along the way.
- A picture of a robot a student built with his Robotics team.
- An app that tracks residents electronically who wander outside of their care facility and alerts caregivers when they are outside a predetermined boundary.

Work Experience



- An applicant that submitted a photo of a 101st birthday party she organized at the medical care facility where she's worked for 4 years as a part-time patient care coordinator.
- An applicant from a remote, rural community submitted a screenshot of online customer reviews for a coffee shop that she started managing after school at age sixteen. Her description summarized how she reviewed and responded to feedback from customers.

Artifact Examples



Artifact Examples



Business Case Discussion Examples

Analyzed implications of a local orchard preparing to sell 181 acres, including the loss of a valuable community space and concerns expressed regarding the future stewardship of the land.

Evaluated business implications of food insecurity impacting the local community in SE Michigan.

Analyzed the waste management processes at his school to identify inefficiencies.

Evaluated business implications of a franchised video game retailer closing local outlets including a loss of business revenue to larger companies located outside the community and loss of physical space for gamers to gather.

Worked with a peer and adults in his school, an applicant designed and created a textbook exchange program that connects students through an app to access used textbooks at drastically reduced prices to limit financial burden placed on students and families.



The Possibilities for Admissions

Mastery

Academic areas and cross-content competencies

Illuminate

Student interests, passions, and purpose

Context

Understanding the applicant more holistically

Contact Us!

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University of Michigan
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THANK YOU