

**From Data to Dialogue:  
Strengthening STEM Student Success  
Through Real-Time Feedback and Faculty Collaboration**

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# What is the SCIENCE Collaborative?

*The Student-Centered Institutional Enhancement and Co-Learning Exchange Collaborative*

**The SCIENCE Collaborative is a multi-institution initiative supporting faculty dialogue about teaching and student success.**



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# Agenda

**Connect:** Our Community of Practice Meeting and Norms


**Align:** What is Ascend?

**Learn:** The Power of Data Across the SCIENCE Collaborative

**Make:** Instructional Responses to the Data

**Impact:** Explore ways to make an nation-wide impact for student success

# Connect!



**What flower growing in  
your area gives you  
hope that  
spring/summer is  
coming?**

**Join us in the Chat!!!**

# Ascend + CoP Overview

2



- Peer support
- Local themes
- Strategic Planning

1



- Opt-in
- Use at all course levels
- Career-long Training



3

## The SCIENCE Collaborative



- Peer Support
- Common Language
- Discipline-specific info
- Cross-institutional themes
- Outcomes Assessment

4

**STEM Systems Change:**  
Effective Learning Environment



# Workshop Norms for Dialogue

- ❑ **Start with observation.** When we look at data, begin by noticing patterns before jumping to conclusions.
- ❑ **Be curious.** Ask questions and explore what the data might suggest about students' experiences.
- ❑ **Focus on learning.** Our goal is to reflect on teaching and student success, not to judge instructors or institutions.

# Align: What is Ascend?



## 1 Elevate Student Voice with a Brief Survey

Students take a 5-10-minute [survey](#) measuring their perceptions of classroom learning conditions.

## 2 Reflect on Feedback & Debrief with Students

Instructors analyze [reports](#), independently and with their community of practice, to gain insight into students' classroom experiences.

Instructors share results with students to further understand their perspectives.

## 3 Select New Practices & Take Action

Instructors respond to students' feedback by selecting and implementing new, research-based instructional [practices](#) that catalyze student engagement.

# What Can You Measure & Improve with Ascend?



## Belonging Certainty

"When thinking about this class, how often, if ever, do you wonder "Maybe I don't belong here?"



## Institutional Growth Mindset

"This instructor seems to believe that students have a certain amount of intelligence, and they really can't do much to change it."



## Self-Efficacy

"I feel confident about my ability to do well in this class."



## Social Belonging

"I feel like I belong in this class."



## Social Connectedness

"I can communicate with this instructor about this class as needed."



## Trust and Fairness

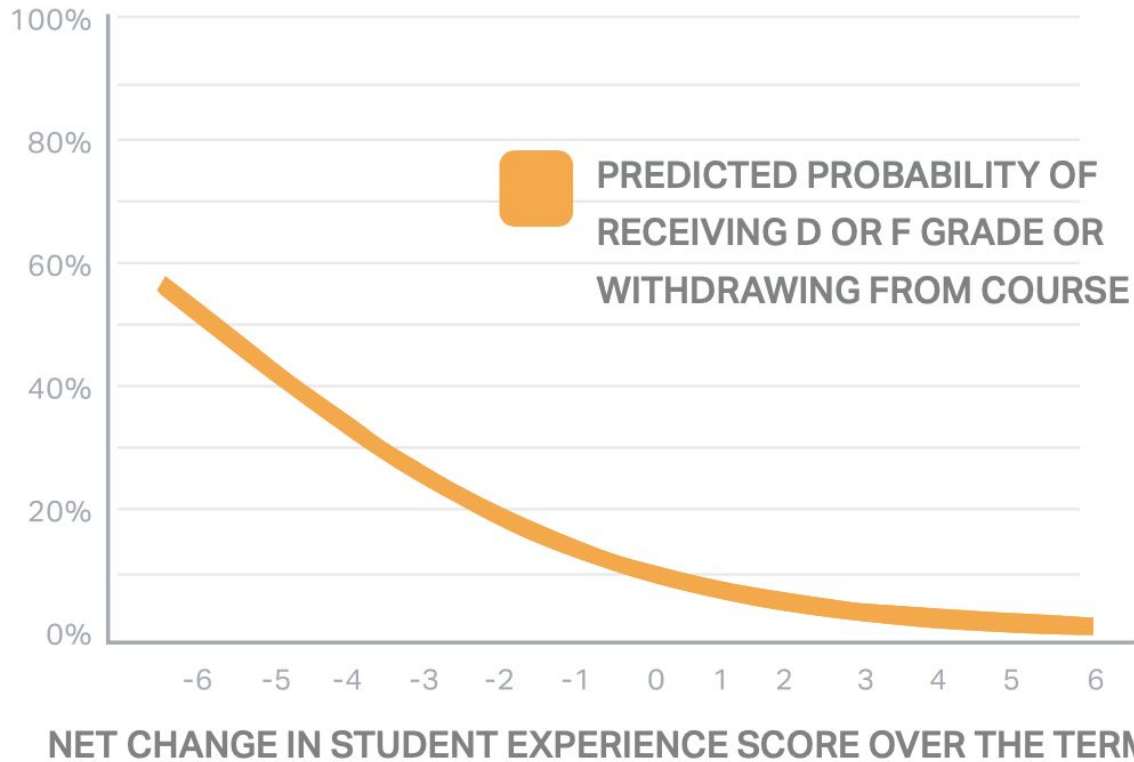
"This instructor treats me with respect."



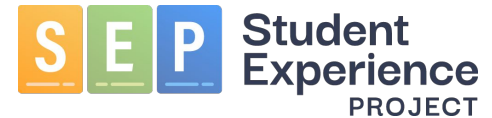
## Welcoming Environment

"In this class, I worry that people's evaluations of me will be affected by my background or life circumstances."

# Research Example: When Experience Shifts, DFWs Fall



Research across hundreds of STEM classrooms shows that improvements in student experience predict improvements in academic outcomes.



See [perts.net/sep-report](https://perts.net/sep-report)



# Learn: The Power of Data Across the Collaborative

1

**ONE COURSE -  
ONE INSTRUCTOR**



**Can be  
isolating &  
vulnerable**

2

**COLLEGE/UNIVERSITY  
CoP**



**Supportive but only  
local change**

3

**MULTI-INSTITUTIONAL  
CoP**

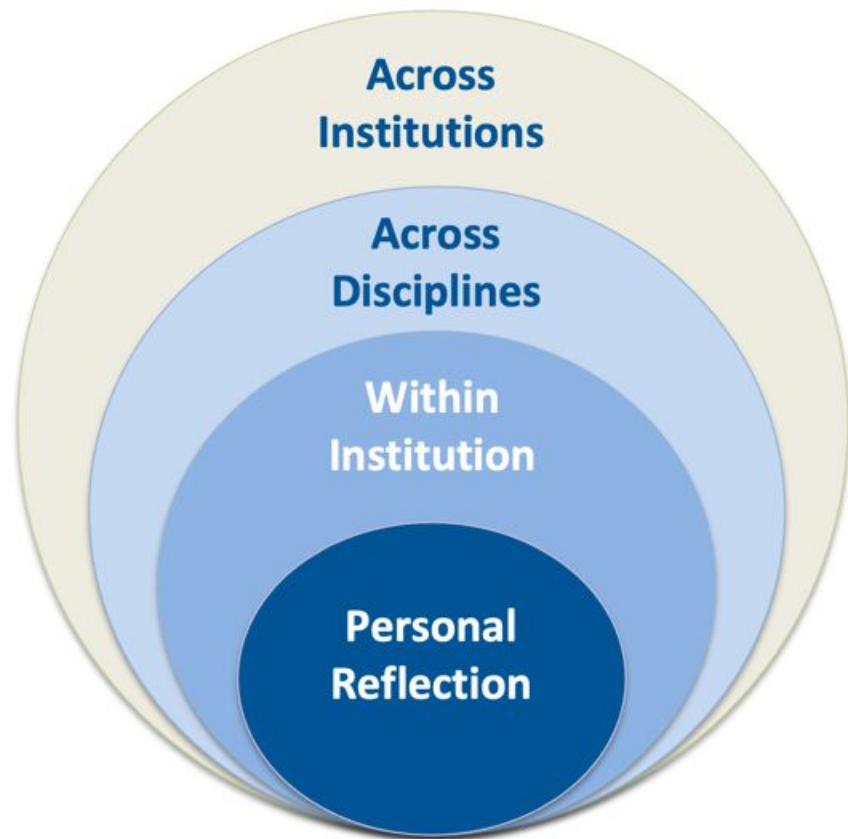
**The SCIENCE Collaborative**



**Even more support &  
MAST outcome?**

# Communities of Practice in Action

- Support faculty and collaborative reflection of
  - Classroom data and community belonging goals
  - Instructional design interventions
  - Discipline-based learning
- Real-time data enables aligned, student-centered instructional shifts.



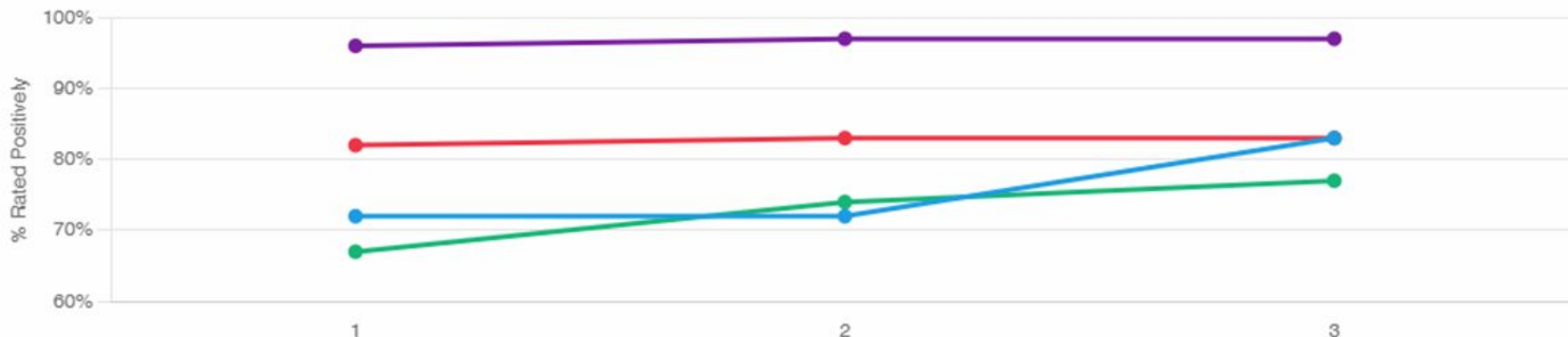
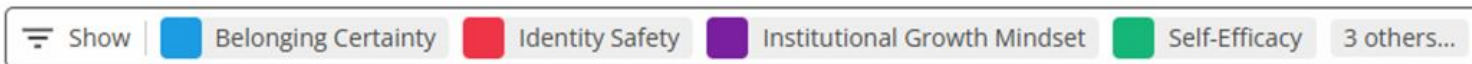


# Course-Level Data - Intro Biology

*What I can do in my classroom?*



## Learning Condition Trends



### Belonging Certainty

Belonging uncertainty is the concern people have about the extent to which they belong, or fit in, in different contexts or across time. Social isolation and belonging uncertainty are negatively associated with achievement, performance, and well-being. Belonging certainty is the absence of this concern. [Learn strategies to improve.](#)



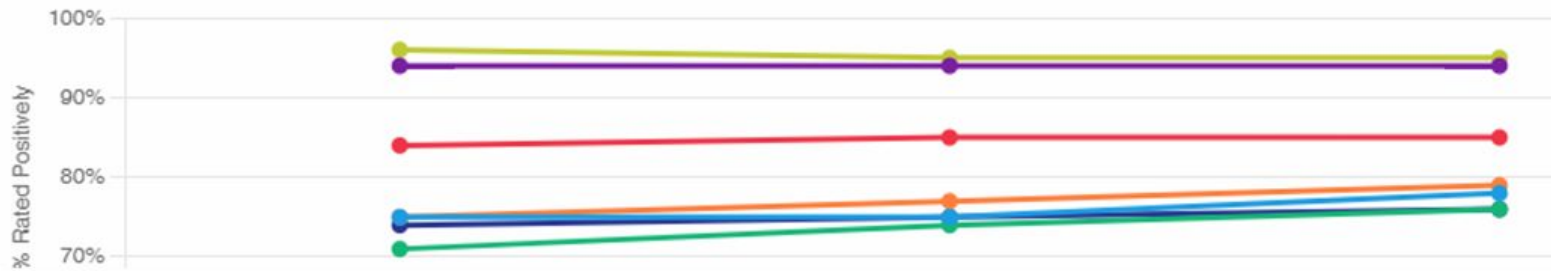
# University CoP Data - University of Alaska Anchorage



## Learning Condition Trends

Fall 2024

- Show
- Belonging Certainty
- Self-Efficacy
- Social Belonging
- Social Connectedness
- Institutional Growth Mindset
- Identity Safety
- Trust and Fairness



LEARNING CONDITION	RESPONSES	RATED POSITIVELY ON LAST SURVEY	± FROM FIRST SURVEY
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**Belonging Certainty**  
162 (of 163) responses

All (162)	78%	<div style="width: 78%; background-color: #1a2b3c;"></div>	+3
Insecure (49)	67%	<div style="width: 67%; background-color: #007bff;"></div>	+6
Secure (113)	82%	<div style="width: 82%; background-color: #007bff;"></div>	+1

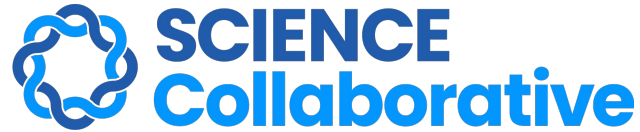


# Multi-Institutional CoP Data - Fall 2024



LEARNING CONDITION	RESPONSES	RATED POSITIVELY ON LAST SURVEY	± FROM FIRST SURVEY	
<b>Belonging Certainty</b> 1796 (of 1812) responses	All (1796)	66% 	+1	2 in 3
<b>Identity Safety</b> 1792 (of 1812) responses	All (1792)	83% 	0	4 in 5
<b>Institutional Growth Mindset</b> 1790 (of 1812) responses	All (1790)	91% 	+1	
<b>Self-Efficacy</b> 1791 (of 1812) responses	All (1791)	68% 	+1	
<b>Social Belonging</b> 1789 (of 1812) responses	All (1789)	77% 	+1	
<b>Social Connectedness</b> 1789 (of 1812) responses	All (1789)	74% 	+1	3 in 4
<b>Trust and Fairness</b> 1786 (of 1812) responses	All (1786)	95% 	-1	9 in 10

# Learn: Our Spring 2026 Community Data



## Participation Overview

**89%**

Communities  
Participated\*  
*8 of 9*

**87%**

Class Leads Participated†  
*41 of 47*

**88%**

Enrollments Responded  
*2010 of 2295*

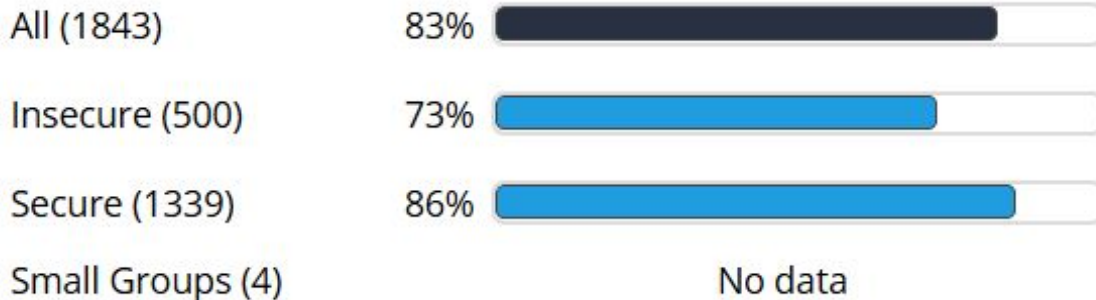
**88%**

Students Responded  
*1963 of 2238*

# SCIENCE Collaborative Spring 2026 Community Data

## Welcoming Environment

1843 (of 1878) responses

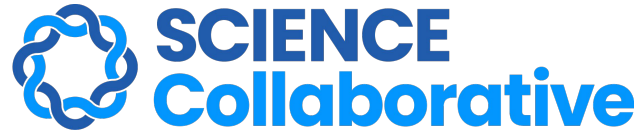


- ❑ No equity gaps by first generation status
- ❑ R/E equity gaps observed for 23 MENA students, lower belonging certainty, social belonging and self-efficacy - but increase in Institutional Growth Mindset

# SCIENCE Collaborative Spring 2026 Community Data

	Continuing-Generation	1195	64%
First-Generation	First-Generation	521	28%
	Skipped Question	162	9%
	Insecure	500	27%
Basic Needs Security	Secure	1340	71%
	Skipped Basic Needs Security Question	38	2%

# Make: Instructional Response



**Examples from classroom and  
institution-level interventions**

# Every Institution has a story!

## Faculty Engaged in Institutional CoP meetings

- Sharing a highlight or challenge with the BaseCamp community
- Sharing stories at our Collaborative wide meeting
- Reporting in a year end summary

# ASCEND at University of Alaska – Anchorage



- A public, open-access, dual-mission university serves as both a community college and a comprehensive metropolitan university
- Located on the ancestral homelands of the Dena'ina, Ahtna, Alutiiq/Sugpiaq, and Eyak peoples.
- Serving ~11,000–12,000 students across main and community campuses
- Many students balance work, family, and commuting, with 60–70% enrolled part-time and ~90% Alaska residents
- Fall 2025 ASCEND faculty analyzed survey data from 8 instructors and ~341 students, including conversations about belonging, support, and access to resources such as food and basic needs

# Results - UAA Fall 2025

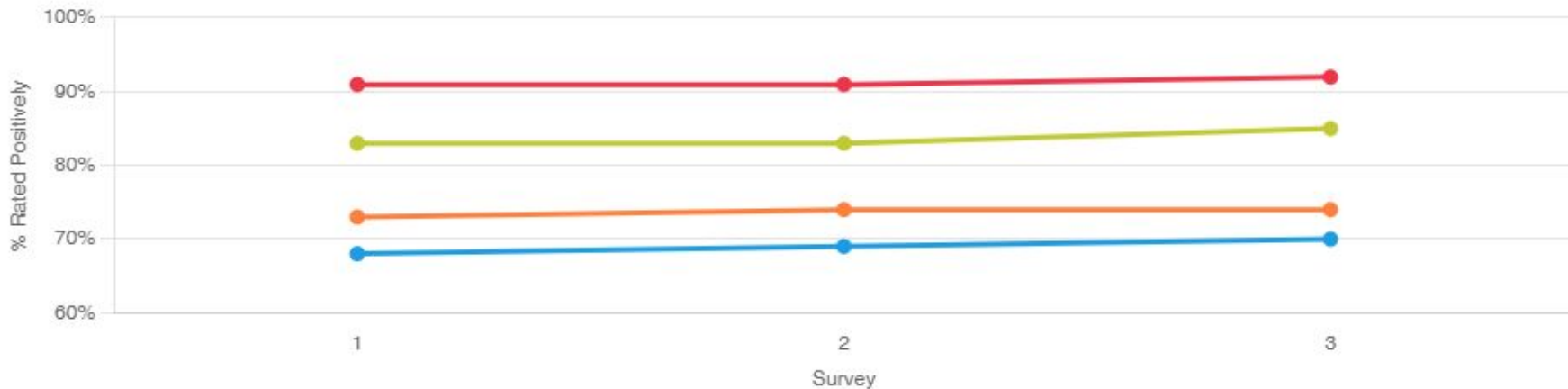


Chemistry - Biology - Math - Astronomy - Accounting

## Learning Condition Trends



Show | Belonging Certainty Institutional Growth Mindset Social Connectedness Welcoming Environment 3 others...



# Spotlight on UAA Fall 2025

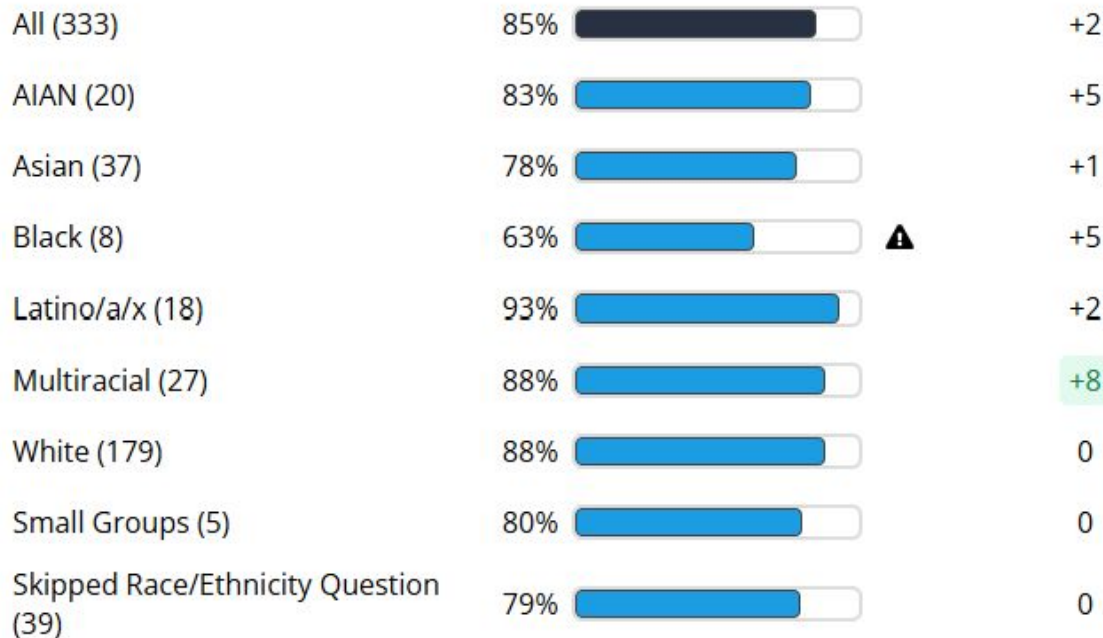


Chemistry -Biology - Math - Astronomy -Accounting

## Welcoming Environment

333 (of 341) responses

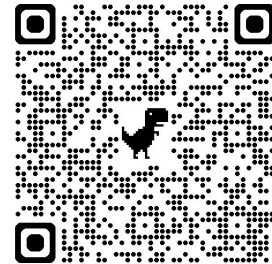
~46% White, ~9% Asian,  
~9% Hispanic, ~5%  
Alaska Native/American  
Indian (higher if including  
multi-racial), ~10% Two or  
More Races.



# What Did You Notice?



Answer 1 of 3  
on UAA Tab



- What patterns stand out in these data?
- What might students be experiencing at this institution?
- What questions would you want to ask the instructor(s)?

# UAA Instructional Responses to Ascend Data

- Each time UAA Faculty explore the data there are new paths to take.
- Faculty “own” the data – not administration driven.
- We can use the data to leverage existing information and infrastructure to support students in our courses.



Photo courtesy of James Evans,  
University of Alaska Anchorage



# Ascend at Otterbein University



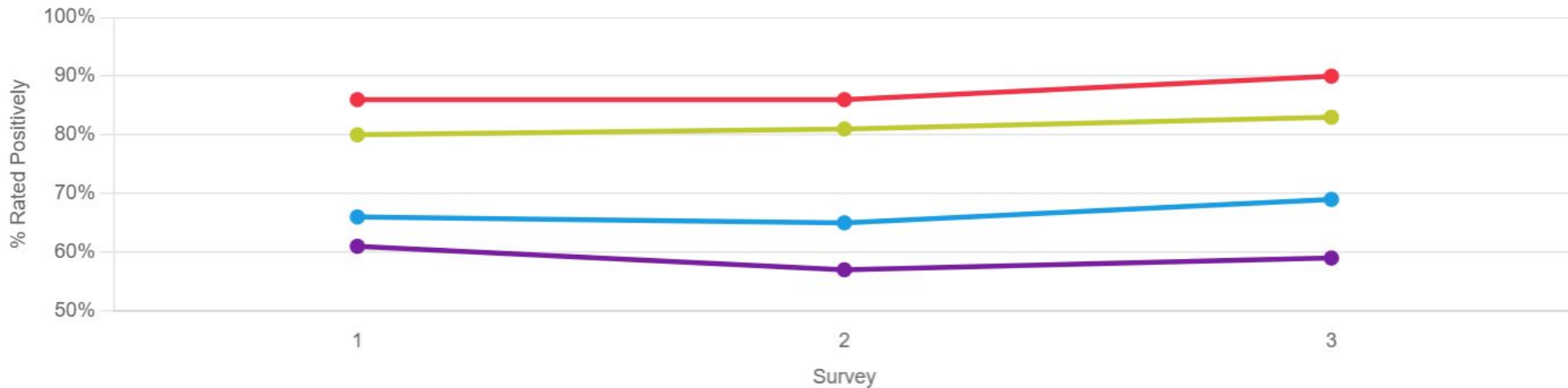
- Private undergraduate institution near Columbus, Ohio
- Ascend Community of Practice with 13 STEM faculty
- Faculty met regularly to review survey results and discuss teaching strategies
- Approximately 2600 undergraduates, including many commuter and first-generation students

# Results Fall 2025 Otterbein

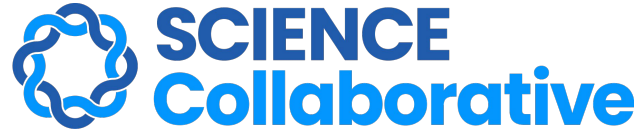
## Communication Fidelity

[? Why fidelity matters](#)

**Great work!** More than 80% of students agreed with: "My instructor will try to use my answers to this survey to make class better for me." You've seen a **+4 point increase** from the first survey.



# Results Fall 2025 Otterbein



**Belonging Certainty**  
382 (of 383) responses

All (382)



+3

**Institutional Growth Mindset**  
382 (of 383) responses

All (382)



+4

**Self-Efficacy**  
382 (of 383) responses

All (382)



-2

**Social Belonging**  
382 (of 383) responses

All (382)



+2

**Social Connectedness**  
382 (of 383) responses

All (382)



0

**Trust and Fairness**  
381 (of 383) responses

All (381)



0

**Welcoming Environment**  
381 (of 383) responses

All (381)



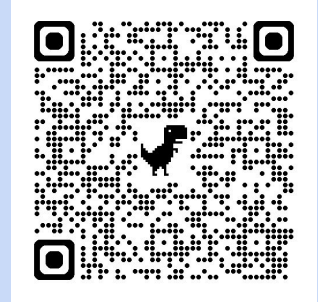
+3

# What Did You Notice?

- What patterns stand out in these data?
- What might students be experiencing at this institution?
- What questions would you want to ask the instructor(s)?

# How Might an Instructor Respond?

- What teaching adjustments might support students in this context?
- What additional information would you want to gather?
- How could faculty colleagues help interpret these results?



# Actual Instructional Responses








- Many faculty collaborated closely with their students when addressing their survey results, increasing student buy-in.
- Positive shift in creating more conversations around teaching in STEM disciplines and a sense of community among faculty.
- Some faculty were involved in other CoPs (alternative grading or co-requisite courses) and Ascend provided an avenue for helpful feedback.

# Ascend at Fairfield University



- Jesuit comprehensive university with undergraduate (5000+) and graduate programs in Fairfield CT
- Ascend implemented in **mathematics** courses across two campuses (Bachelor and Associate programs)
- 5 math faculty used survey feedback, 142 students represented in the dataset

# Survey Results for Surveys #1 & #2

LEARNING CONDITION	RESPONSES	RATED POSITIVELY ON LAST SURVEY	± FROM FIRST SURVEY
<b>Belonging Certainty</b> 142 (of 142) responses	All (142)	80% 	+19
<b>Institutional Growth Mindset</b> 142 (of 142) responses	All (142)	92% 	+5
<b>Self-Efficacy</b> 142 (of 142) responses	All (142)	78% 	+13
<b>Social Belonging</b> 142 (of 142) responses	All (142)	88% 	+6
<b>Social Connectedness</b> 142 (of 142) responses	All (142)	81% 	+5
<b>Trust and Fairness</b> 142 (of 142) responses	All (142)	98% 	0
<b>Welcoming Environment</b> 142 (of 142) responses	All (142)	87% 	+6

I feel like I belong in this class.  
142 (of 142) responses

All (142)

84%



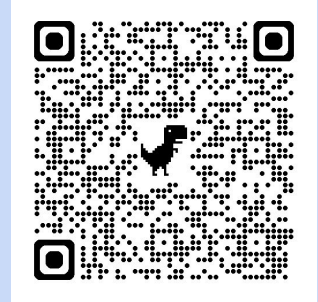
+11

# What Did You Notice?

- What patterns stand out in these data?
- What might students be experiencing at this institution?
- What questions would you want to ask the instructor(s)?

# How Might an Instructor Respond?

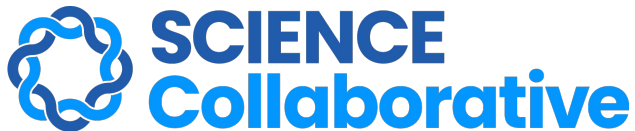
- What teaching adjustments might support students in this context?
- What additional information would you want to gather?
- How could faculty colleagues help interpret these results?



# Actual Instructional Responses

- Greeting students by name daily/icebreakers
- Transparency about course expectations
- Encouragement and empowerment
  - *you can do this*
- Reflection on exams
- Explicit discussion of support resources
- Small group learning and community building

# Nationwide Impact



The SCIENCE Collaborative



## Fall '24:

- 10 Campuses
- 30 Class Leads
- 1,730 Student Responses

## Fall '25:

- 10 Campuses
- 59 Class Leads
- 2,386 Student Responses

## Spring '25:

- 8 Campuses
- 21 Class Leads
- 1,234 Student Responses

## Spring '26:

- 9 Campuses
- 41 Class Leads
- 1,963 Student Responses



What role could student experience data play  
in your teaching?



What questions do you have about this  
project?

**Thanks to: The SCIENCE  
Collaborative and our “community of  
the willing”**



- **Elon University**
- **Fairfield University**
- **Fisk University**
- **Fort Lewis College**
- **Hamilton College**
- **Oglethorpe University**
- **Otterbein University**
- **Portland State University**
- **Simmons University**
- **University of Alaska Anchorage**
- **University of Iowa**
- **University of Minnesota Morris**
- **University of New Mexico**
- **Xavier University**



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