

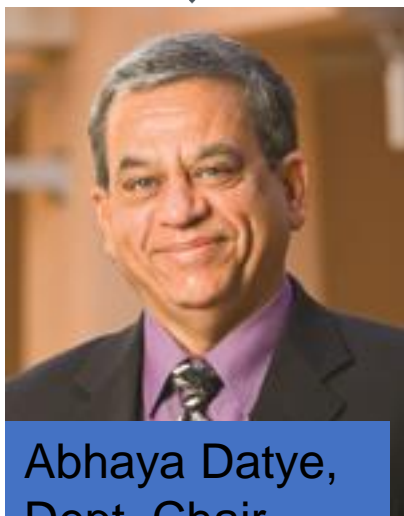


Formation of **A**ccomplished **C**hemical **E**ngineers for **T**ransforming **S**ociety

EEC #1623105



Curriculum Change for Inclusion and Diversity



Abhaya Datye,
Dept. Chair



Vanessa Svihla,
Engr. Educ.



Sung Pil Kang,
Change mngr.



Marina Miletic,
Program Manager



Jamie Gomez,
Core faculty



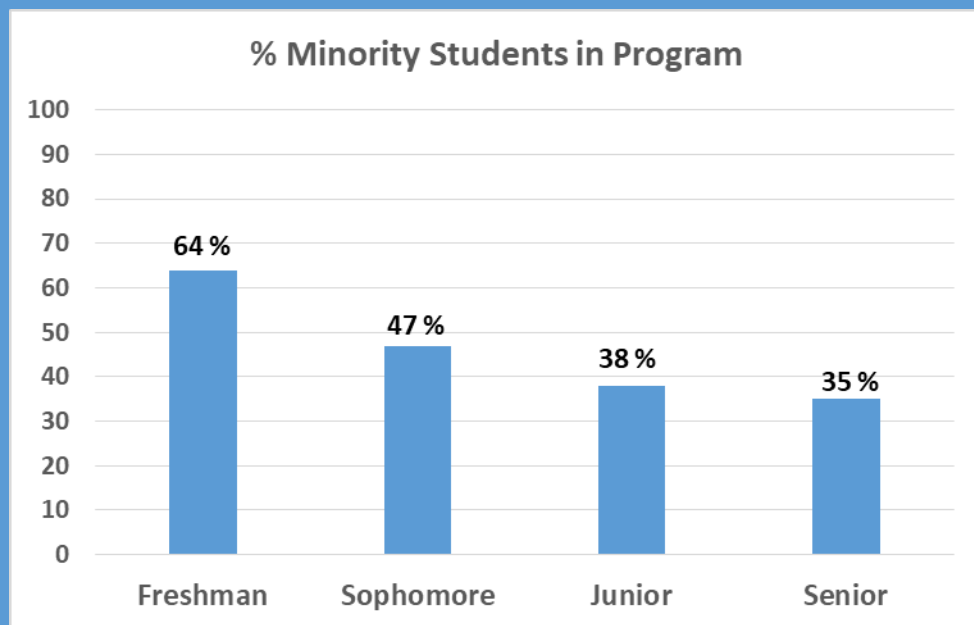
Sang M Han,
Core faculty

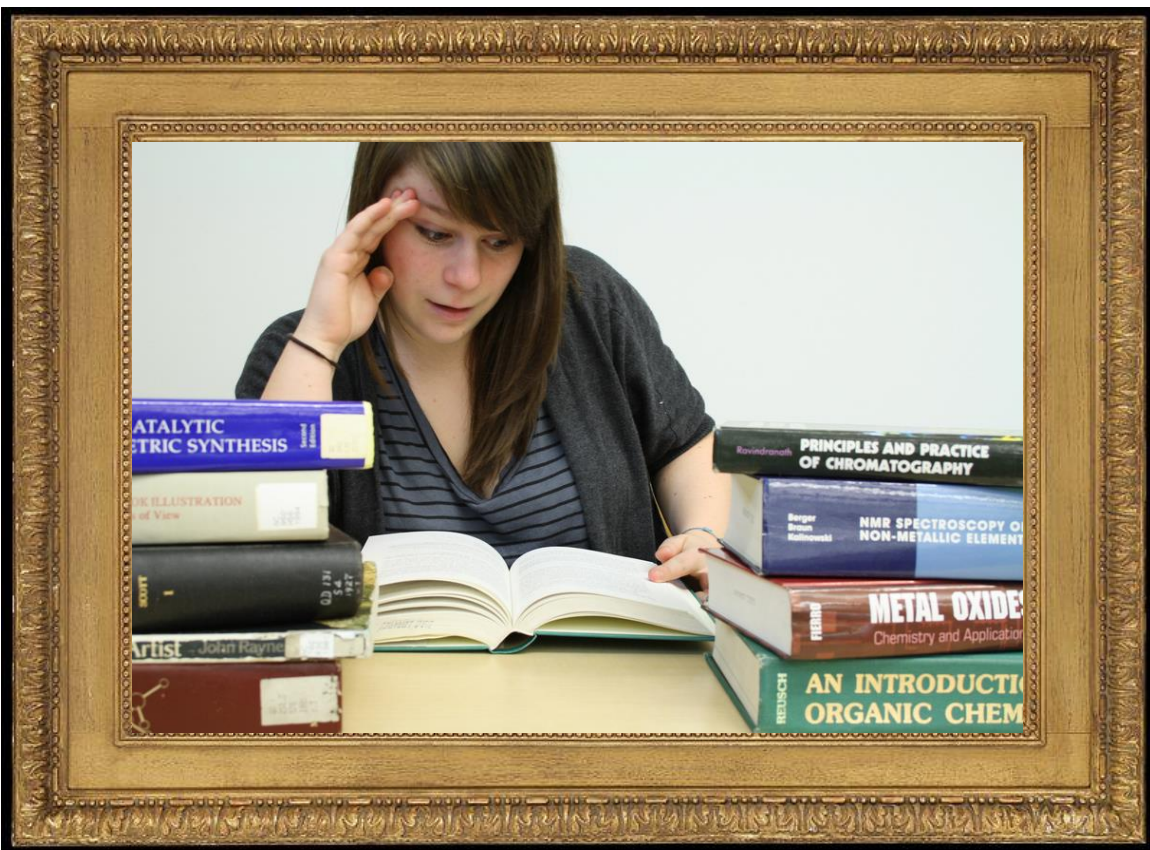


Eva Chi,
Core faculty

Challenge Addressed In Our Project

Low Retention of Under Represented Minority Students





Formally decline her. That's what cut-scores are for

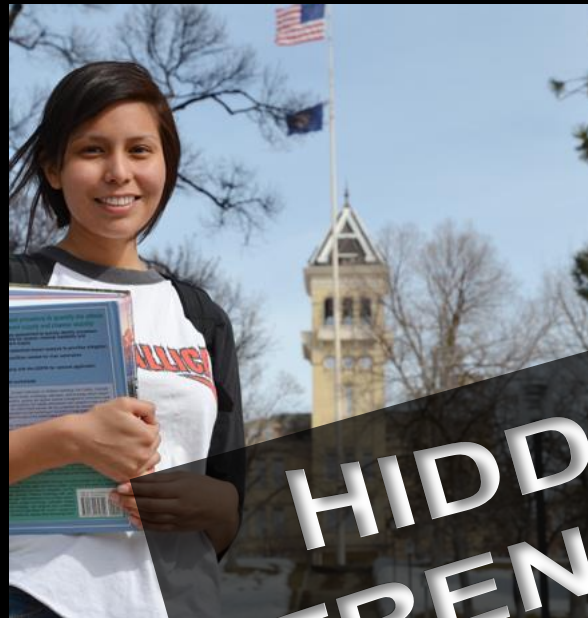
Gently counsel her out of the program

Ask her why she wants to major in Chem E

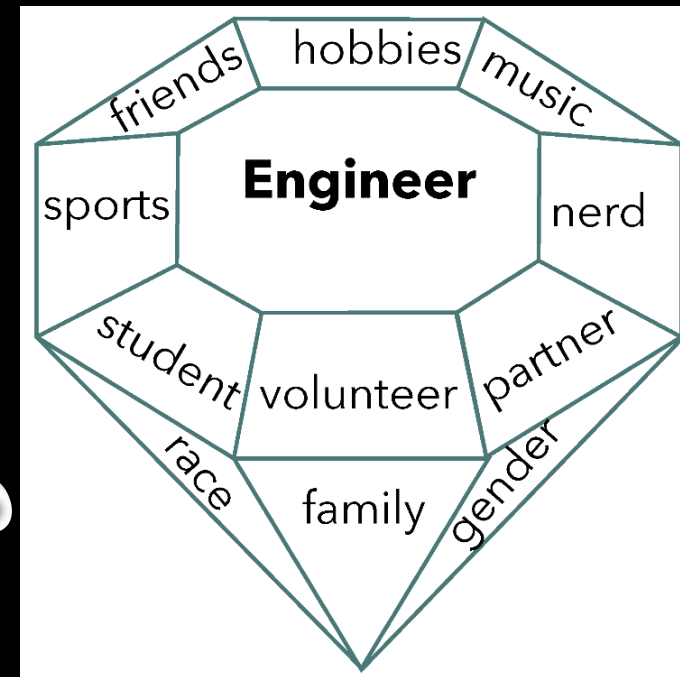
Keep it vague, avoid talking about her GPA

Suggest she reapply next year

Students underrepresented in engineering (women, first generation college attendees, minorities) have **assets** that may be relevant to engineering



**HIDDEN
STRENGTHS**



Can we connect these to professional engineering practices & help develop student identities as engineers?

Project Goal

Change the faculty mindset so they can uncover the interests, skills & beliefs our diverse students hold that are relevant for engineering

Faculty Development Workshops

DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING INVITE YOU TO ATTEND

Part 1: Presentation • The Potential of Open Badges and Microcredentials to Improve Learning and Engagement

Part 2: Workshop • Badge-a-thon: Creating Your Microcredentials

FACETS FACULTY DEVELOPMENT WORKSHOP*

Workshop Titles:

Tips, tools and technology for teaching large classes

Designing Engaging Student Experiences with PBL

Towards a scenario- and problem-based chemical engineering curriculum

How to Study

How to Learn Engineering

**Funds
of
Knowledge**



Theorizing
Practices in
Households,
Communities,
and Classrooms

Design is Embedded In the **Curriculum** from Freshmen through Junior Years - Leading to Senior Design

Applying Engineering to Solving Real World Problems

Acid mine drainage



Antimicrobials

Community
Industry
Research
Entrepreneurship



Evaporative Cooling



Implementation



Collaborative Classrooms

Disciplinary Expert



Low income, first-generation college attendees bring **assets**:

- An ability to define and solve problems with cost effective solutions
- Empathy for marginalized communities
- More experience in creative problem solving from everyday life

JAMIE R. GOMEZ AND VANESSA SVIHILA
University of New Mexico

**RURALITY AS AN ASSET
FOR INCLUSIVE TEACHING**
in Chemical Engineering

Chem. Engr. Ed. (2018)

Distillation Design Challenge

*developed and implemented
in CBE 321 Mass Transfer*

Prof Eva Chi



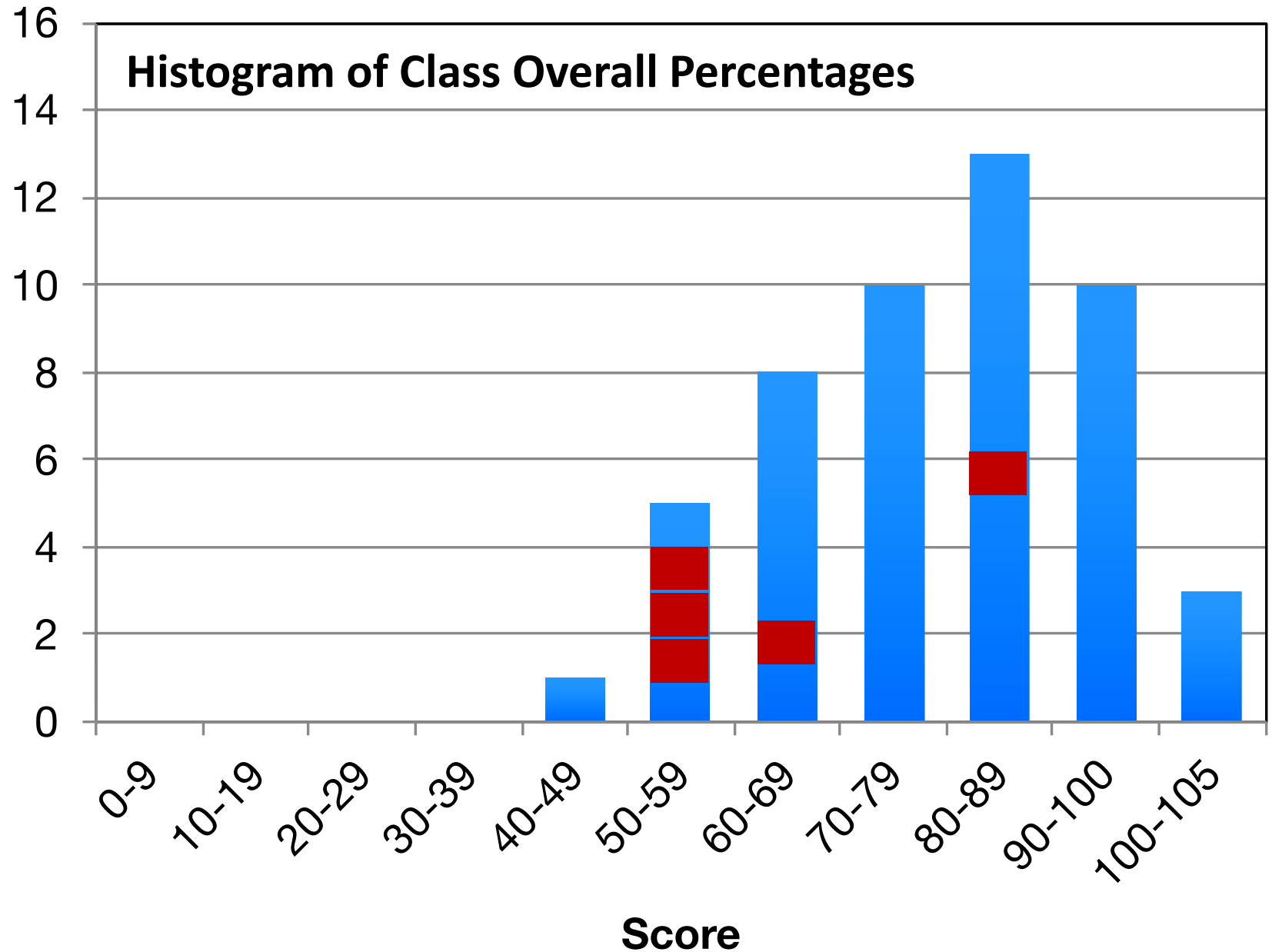
IPA

WINE

Composition of Best Performing Team

of
Students

Group of 5 students
60% Female (3 female)
100% URM (1 Native
American & 4
Hispanic)



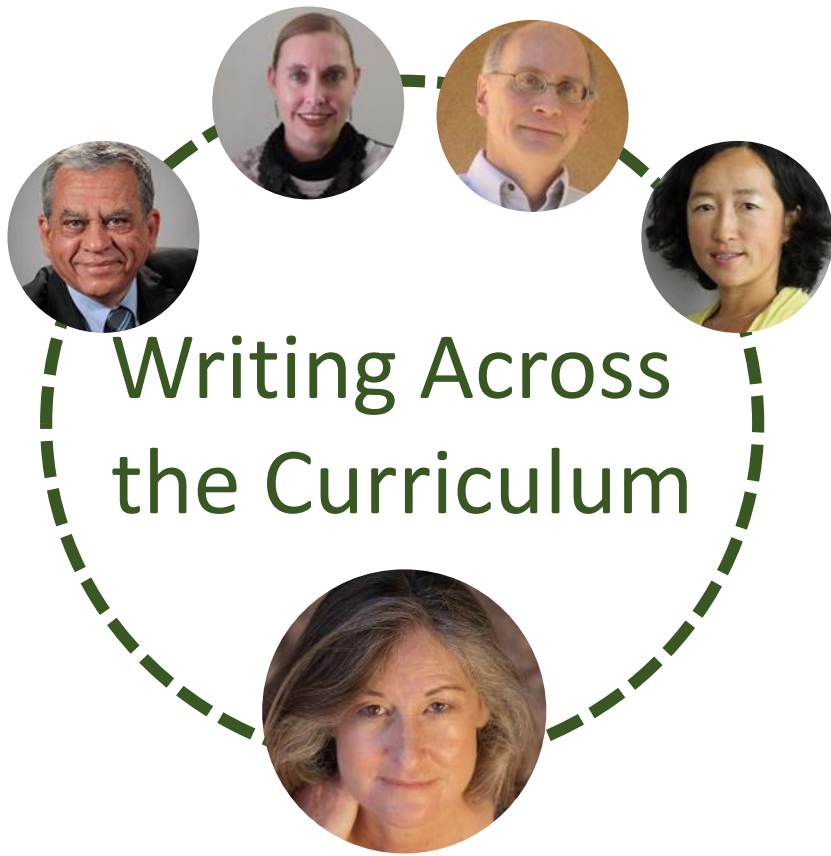
Reaching Beyond Departmental Boundaries

Collaborate with Math, Physics & Chemistry

- Low retention in Engineering originates in the first year sequence
- Understand the difficulties faced by the Mathematics & Science departments
- How can we support them and find solutions



Marina Miletic
Program Manager

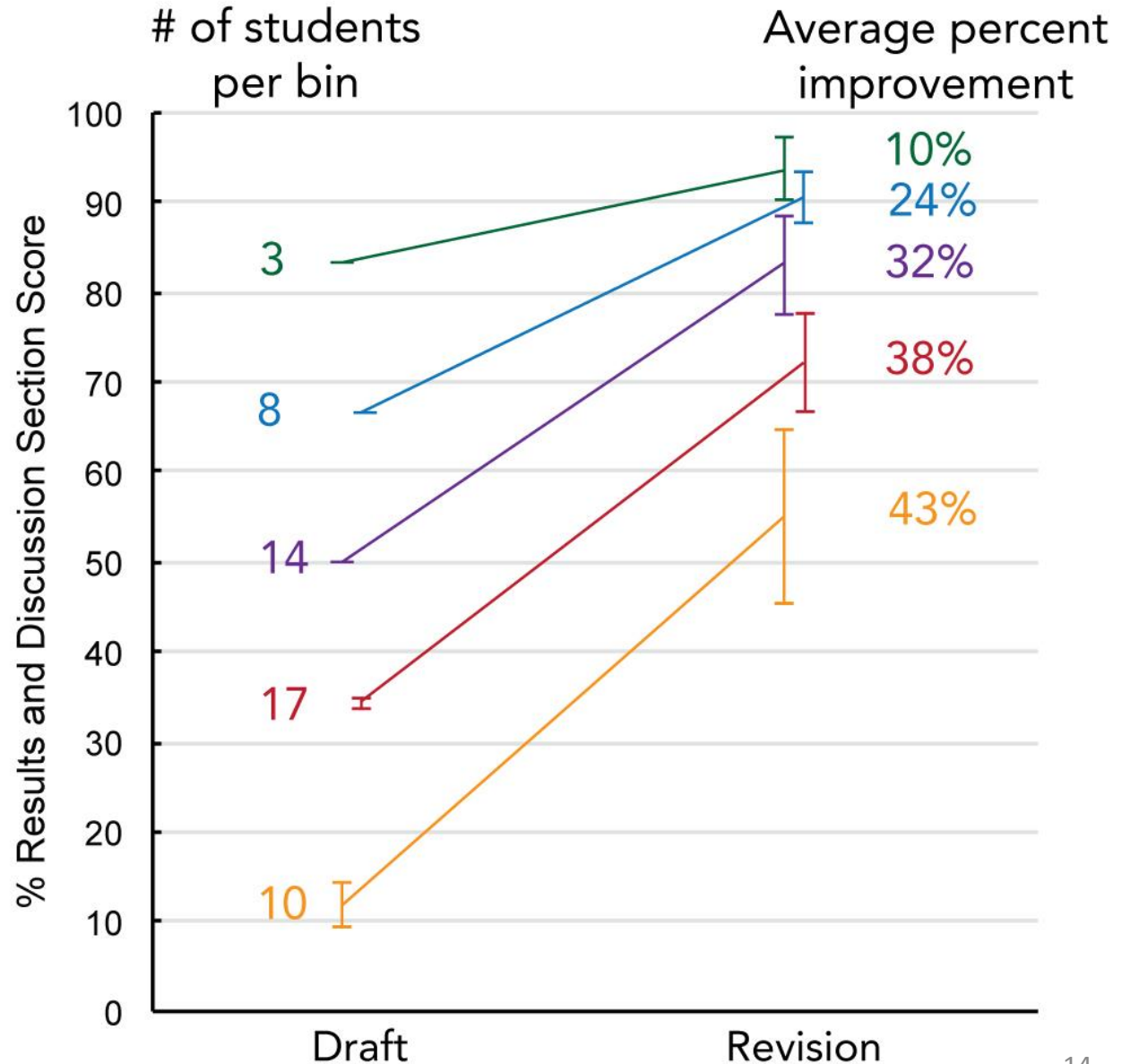


Writing Across the Curriculum

Embedded Writing Instructor

**Peer Review and Reflection in Engineering Labs:
Writing to Learn and Learning to Write**
Vanessa Svihla, Catherine Hubka & Eva Chi
ASEE 2018

Student scores – before and after revisions



13 2018

- 4 ASEE presentations - 1 finalist for best paper award
- 4 ASEE peer-reviewed proceedings
- 1 ICLS presentation
- 1 ICLS peer-reviewed proceeding
- 1 Chemical Engineering Education peer-reviewed paper
- 1 AERA 2018 RED poster session
- 1 Invited panelist at STEM HSI conference

8 2017

- 2 ASEE presentations
- 2 ASEE peer-reviewed proceedings
- 1 Best Diversity Paper Plenary
- 2 presentations - AIChE, NSF EEC Grantees
- 1 ASEE ChemE Summer School workshop

6 2016

- 2 ASEE presentations
- 2 ASEE peer-reviewed proceedings
- 1 AIChE - presentation
- 1 Faculty Change webinar

Publications & Presentations