

Online Student Collaboration

43rd Annual AMATYC Conference

San Diego, CA

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WHY DO GROUP WORK ONLINE?



Collaboration Essential for Learning

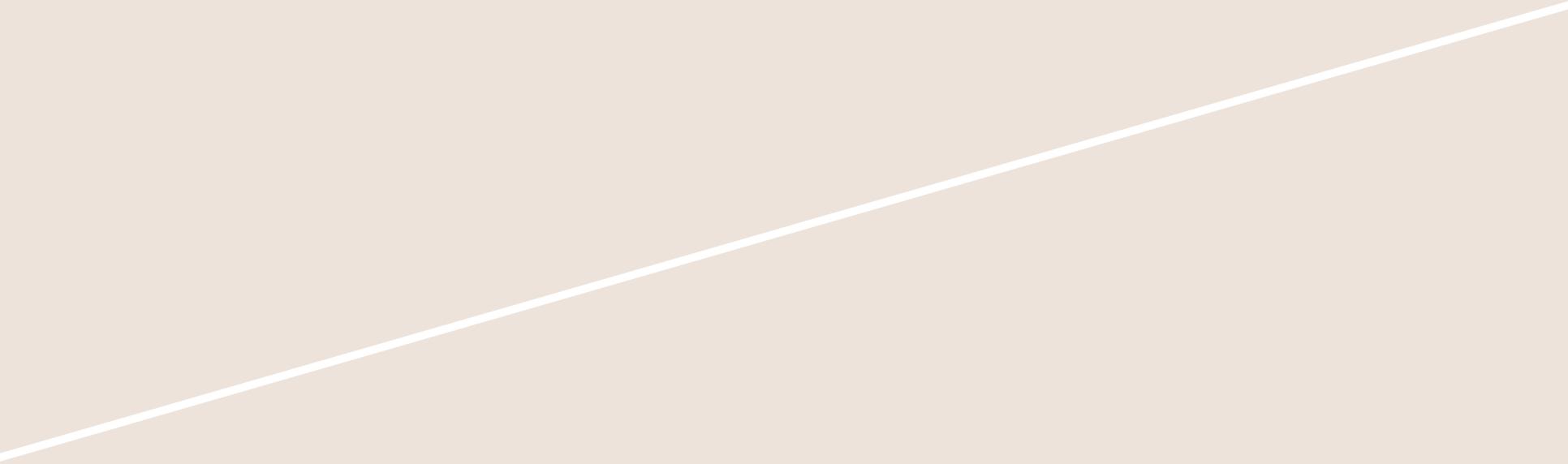
- Number of student-student interactions was best predictor of student success in online classes (Mager, 2012).
- College students benefit from strategic online discussion (Darabi et al., 2013).
- Student-student collaboration is a key component of emerging quality standards, including Quality Matters and EPIC.

Collaboration Essential for Employment

In an interview with Fast Company, Prof. Daniel Alexander Usera said,

“A lot of times degree programs and employers focus on the hard skills, but then end up with employees who do not know how to **work with other people** or can’t **communicate a complex thought** in an effective manner. Although STEM degrees will continue to be in high demand, those skills are not as impactful if the person can’t function in a **team-based, information-sharing context.**” (Vozza, 2016)

MOTIVATING STUDENTS



Tell Students the “Why”

- Best practices
- Communities of the Future Predictions
- Hearing others' explanations
- Mastery from teaching others

Build Community First

- Introduction early
 - Ice breaker
 - Connection to major
 - Study habits (for picking group members)
- Be a real person, not just “course instructor”
- Model enthusiasm

Basic Expectations

There should be clear, basic expectations for all groups and all assignments.

- Known Project Length
- Consistent Final Deadlines
- Mandatory Midweek Planning

Let Students Have Control

- Let students pick own groups
- Let students pick tools that work best
- Let students plan (roles, expectations, deadlines)
- Let students customize look/theme in LMS

Evaluations are based on agreed-upon expectations

Example of Group-Set Expectations

RE: Week 5 Attendance - Discussing Strategy

- Will you meet together in person? Where? When?

We will meet in person on Sunday afternoons at 4:30 at Panera Bread at North Hills for group assignments and discussions.

- How will you share files?

We plan to use google docs

- How much time will you need to review and discuss each other's answers? 2 Days? 3 Days?

Assignments should be posted to the google doc no later than two days before the due date.

Student Motivation Grows

- Students build camaraderie
- Difficulty ramps up, students rely on each other more
- Beyond requirements - students end up studying and doing homework together

SAMPLE GROUP PROJECTS FOR STATISTICS AND PRE-CALC TRIG



Statistics – Probability Assignment

- First Group Assignment
- Calculation-heavy
- Handout is Provided in the Conference App

Trigonometry – Polar Graphing Lab

- Discovery-heavy Group Lab
- Handout is Provided in the Conference App
- Desmos Link:

<https://www.desmos.com/calculator/qhrzgybd05>

Statistics – Non-graded Discussion

As an attendance requirement this week, you will discuss a critical thinking question with your group.

Follow these steps:

- Read and study Chapter 6 material.
- Read the question posted in your Group Forum.
- Have a discussion in that forum with your group to develop an answer to the question.
- When everyone feels comfortable with the answer, have one person volunteer to post a 4-6 sentence summary of your group's answer and reason to the Class Discussion Board.
- Read the other group summaries to make sure you are comfortable with these topics.

Statistics – Non-graded Discussion

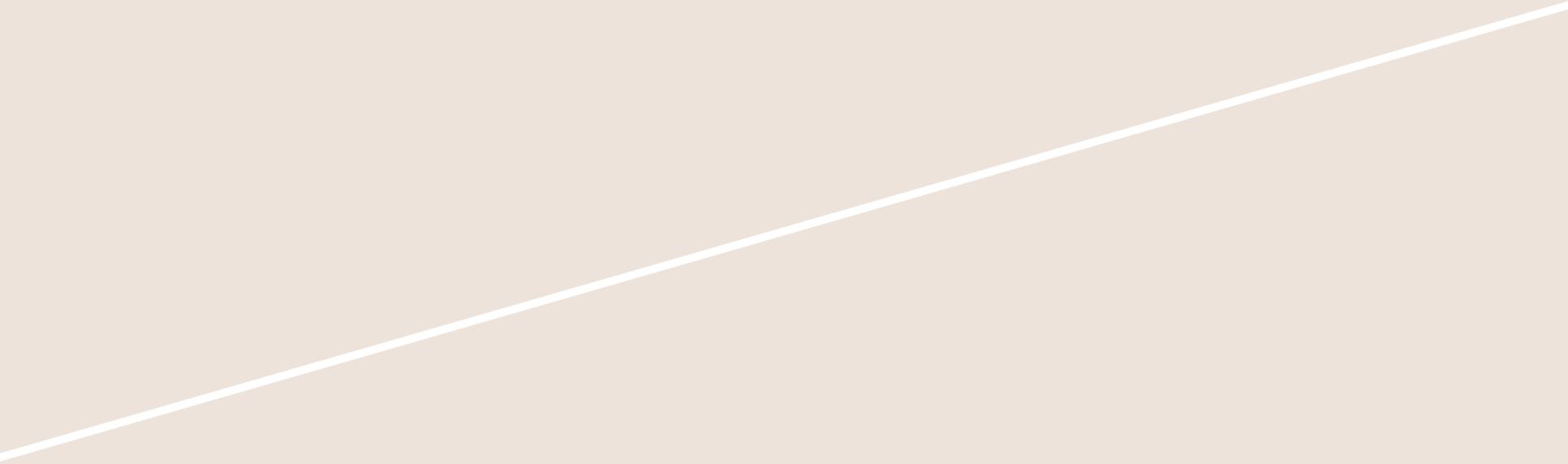
Discussion Questions:

- What makes a confidence interval “good?”
- How does sample size affect the width of a confidence interval?
- If two samples are collected from the same population, and a confidence interval is calculated for each sample, will you get the same interval each time?
- How does confidence level affect the width of a confidence interval?

Trigonometry – Creative Assignment

- Last Group Project
- Similar to a Formal Presentation
- Open-ended, Multiple Approaches
- Instructions and Sample Work in the Conference App

GROWTH IN COMPLEXITY



Complexity in Content

Statistics

- Probability
- Binomial Distributions
- Normal Distributions
- Confidence Intervals

Trigonometry

- Trig Functions and Unit Circle
- Modeling
- Polar Coordinates and Graphing
- Conics
- Polar form of Conics

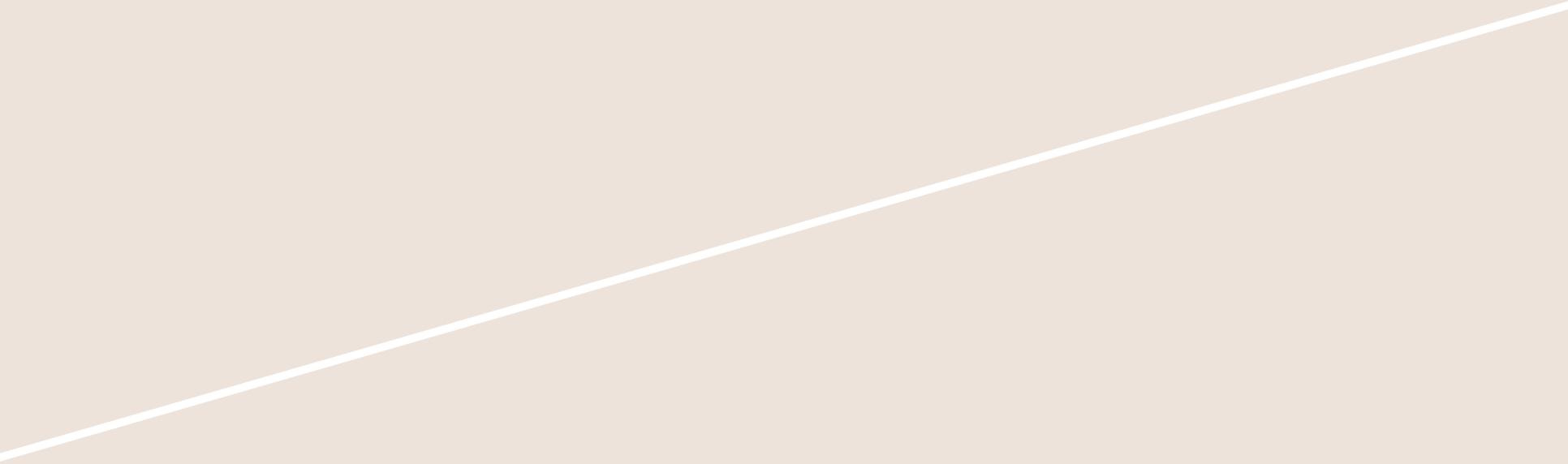
Complexity in Project Requirements

- Begin with straightforward problems
- Build in critical thinking and analysis
- By the end, synthesis and evaluation

Complexity in Interpersonal Skills

- **Straightforward Problems**
 - Compare responses
 - Discuss differences
- **Open-ended Questions**
 - Generate ideas
 - Evaluate others' ideas
 - Combine and organize multiple ideas
- **Creative Projects**
 - Plan and brainstorm
 - Negotiate and compromise
 - Create a draft
 - Refine and finalize

TOOLS FOR COLLABORATION



Tools Students Use

- Very Common
 - LMS Discussion Board
 - Texting and/or Messaging Apps
 - Email
- Occasional
 - Voice Chat and/or Phone
 - Video Chat

Different Tools for Different Purposes

Students use different tools depending on the demands of the assignment

- **Planning**
 - Text, Group Chat, Discussion Board
- **Executing and Sharing**
 - Email, Google Docs, Wiki, File Exchange
- **Discussing and Finalizing**
 - Email, Discussion Board, Text, Live Chat

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Works Cited

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