

Cougars and Hope Academy Math Program



Dr. Mark Tomforde
University of Houston

University of Houston (Mascot is the Cougar)

- Flagship University in the University of Houston System
- Approximately 35,000 students
- Math department has 35 faculty
- Undergraduate degree as well as Masters and Ph.D. programs in Math
- Located in Houston's Third Ward

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Hope Academy

- A “second chance” high school
- 95% African-American and 5% Hispanic
- Located a few blocks from the University of Houston
- Math is the area with worst performance on standardized tests (often a major obstacle to students graduating from high school)

CHAMP

Each Monday we bring approximately 15 high school students from Hope Academy to UH for a 2-hour math lesson



High School Students from Hope Academy

Each week's lesson is given by a different person on a topic of their choice. We have had

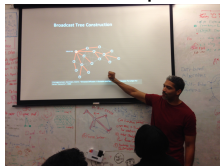
- Professors from UH



- Individuals from Reasoning Mind (a local nonprofit)



- A field trip to a Robotics Lab at Rice



We have UH undergraduates and graduate students serve as facilitators that help when students break into groups



UH Facilitators (Undergraduate and Graduate students)

Goals of CHAMP

- Involve Underrepresented Groups in Mathematics.
 - Focus on Exposure rather than Content
 - Develop “Habits of Mind”
- Encourage Students to go to College and consider a STEM major.
 - Tours of Campuses in Houston
 - Discussion of College Application Process
 - Introduce to Administrators that can help
- Make the Program Replicable
 - Volunteer effort / no grant support
 - Use simple supplies (e.g., pennies, string, cups)
 - Post lessons on website
- Measure and Improve the Program’s Effectiveness.
 - Give surveys examining students attitudes before/after
 - Compare standardized exam scores before/after

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 - Keeps focus on students
 - Grants often waste of time (applying, administering, reporting, justifying) that could be better spent on students
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 - Makes sure people are involved due to intrinsic motivation

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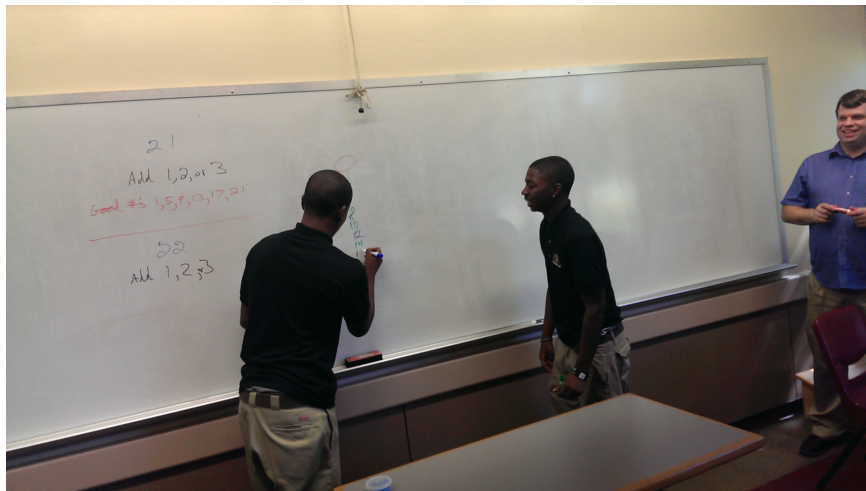
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- **High Teacher to Student Ratio**
 - Instructor, two to three faculty, five or more facilitators at each lesson
 - Focus on individual attention for students
 - Do not expand too fast

Some more pictures . . .













Thank you!

<http://www.math.uh.edu/champ>

Habits of Mind

- 1 Nurture Curiosity and Ask Questions.
- 2 Use Critical Thinking.
- 3 Understand the Value of Learning From Mistakes.
- 4 Think Flexibly.
- 5 Think Interdependently.
- 6 Develop Persistence.
- 7 Communicate with Clarity and Precision.