What Are Our Goals?
TAs' Views about Introductory Laboratories

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Introduction

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- Want more responsive training, based on TAs' ideas and skills[1], for our present lab structure

[1]Goertzen, Scherr & Elby, 2010

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- Want more responsive training, based on TAs' ideas and skills[1], for our present lab structure
- Interviewed TAs' about their experiences teaching introductory labs and in the training meetings in Spring 2012
- Present themes from TAs' discussion about the purpose of lab, their role, their training and common difficulties and how our training can respond

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Background

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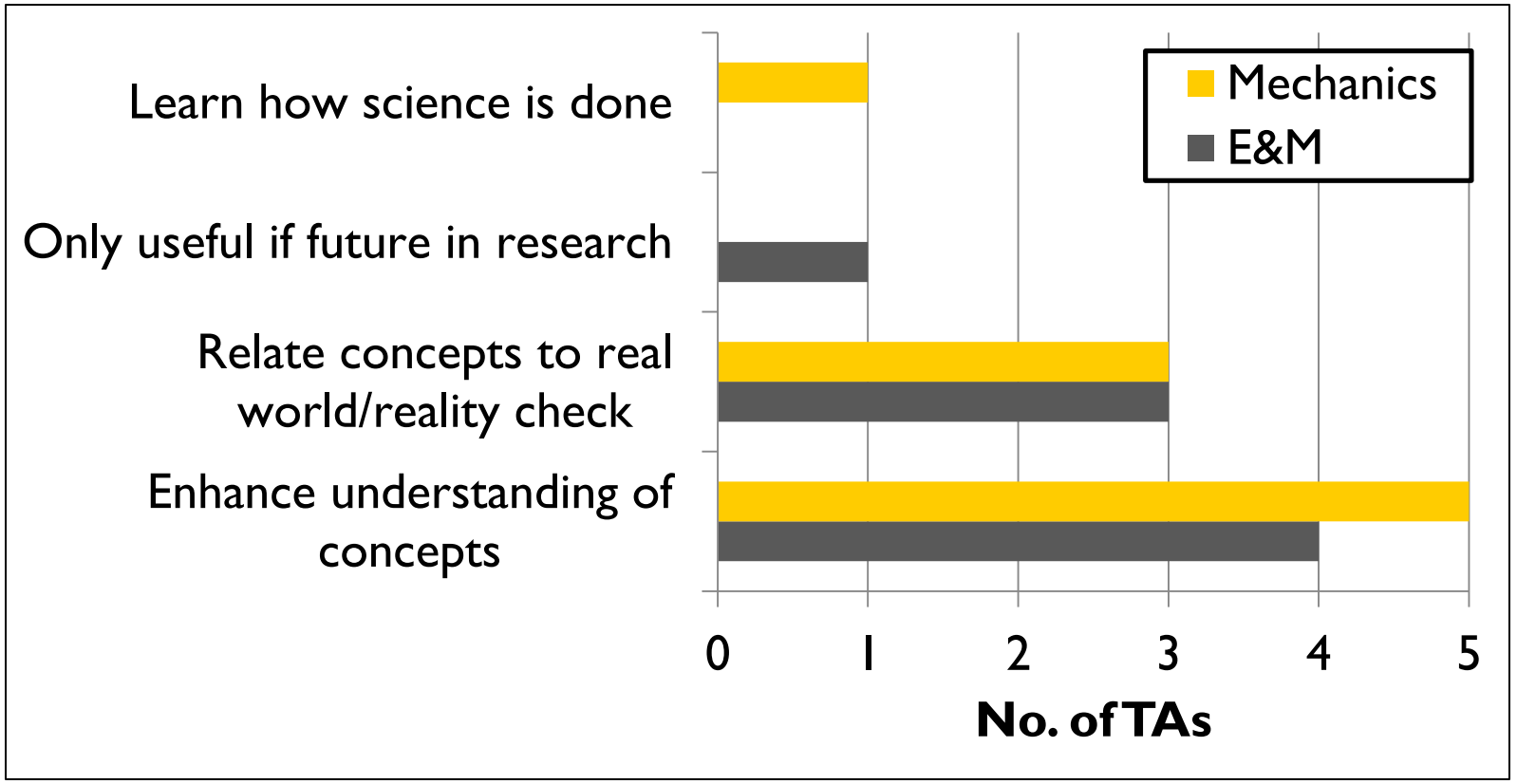
- GTAs
  - 11 TAs, 10 agreed to participate in research
  - 9 non-native English speakers
  - 4 females, 6 males
  - Varied prior teaching experiences
  - Taught 3 (or 4) labs each

Background

- Training Meeting
  - About 1 hour per week
  - Discuss previous week
  - Practice upcoming experiment

Themes: Purpose of Laboratory



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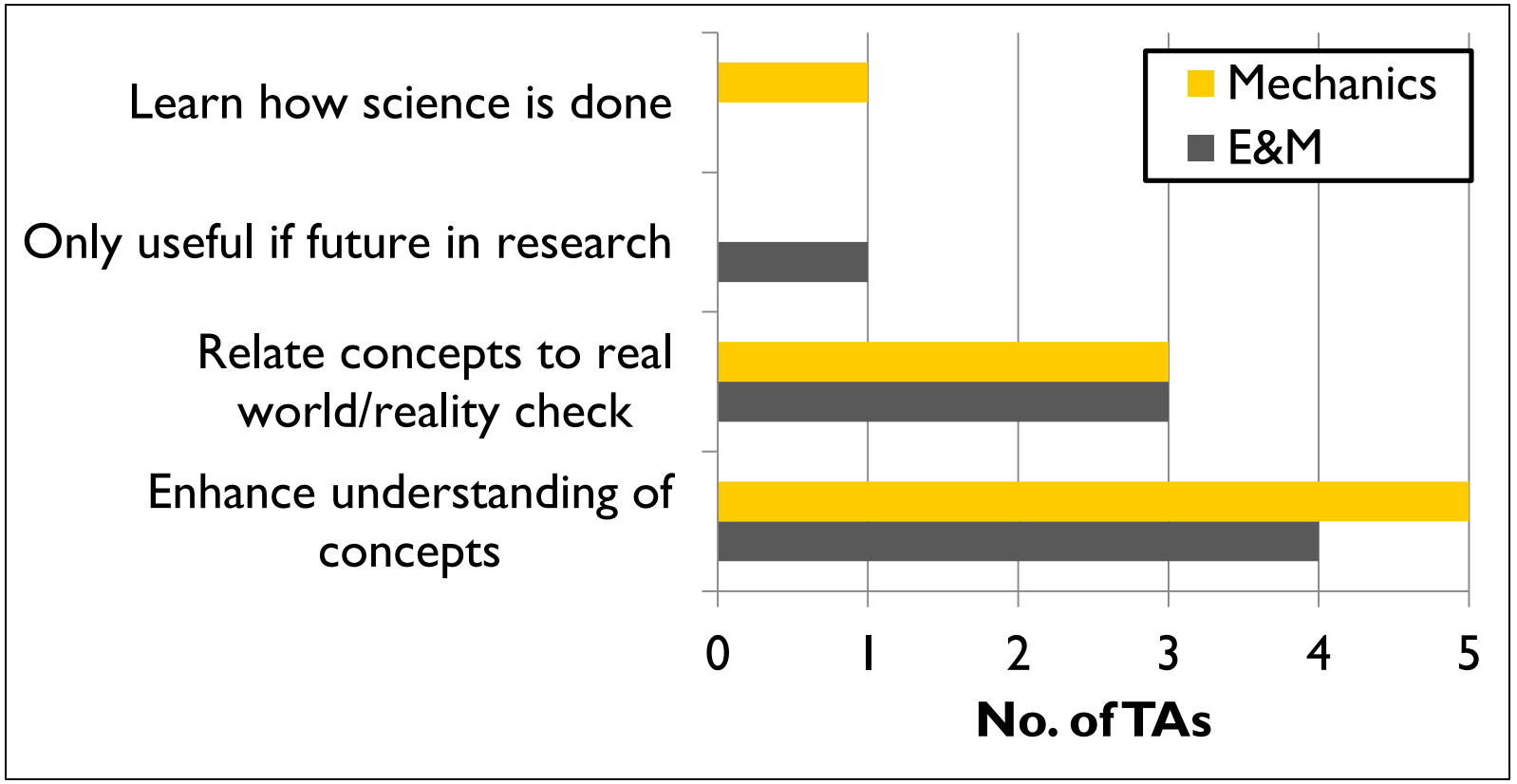

- Low buy-in to mechanics lab reforms[1] could be due to difference in goals for the lab

[1]Discussed in our PERC poster:

Themes: TAs' Role

	Introduce Lab	Interact w/ Students
Anticipated behaviors		
Behaviors to reduce		
Behaviors to explore		

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"I try to tell almost everything, every concepts that I can explain before class because if I didn't explain much then they might have a lot of questions so I try to explain as much as I can do. A lot of explain, explanations so that I can, so that people can understand better."

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- Too much focus on providing information?
- Grounded in concern for students

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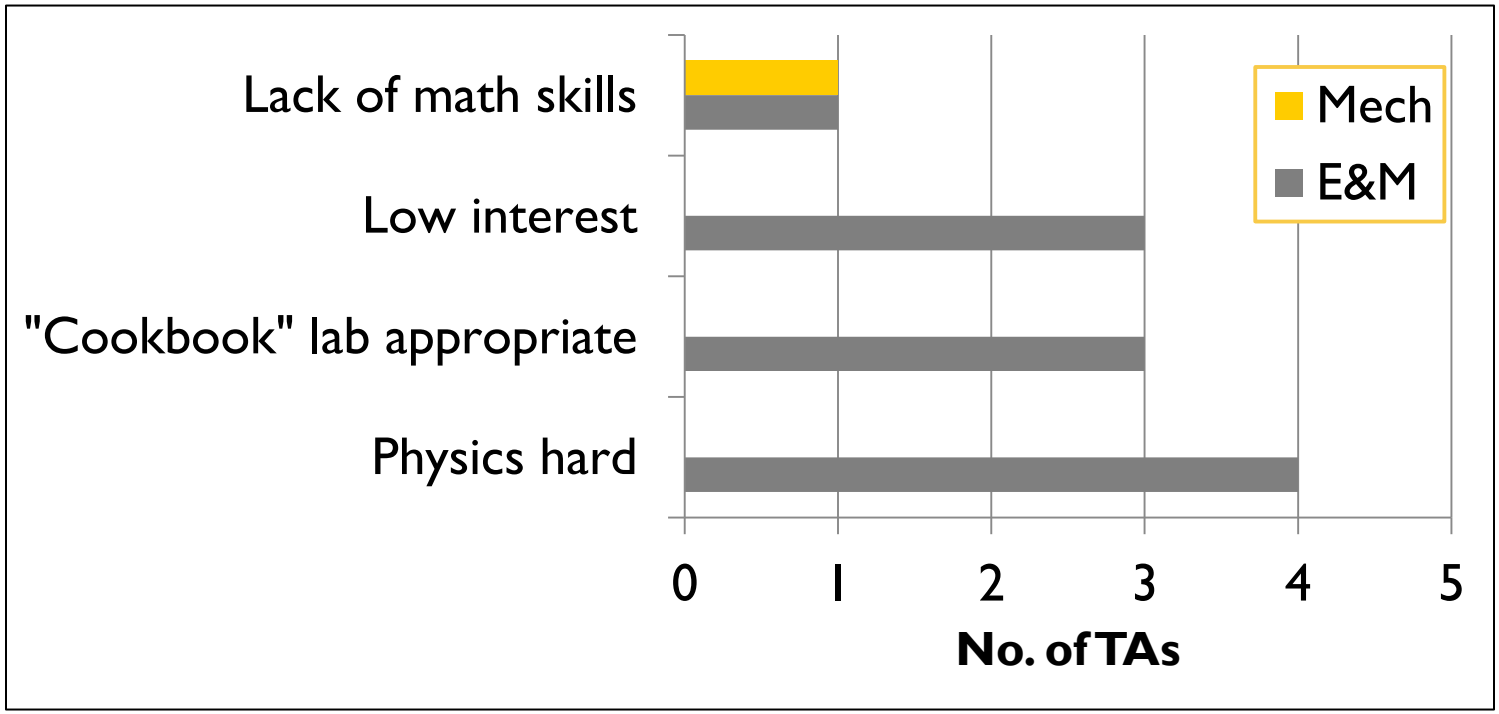
Emergent Issue: Students' Background

- All E&M TAs and 1 mechanics TA made comments linked to students non-physical science background



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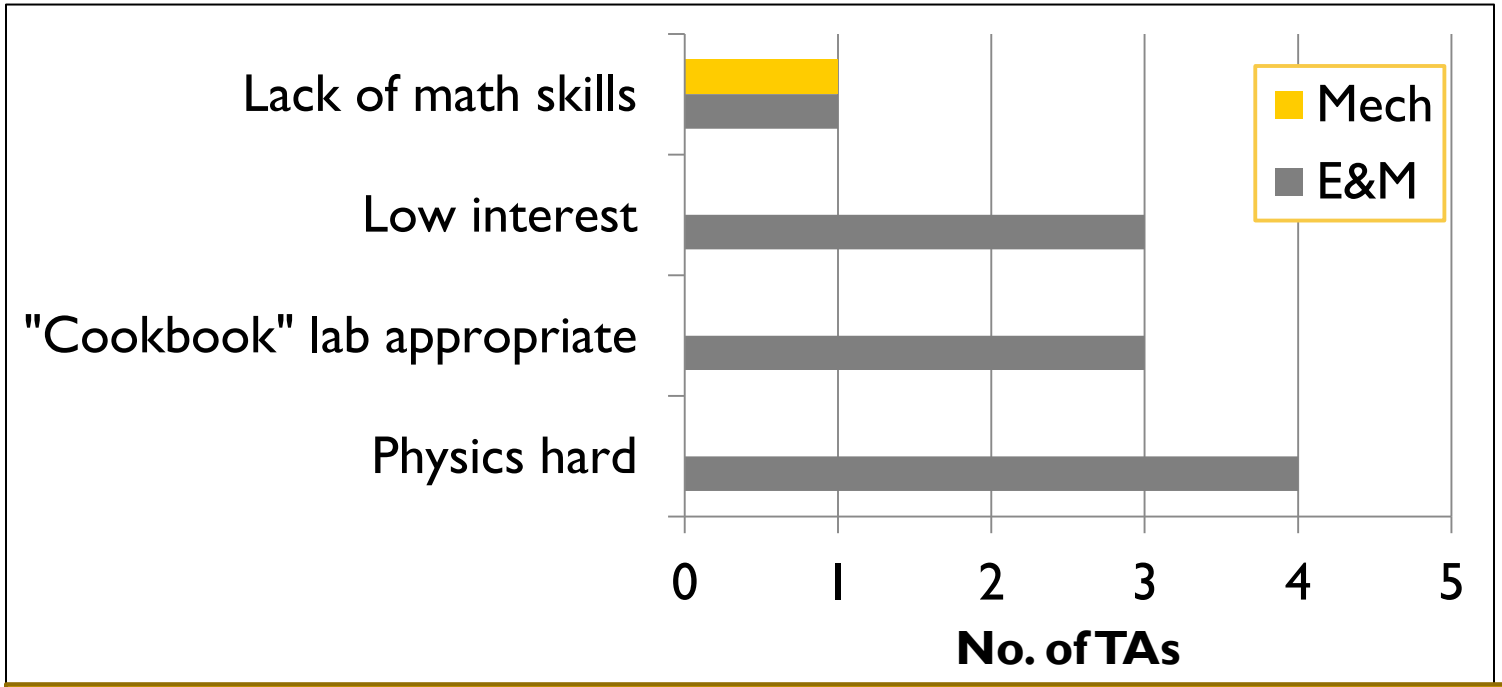

- "And I don't leave like everything on them because if I leave everything on them I know as they are from the bio background, I know they will not write each of the questions, each of the answers correctly."

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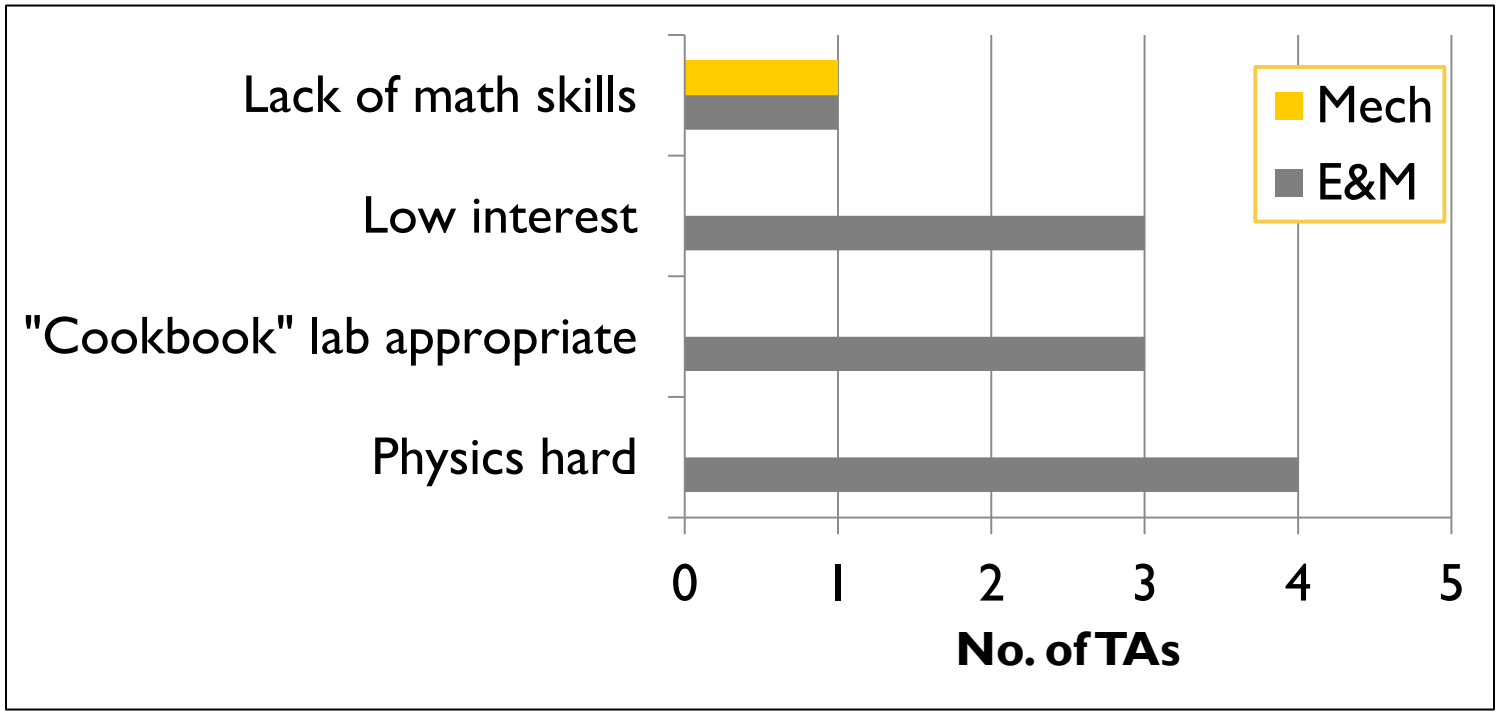

- "But if you don't put the instructions that will be tough for them because they are not a physics major."

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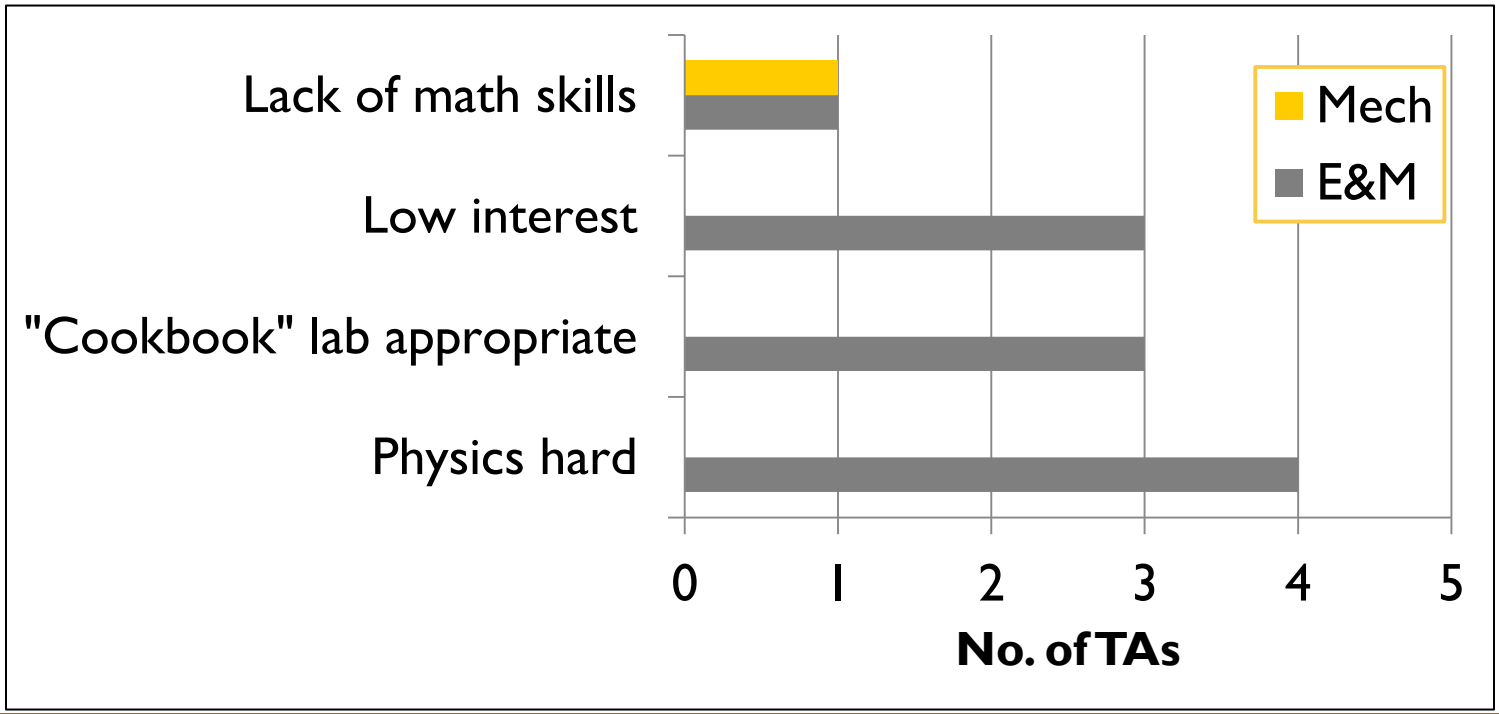

- "These students are not physics oriented, so I guess they must feel this as something which is not useful for them."

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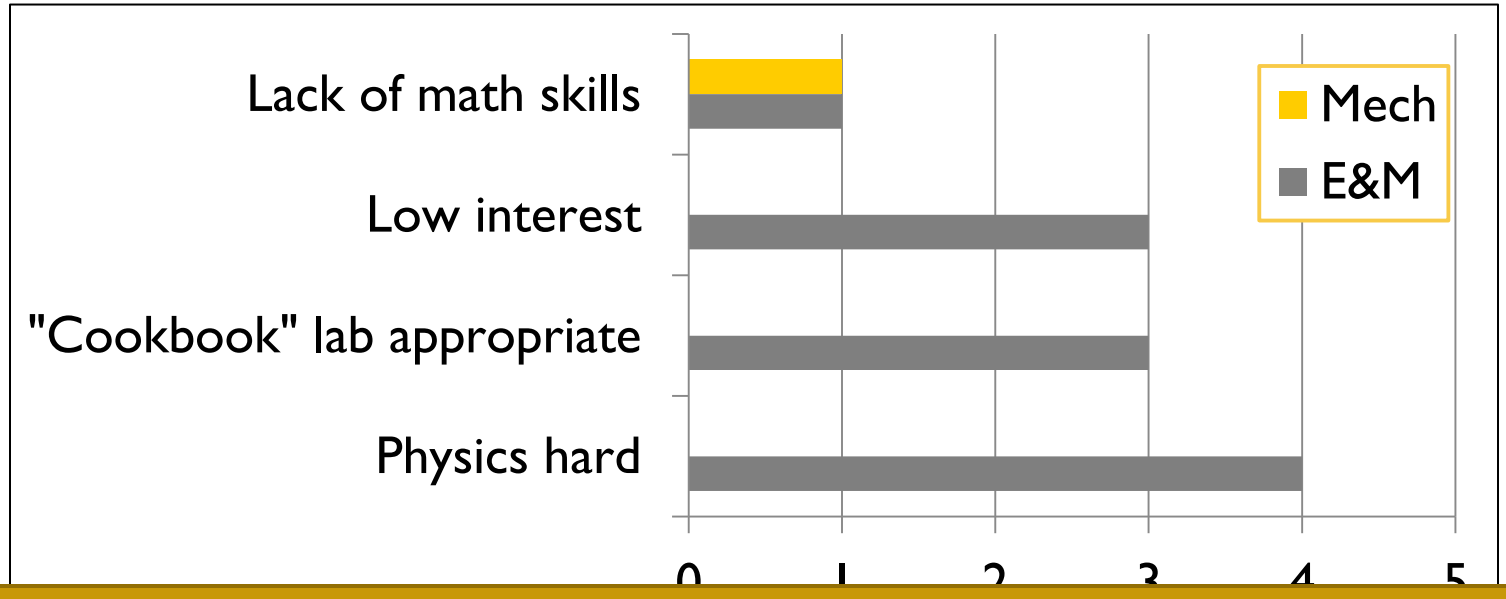

"They cannot solve math manually…. I had a student, uh, when I asked the student to solve a math manually, there was one step where it said, say for example, 1.5 divide by zero, and that student took a calculator and I just looked at the student said 'any denominator divide, any numerator divided by zero is zero, why do you require a calculator on that?"

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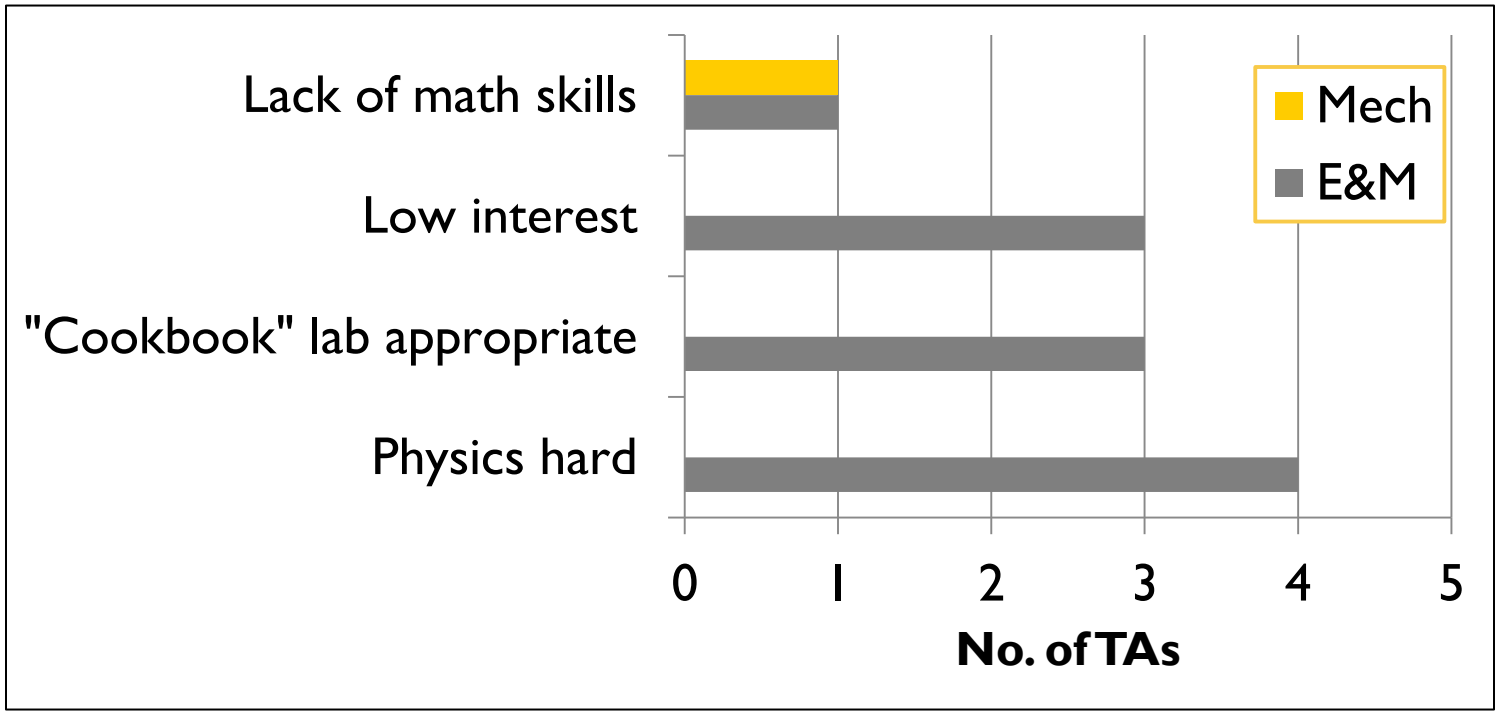

- What is the source of these views? Why more in E&M?

Summary & Implications

- The interviews revealed…
  - Only 1 GTA mentioned the **process** of science as a purpose of the lab for students
  - Many GTAs discussed their role as **presenting** information
  - Training meeting focuses mainly on completing experiment
  - Beliefs may be tied to out-of-major students

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- To improve training, we should…
  - Begin training with a TA led discussion of lab goals
  - Move experimental practice to outside training meeting
  - Use meeting time to focus on how to guide students