Summer Pre-Physics PhD Enrichment

Assistant Professor Chris Palmer (he/his)

Distinguished Professor Jim Gates

P^3 Scholar Chris Sherald

What's the idea?/Why am I here?

- This program was designed for Pathway to Physics PhD (P^3) scholars to ensure their academic success and get them on-boarded with the Laboratory for Physical Science (LPS).
  - The physics department allowed us to offer this opportunity to other incoming students as well.
- This five-week program will include:
  - Daily math exercises from 9:30AM to 4:30 or 5PM with breaks and lunch breaks
  - Team building activities
  - Tips for getting ready and being successful for the upcoming graduate program
  - Building this group as a cohort: we want you to collectively be a support system for each other throughout the year (and beyond?).

Who are we?

Name

Position

Goals for the next five weeks

P^3 Scholar Chris Sherald

Assistant Professor Chris Palmer (he/his)

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Who are you?

Name

How you found your way here?

Goals for the next five weeks

Anything specific you want to learn

How is this going to work?

Jim and Chris^2 are going to tee up some concepts (as briefly as possible).

You all are going to work in small groups on a LOT of problems.

Usually you'll take a second to think about the strategy on your own.	Pair up with someone to work through it.	Groups will rotate giving the solution on the board.	If there are multiply ways to do the problem, we might get more than one group to show it.

The object is to show you that YOU are each others' most important resources and to leave NO ONE behind.

Proposed Community Agreements

1. Share talk time
2. Listen actively
3. Value differences and respect everyone's expertise
4. Be present
5. Stories stay, lessons leave
6. Create an inclusive, collegial, and respectful environment
7. If you see something, say something
8. Have fun!
9. Check in when someone seems disconnected.
10. Everyone can/should ask "dumb" questions.
11. Everyone needs to be patient (including the facilitators!).

- *What would it mean to act on these agreements?*
- *What behaviours should we avoid?*
- *Are there any missing?*
- If there are any missing, please write it down and be prepared to share it out.

What sort of problems?

Process

- Start with the math as a tool.
- Apply in a physics scenario.

Envisioned curriculum

- Weeks 1&2: vector analysis and vector calculus with applications in E&M and classical mechanics
- Week 3: ordinary differential equations (ODEs) followed by partial differential equations (PDEs)
- Week 4: complex variables and linear algebra
- Week 5: series analysis

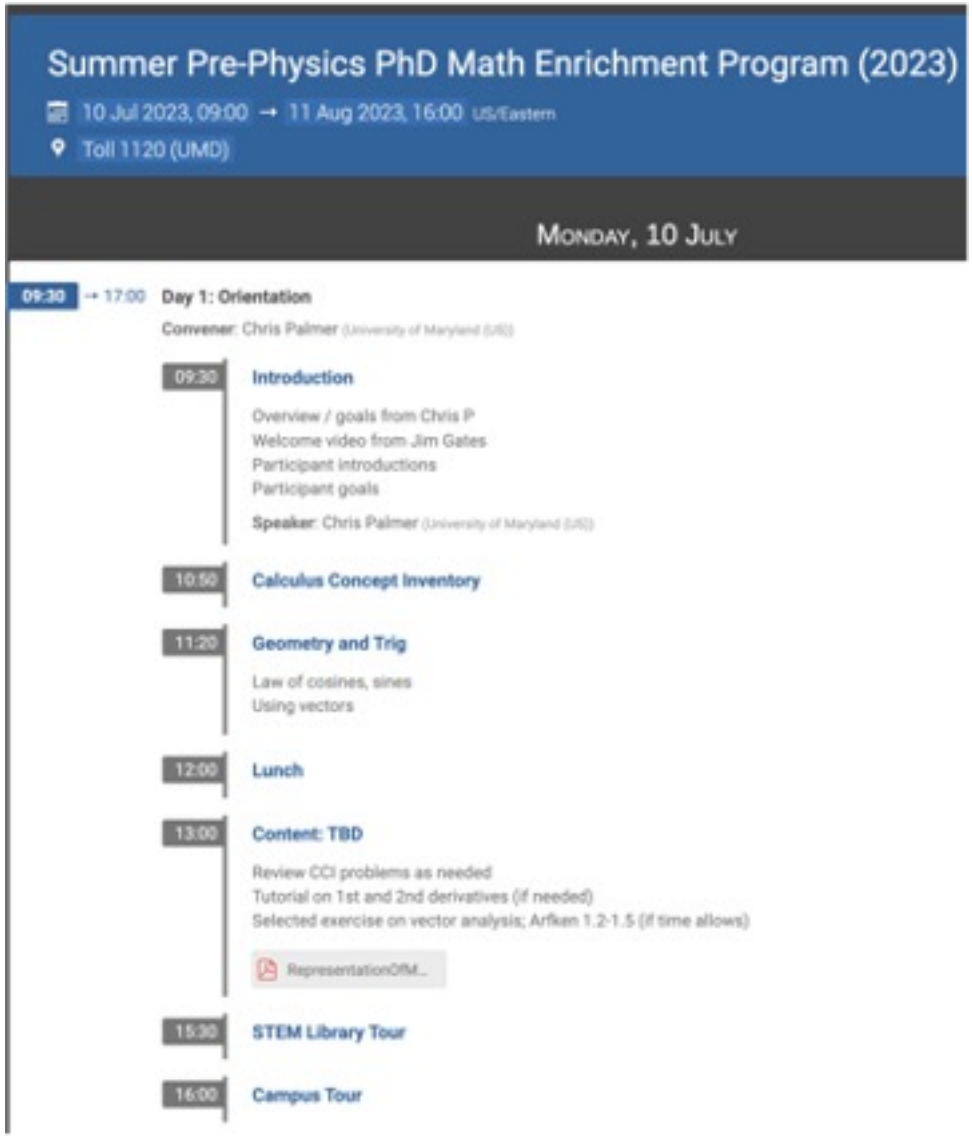
WHAT ELSE?!

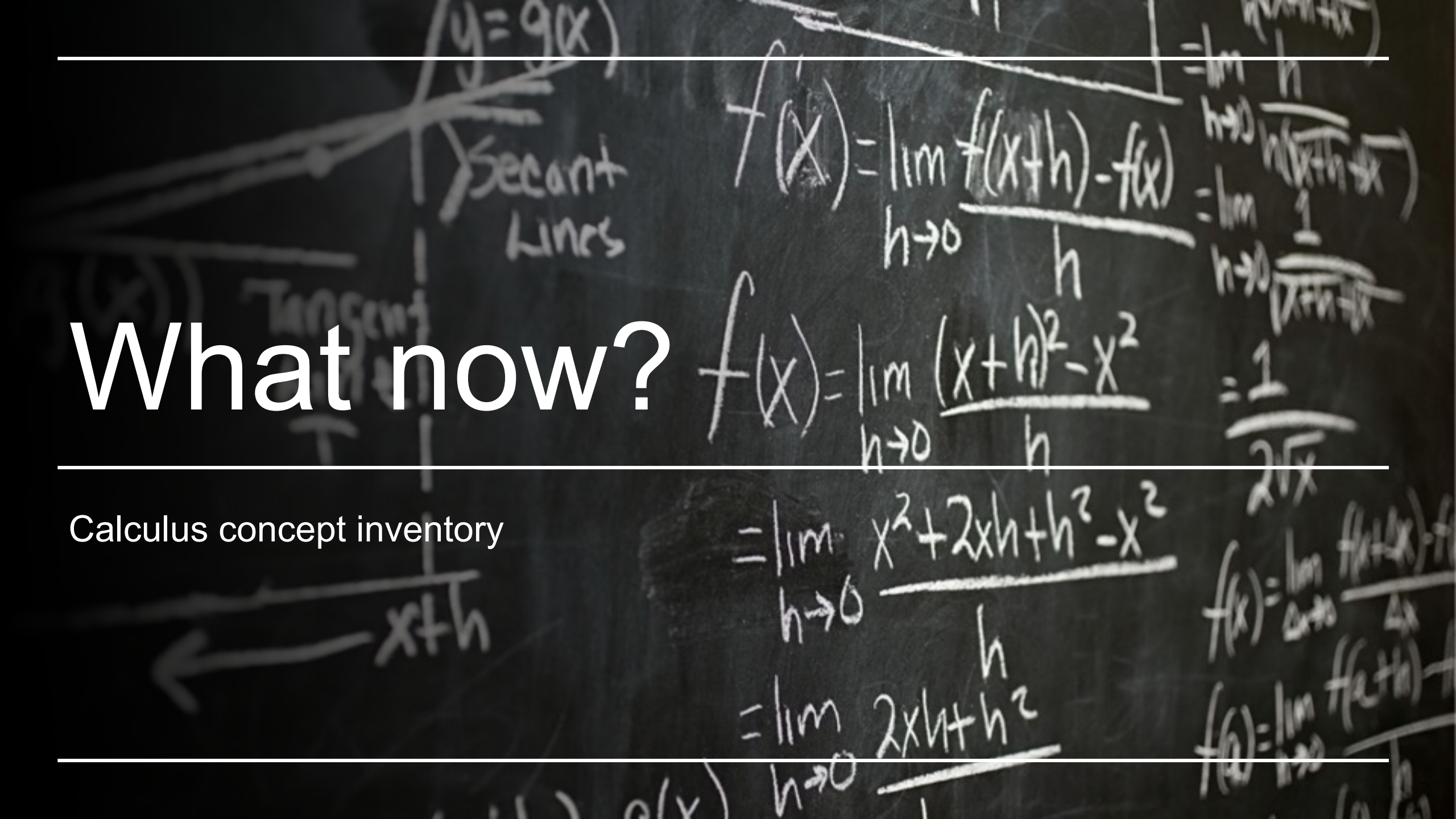
- We aren't giving you homework, but this week we need to know what you want to have reinforced.
- Are there any particular topics/problems that you found mysterious or that were skipped?
- Let us know THIS WEEK, so we can include it.

Course agenda

Still a work in progress, but materials will ultimately be posted here.

https://indico.cern.ch/event/1304107/timetable/?view=standard





What now?

Calculus concept inventory