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ONLINE TEACHING CONFERENCE

JUNE 18-20, 2018 • ANAHEIM

Online Laboratory Course – Take the plunge!

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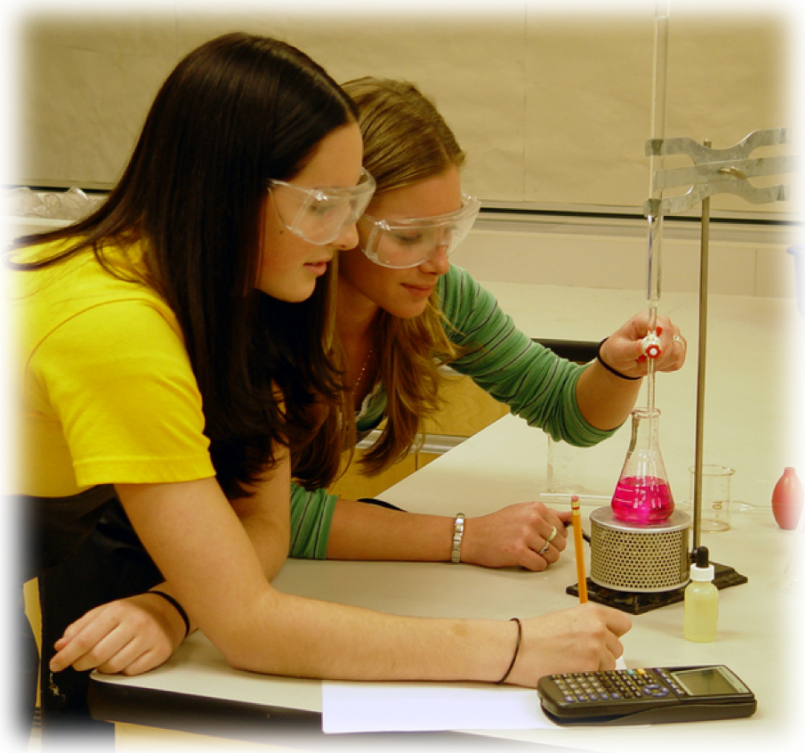
City College of San Francisco

What to expect from this talk

- My journey designing an online lab course
- Biggest challenges
- How to overcome challenges
- Setbacks
- Q & A

Is an online lab possible?



Can I?

How can I?

Three Phases Of My Journey

- Phase 1 – The overthinking phase
- Phase 2 – Taking the plunge!
- Phase 3 – Improving the course

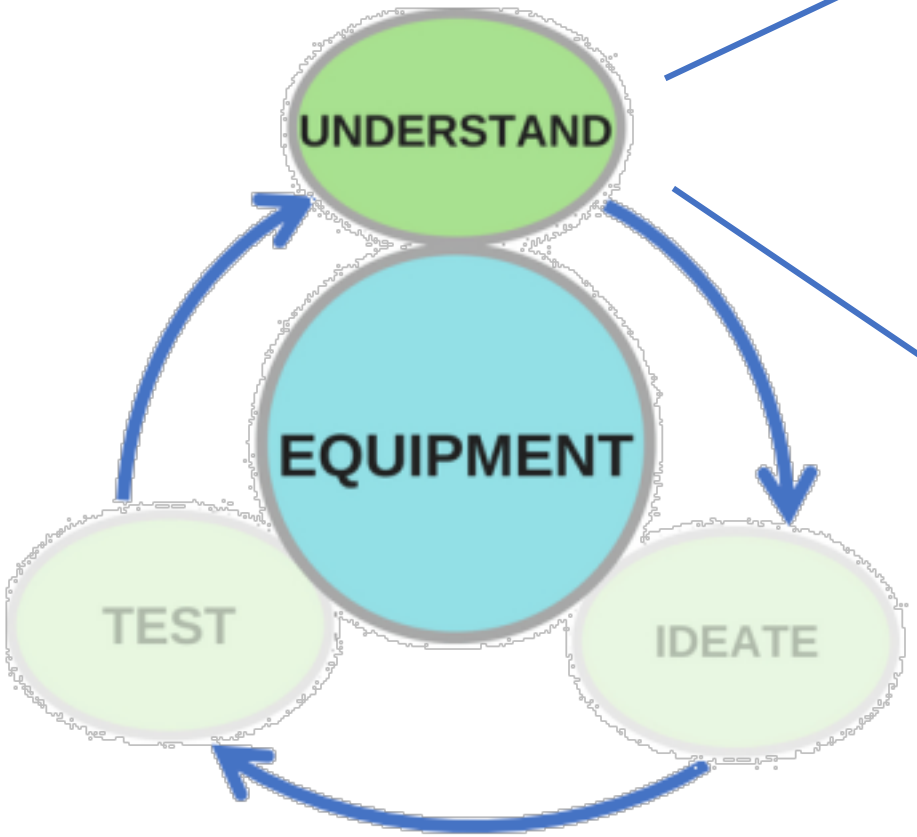
Taking The Plunge!

The Design Thinking Approach

Question

What are some of the challenges of an online lab?

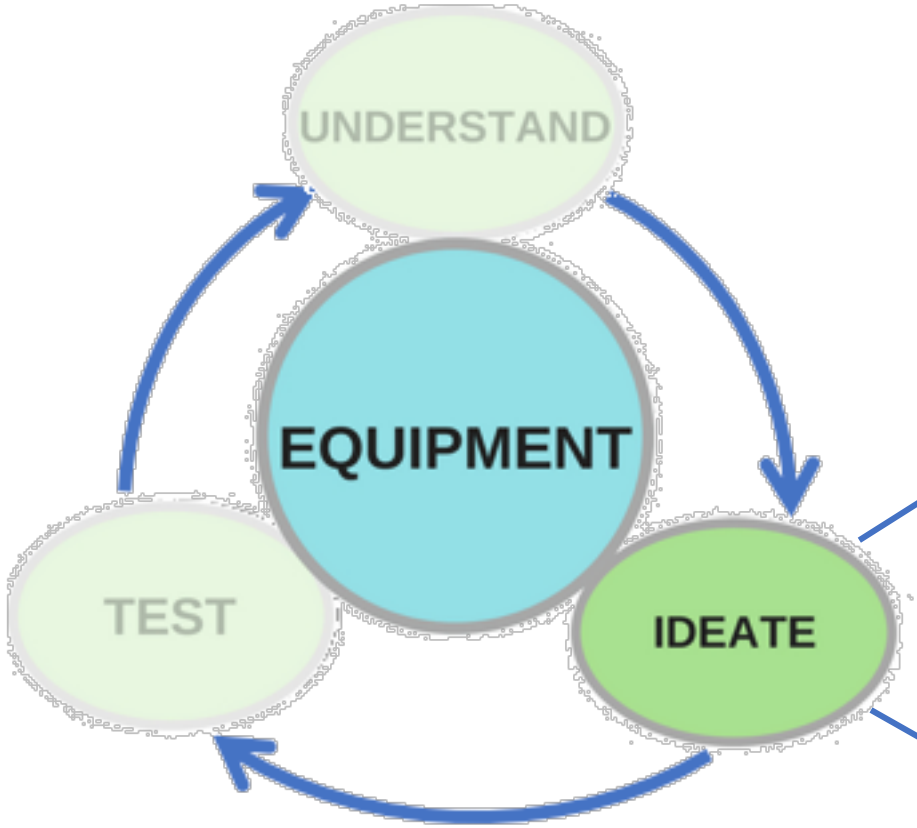
Challenges Of An Online Lab - Equipment



- Bulky
- Expensive
- Sophisticated
- Safety concerns

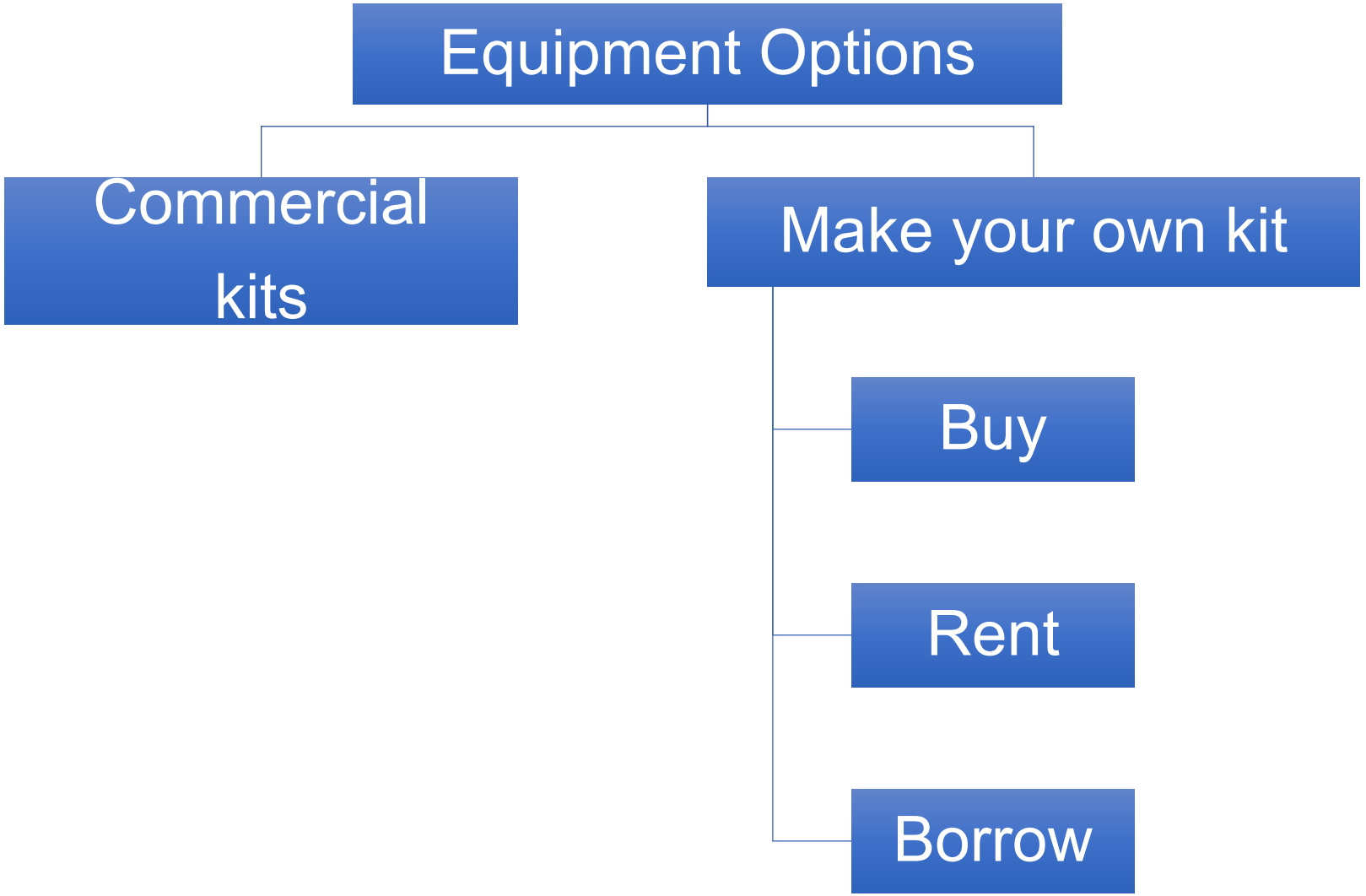
e.g. Behr Freefall Apparatus

Challenges Of An Online Lab - Equipment



- Simple equipment
- Sophisticated analysis
- Free online tools

More on equipment



Lab Kit Details

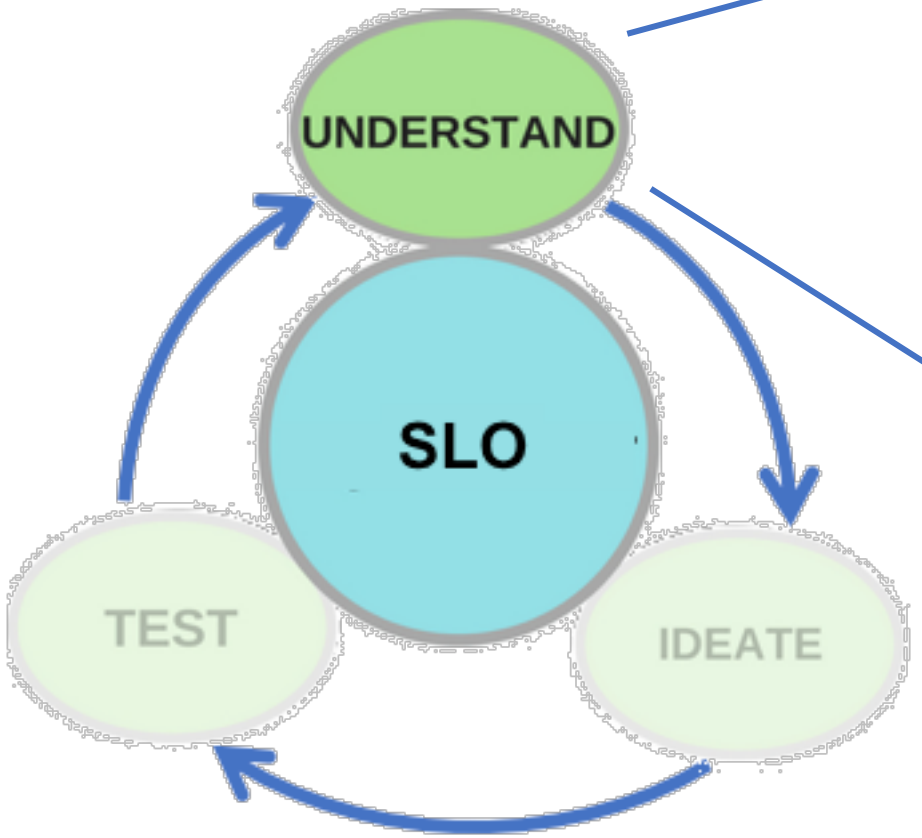
Two kits:

A. Reusable kit
- Sold at bookstore – Rent or Buy
- Low-cost equipment

B. Consumables kit
- Provided at no cost

Reusable kit

Challenges Of An Online Lab – SLO*



- Same SLOs as face-to-face lab
- Maintain level of rigor

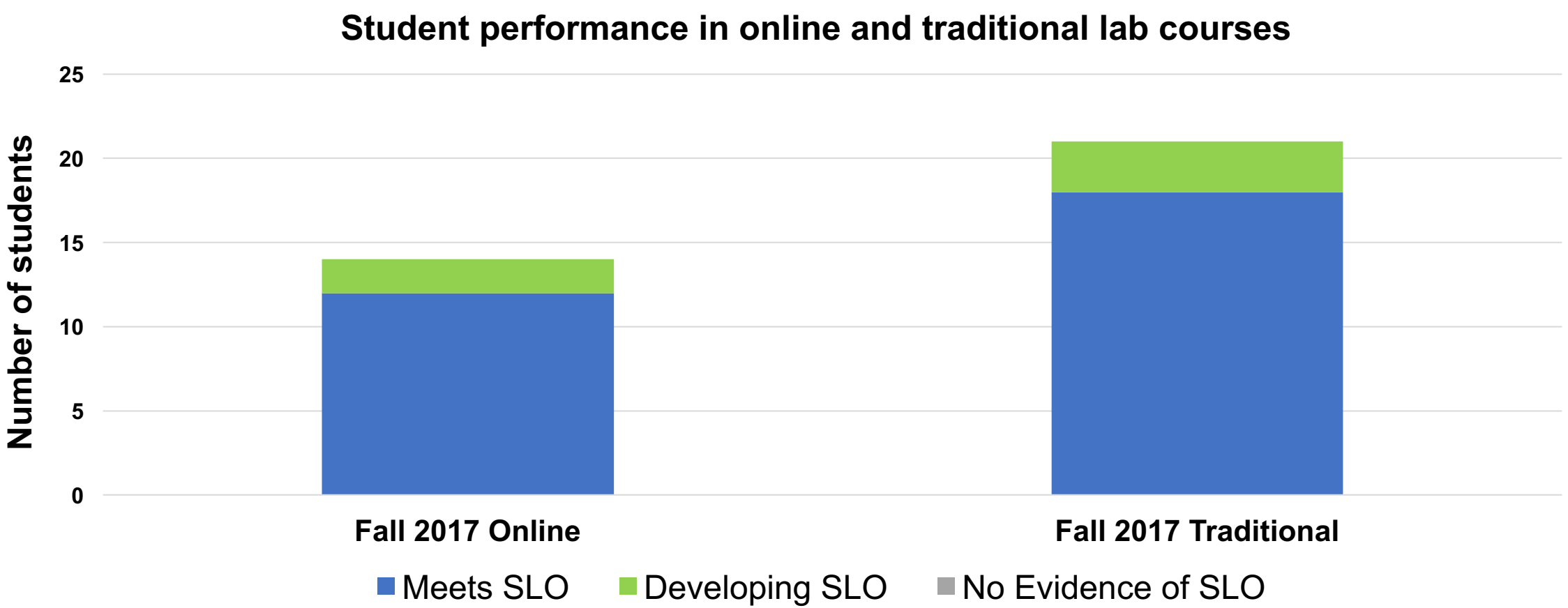
*SLO - Student Learning Outcomes

Challenges Of An Online Lab - SLO

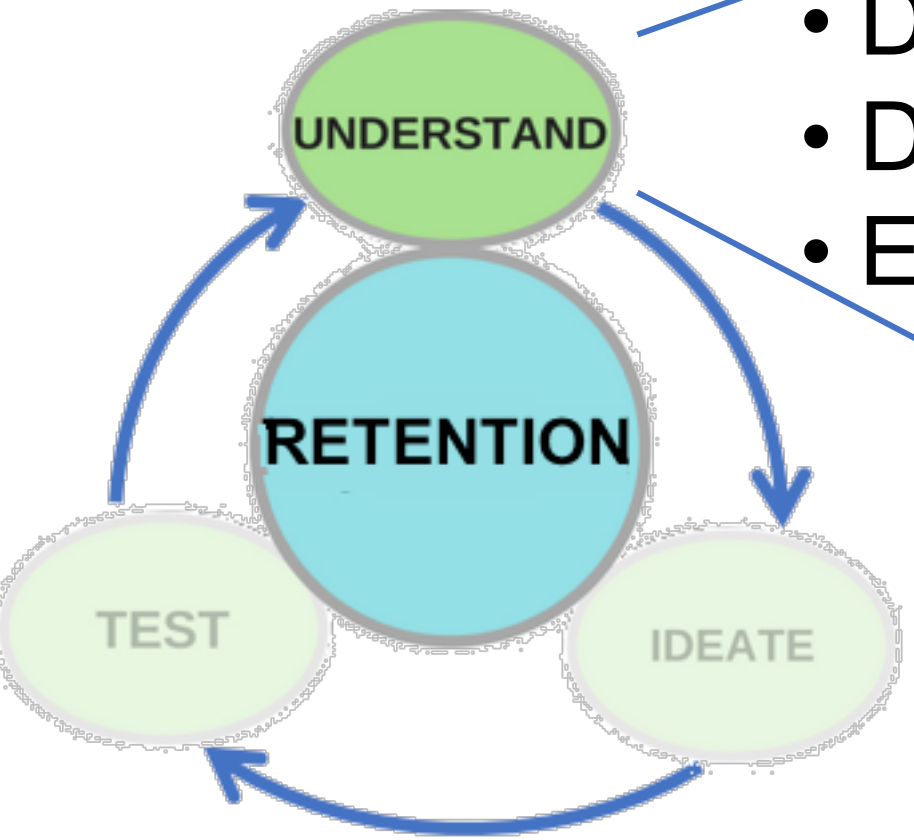
- Look at every SLO
- Make a check grid

SLO	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	...
(A) Measure mechanics data and evaluate uncertainties with tools such as meter sticks, calipers, digital balances, and timers.	✔	✔	✔	✔	✔	
(B) Organize and analyze data with error propagation using methods developed in the laboratory.		✔	✔	✔	✔	
(C) Report on procedural methods, evidence, and conclusions of mechanics laboratory exercises.			✔	✔	✔	
(D) Assess and present relationships between results of real-world laboratory exercises and mechanics theory.				✔	✔	

Data on SLO Assessment

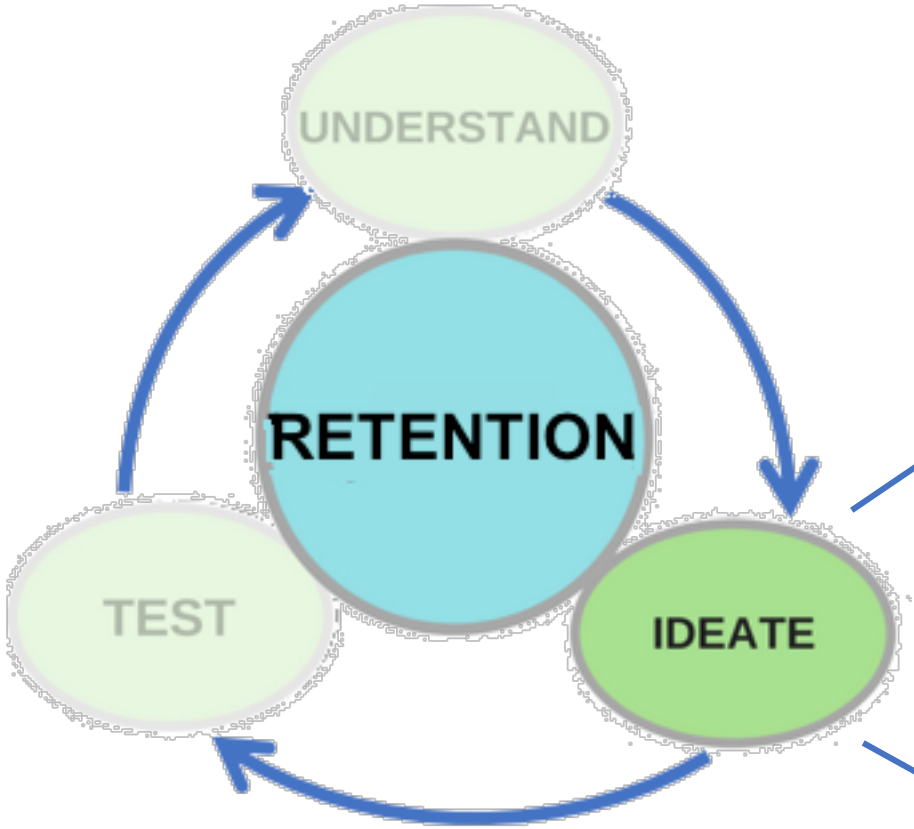


Challenges Of An Online Lab - Retention



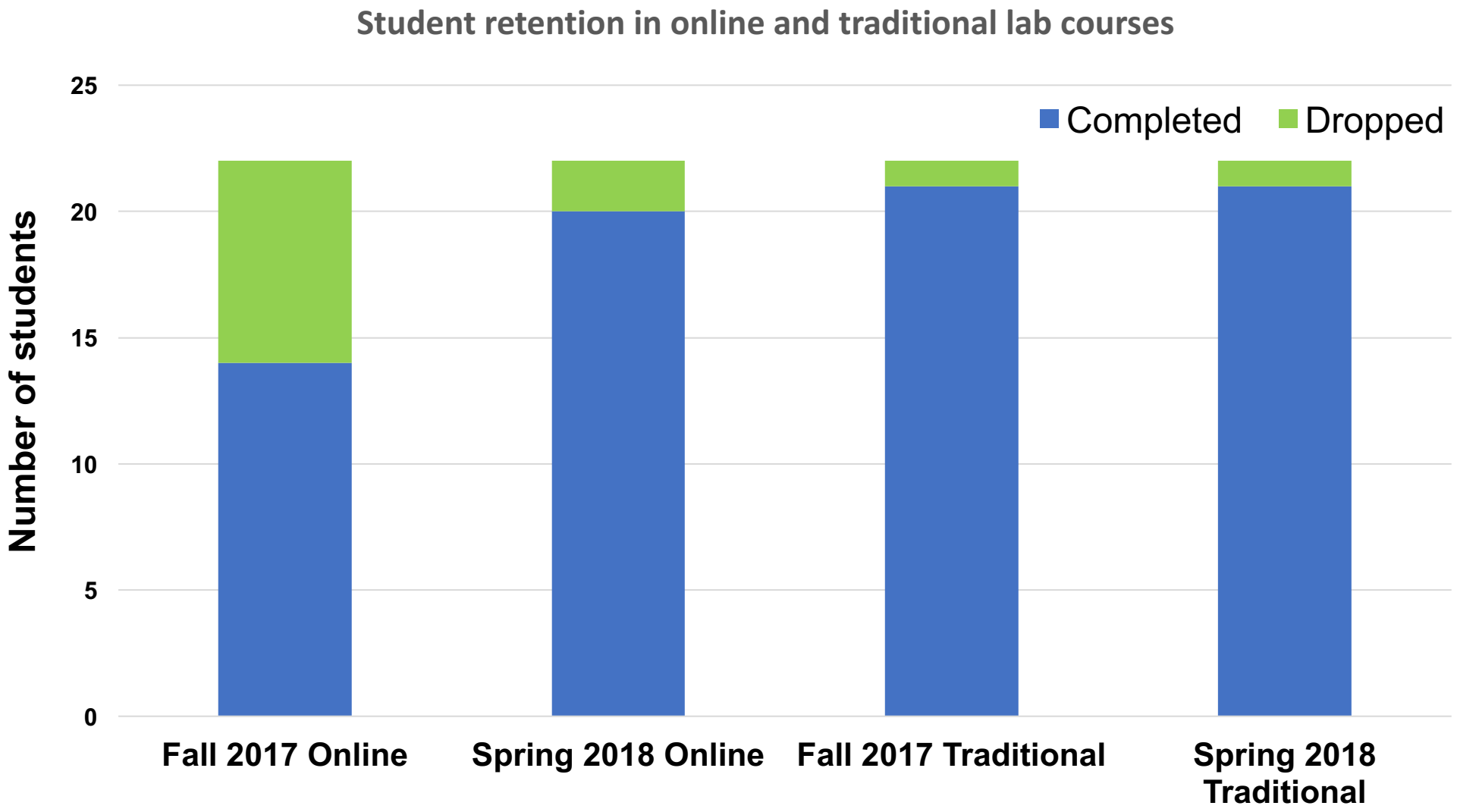
- Difficult setting for lab
- Disengage easily
- Expensive

Challenges Of An Online Lab - Retention



- Make it doable
- Simple, exciting, relatable labs
- Engage with students

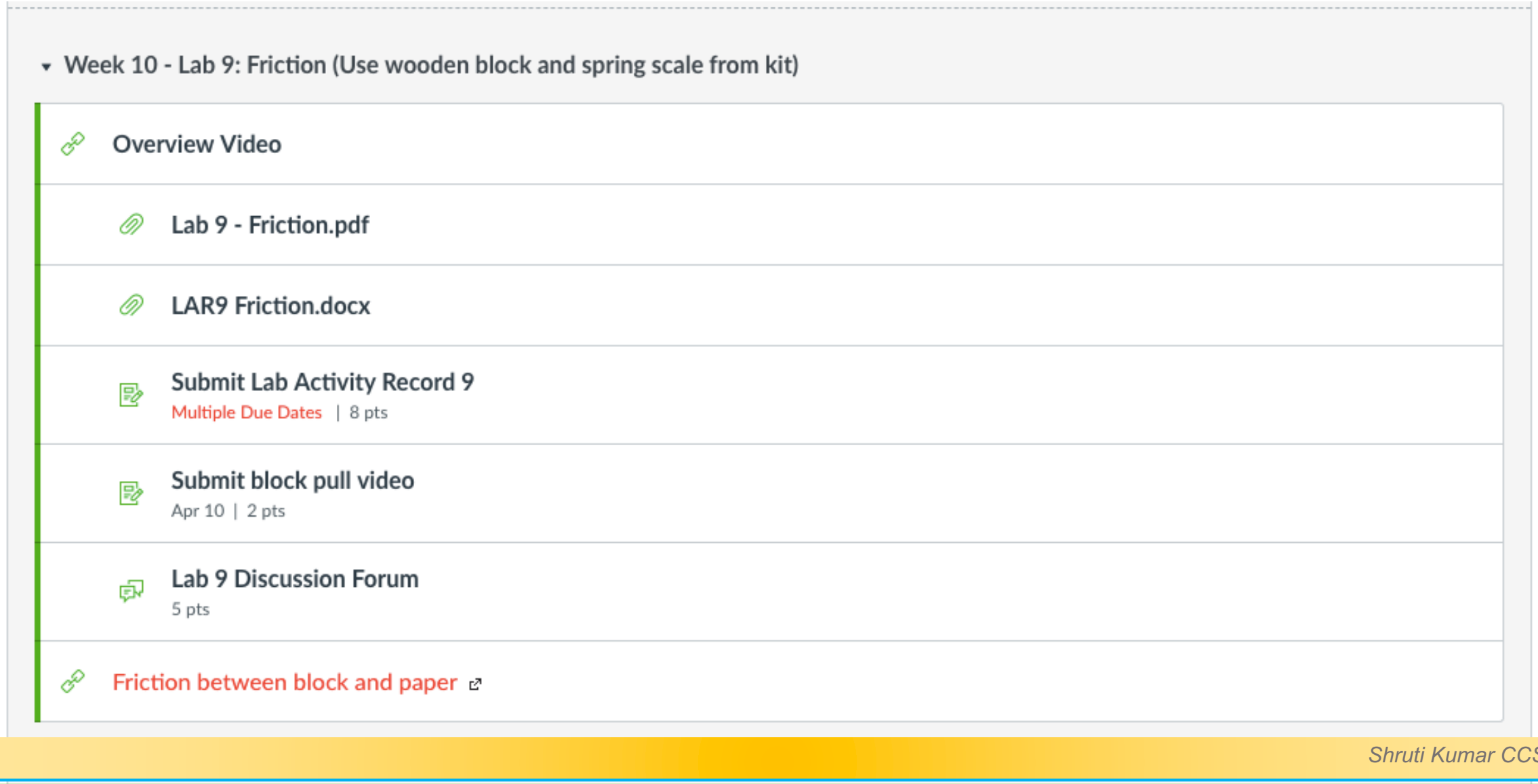
Data On Student Retention



Setbacks

- Student frustration with written lab instructions
- Working in groups
- Difficulty with bookstore

Screenshot Of Weekly Module



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