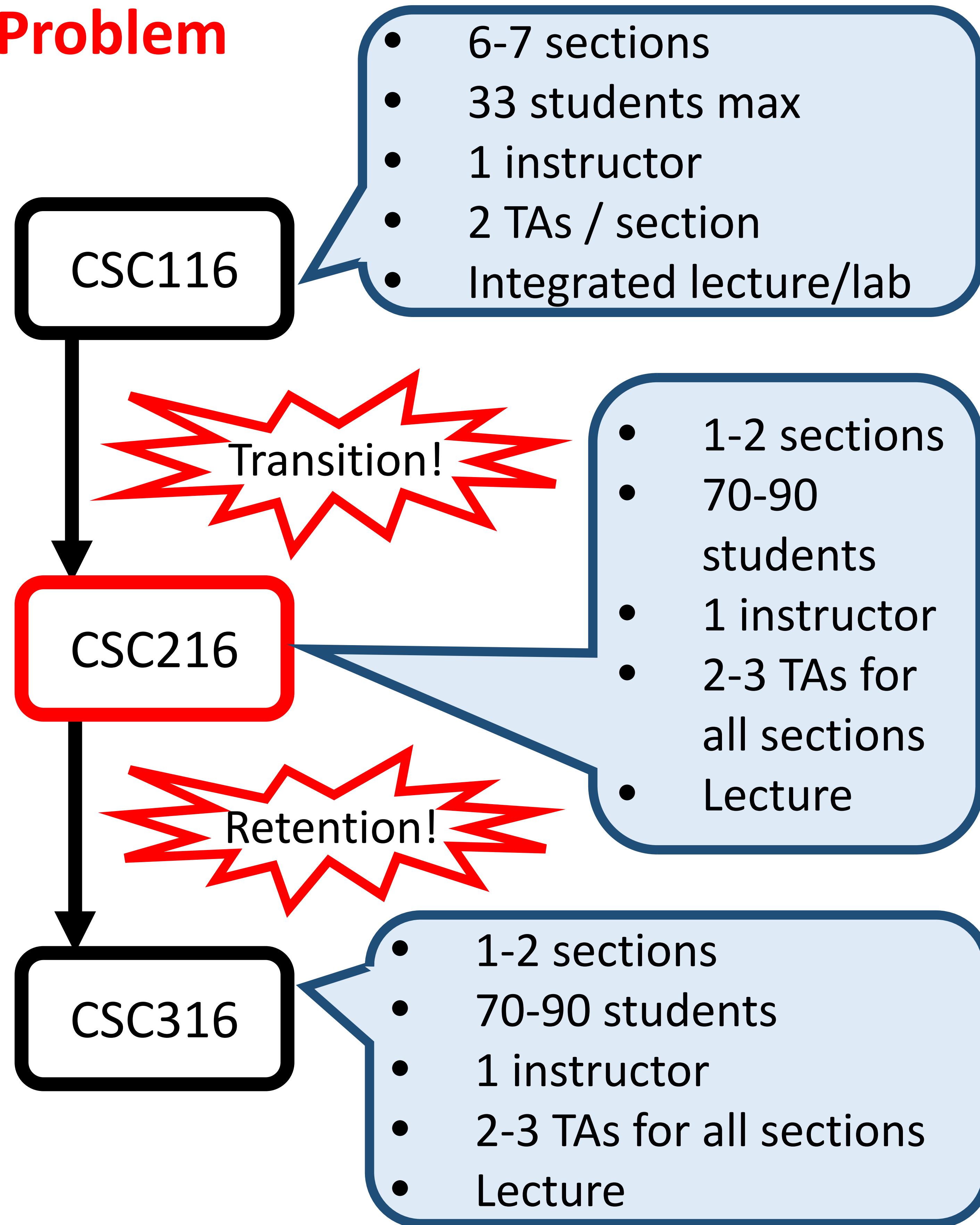


# An Investigation of In-class Labs on Student Learning of Linear Data Structures

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## Problem



## Research Question

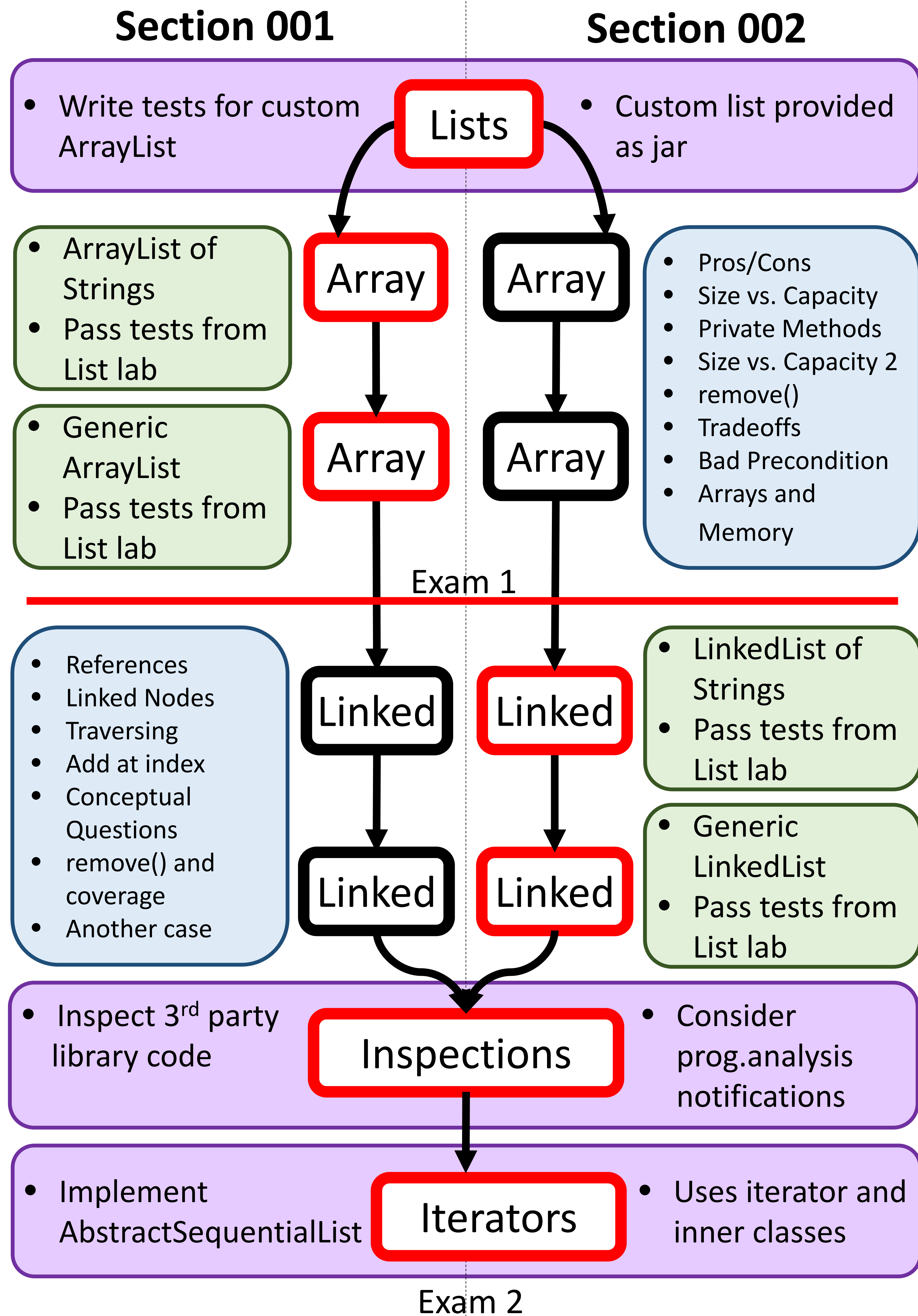
- Do in-class laboratory activities on linear data structures increase student learning on learning outcomes related to linear data structures?

## Acknowledgements

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## Study Methodology

Metric	Section 001	Section 002
Enrolled	85	102
Participants	49	60
Meeting Time	TH 2:05p-3:35p	MW 2:05p-3:35p



## Results

Grade Item	Mean Diff (S001-S002)	t	df	p-value
E1 P4 Q8	-0.72	-2.46	99.18	0.02
E1 P4 Q9	-0.38	-1.84	103.45	0.07
E1 P4 Q10	-0.82	-1.84	98.35	0.07
E1 P4 Total	-1.92	-2.57	100.01	0.01
E1 P5	-0.49	-0.64	103.54	0.53
<b>E2 P3</b>	-3.37	-2.82	102.02	0.01
E2 P5	-0.77	-0.94	99.51	0.35
E3 ArrayLists	-0.15	-0.31	94.64	0.76
E3 LinkedLists	-0.45	-0.94	88.93	0.35
E3 Total	-2.21	-0.40	102.35	0.69

No significant difference between in-class labs and active learning lecture!

- E1 P4 Q8 & E1 P4 Total:
  - Section 001 had intervention
  - Section 002 had significantly better grades
- E2 P3: Linked Node Question**
  - Section 002 had intervention and significantly better grade

## Observations

- Lecture [9/29/2014]:
  - Students frequently off-topic during lecture (~65%); less frequently off-topic during exercises (~23%)
  - Few request for help
- In-class Lab [10/6/2014]:
  - Students mostly engaged; only 9 disengaged during in-class lab portion
  - Many request for help ~ 33