how to TA

engineers

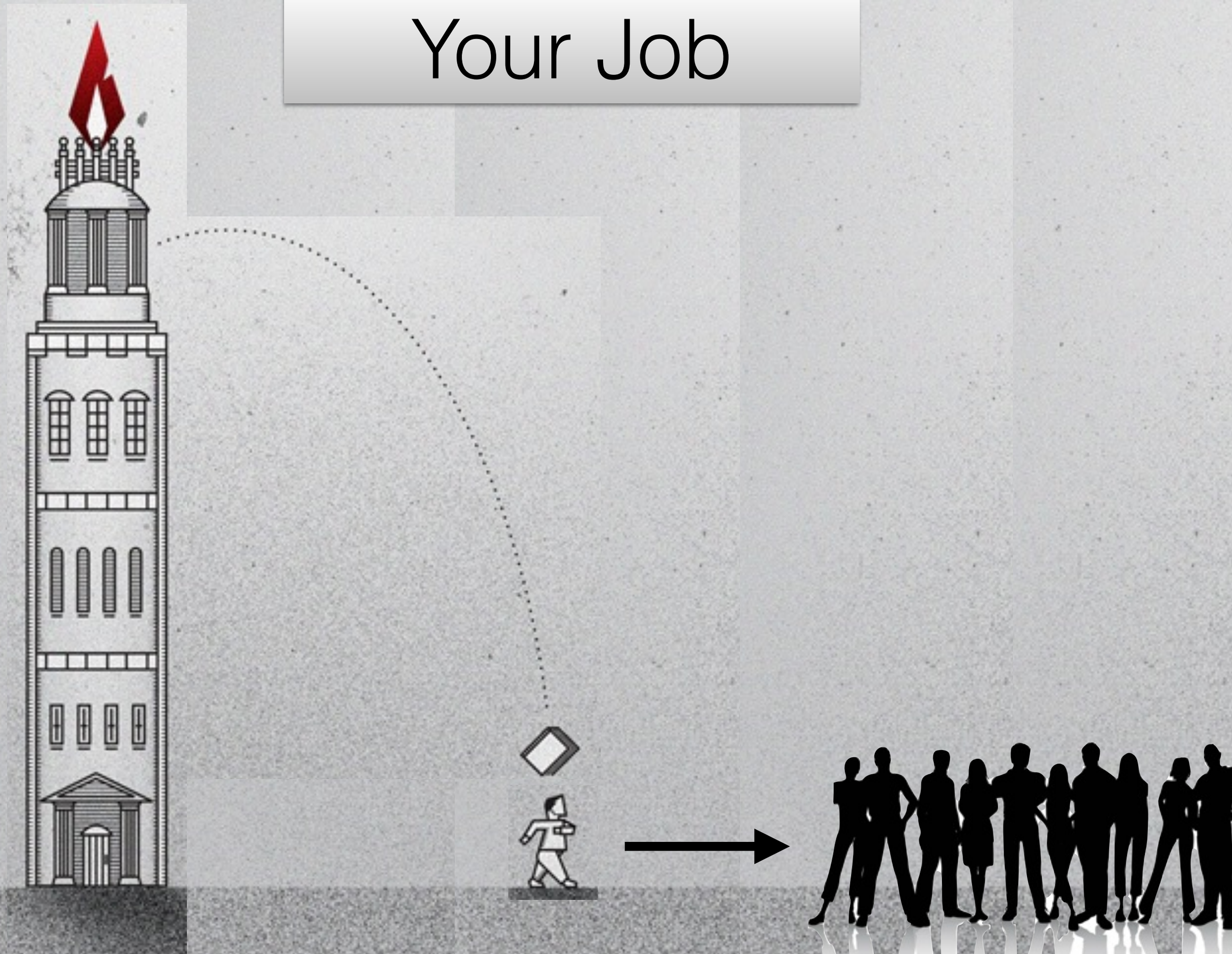
TA Orientation

Justin Pearson, 5th year ECE

2017-09-26

joke

Your Job



Today we learn how to…

1. Prepare a lesson
2. Teach a lesson
3. Assess their learning

Today we learn how to…

1. Prepare a lesson

A. What to teach? ⇒ Learning outcomes

B. How to teach it? ⇒ Lesson plan

2. Teach a lesson

3. Assess their learning

Learning Outcomes

By the end of this **`(course|chapter|lesson)`**, you will be able to _____

testable *verb phrase*

- Manipulate the building blocks of logic: definitions, statements, and implications.
- Dissect an argument using formal logic.
- Recognize common logical fallacies.

Syllabus from a Logic course

By the end of this
(course|chapter|lesson),
you will be able to _____

testable *verb phrase*

👍 or 👎?

Have familiarity with the basics of probability theory.

Convert a word problem into a system of linear equations.

Have an ability to program in Matlab.

Do Bayesian updating with discrete priors to compute posterior distributions.

Express a system of linear equations as a matrix equation.

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Lesson Plans

Topic & time	What TA is doing	What students are doing	Materials needed
If statements 10:00 – 10:15	- review syntax - exercises in ex_if.m	- raise-hand Q&A - writing code	TA computer student computers ex_if.m
For loops 10:15 – 10:30	- review syntax - exercises in ex_for.m	- raise-hand Q&A - writing code	ex_for.m
Programming challenge 10:30 – 10:50	- helping groups	working in groups to solve challenge problelm	challenge.m

What Qs will you ask them??

(Q&A) **Q**: Suppose you had a matrix A that was either 2-by-100 or 100-by-2 and you wanted to ensure it was 2-by-100. Write code to do this. Hint: size()

(2 min TPS) **Q**: I have a bunch of .mat files, represented as a cell array of strings `files`. Write a loop to load all of them.

When planning a lesson,

Remember their incentives

"How will this help me get an A?"

- similar to hw/exam?
- is disc sxn graded?

When planning a lesson,

Remember their incentives

Tale of woe

1. TAs give students problems similar to hw

2. TAs let students work for a while

3. TAs go over answers

Guess what happened.

How to improve?

When planning a lesson,

Increase engagement

Cold-calling

Think-pair-share

Anon. questions

When planning a lesson,

Increase engagement

Cold-calling

Think-pair-share

Anon. questions

⇓

Loss of Control

When planning a lesson,

Increase engagement

Loss of Control

When planning a lesson,

Increase engagement

Cold-calling

Think-pair-share

Anon. questions

- specific goal
- specific start/stop signals
- specific time to do it

1. Prepare a lesson

A. Learning outcomes

B. Lesson plan

2. Teach a lesson

A. Good board work

B. Asking effective questions

3. Assess their learning

1. Prepare a lesson

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How to write on a board

^not

My Friend Dustin

- Read the physics problem on the hand-out.
- Watch Dustin's explanation of the solution.
- Note criticisms & improvements.

Problem: Trinity jumps off a freeway overpass and hopes to land on a truck below. She runs at 10m/s and jumps horizontally. The truck is driving 30m/s. She is 5m above the top of the truck.

Q1: When should she jump? Specifically, how many seconds before the truck passes her jumping-off point should she jump?

Q2: When she lands on the truck, how fast is the truck going, relative to her?

Oh Dustin

What went well	What he could improve
entertaining	"good hardwriting" lol
prob up on board	problem inspecific
	can't jump horiz lol
	not engaging
	variable var names
	"thi sis easy"
	poor problem layout, what vars are given
	board work: how is it supposed to look
	too many sig figs
	steps not clear… why??
	too much writing, hedoesn't even want to
ending cont=ditions unclear	skipped steps
no engagement, no waiting for Qs	no reasoning
dove right in, no time for thinking	when are eqns valid
how to useeqns	no eye contact; shades

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B. Asking effective questions ←

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How to ask questions

Do	Don't
Q, then name	trick, trap, or punish
short, clear Q with specific ans	ask yes/no questions
wait >10 sec.	
give clear start/stop signals	
back up if they talk quietly	
allow "passing", but revisit	

Hand-out: "Asking Effective Questions"

3 minutes

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A. Give feedback (GauchoSpace)

B. Get feedback (note-cards)

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Giving feedback

^ useful

Grades: View

https://gauchospace.ucsb.edu/courses/grade/report/singleview/index.php?id=8135&item=grade&itemid=771

Search

UCSB | Justin Pearson

ENGR 3 - INTRO TO PROG - Summer 2015: View: Single view

Home | My Courses | This course | About | Courses | Help | Full screen

ENGR 3 - M15 > Grade administration > Single view

Homework 4 (due Friday, August 28 at 11:55PM)

View | Gradebook Setup | Scales | Letters | Import | Export

Grader report | Grade history | Single view | User report

◀ Homework 3 (Due Wed Aug 19, 11:55pm)

Homework 5 (due Friday, Sept 4 at 11:55PM) ▶

Groups

All participants

Show grade history links

Update

First name (Alternate name) Last name	Range	Grade	Feedback	Override All / None	Exclude All / None
David	0.000 - 100.000	100.000		☑	☐
Aylin	0.000 - 100.000	97.500		☑	☐
Chanc	0.000 - 100.000	100.000		☑	☐
Evan	0.000 - 100.000	97.500		☑	☐
Russe	0.000 - 100.000	100.000		☑	☐
Micha	0.000 - 100.000	100.000		☑	☐
Briana	0.000 - 100.000	97.500		☑	☐

Help

ENGR 3 – M14 Grades_HW3.xlsx

Search in Sheet

Home | Layout | Tables | Charts | SmartArt | Formulas | Data | Review

Page Setup: Orientation, Size, Margins, Breaks
View: Normal, Page Layout, Options
Print: Preview, Setup
Window: New

H2 =SUM(F2:G2)

	F	G	H	I
1	Assignment:Upl	Problem 2	Assignment:!	Assignment:Upload Homework 3 Solution (Feedback)
2	8.00	9	17.00	Problem 1: Please comment more -1. Forgot reflection -1. p2
3	0.00	5	5.00	p2. Please see solutions. You called norm() on a matrix x. This is not the same as calling norm on its rows.x
4	10.00	0	10.00	Problem 1: Very nice.
5	9.00	10	19.00	Problem 1: Nice. Please put comments describing what the function does underneath the function header. This way it shows up when you type "help dilation", for instance -1. p2. Better to pre-allocate memory with zeros(), not 1:length(x) I suggest using numel() instead of length(). It is a little clearer when used on a matrix.
6	10.00	10	19.50	Problem 1: Very nice. It is possible to simplify the formula for the rotation matrix. p2. Very nice work. Good comments. When calling a function or indexing into a vector or matrix, please do not put a space between the name and the paren. Bad: N_a (w). Good: N_a(w). It is clearer this way. I suggest using numel() instead of length(). It is a little clearer when used on a matrix.

ENGR 3 – M14 Grades_HW3

Normal View | Ready | Sum=17.00

Grading Rubric

ECE 147C – Spring 2014 – Project 2 – Grading Rubric Team:

Criterion	Comments	Score
0. Abstract. The abstract of a report should consist of one or two paragraphs summarizing the content of the whole document. It should focus on the key project achievements.	Good summary.	5/5
1. Intro. The introduction of a report generally covers, at least, the following three topics: 1. A brief self-contained description of the basic problem addressed in the report. 2. A summary and references to previous related work. 3. A short paragraph outlining how the remaining of the report is organized.	- It was a little difficult that your report deviated from the given outline – Section 1: Intro, Section 2: Parametric Id, Section 2.1: Process, etc. - It seems like your Intro section contained mainly a description of the process. However, the intro is meant to convey a high-level idea of the problem, what others have	7/10

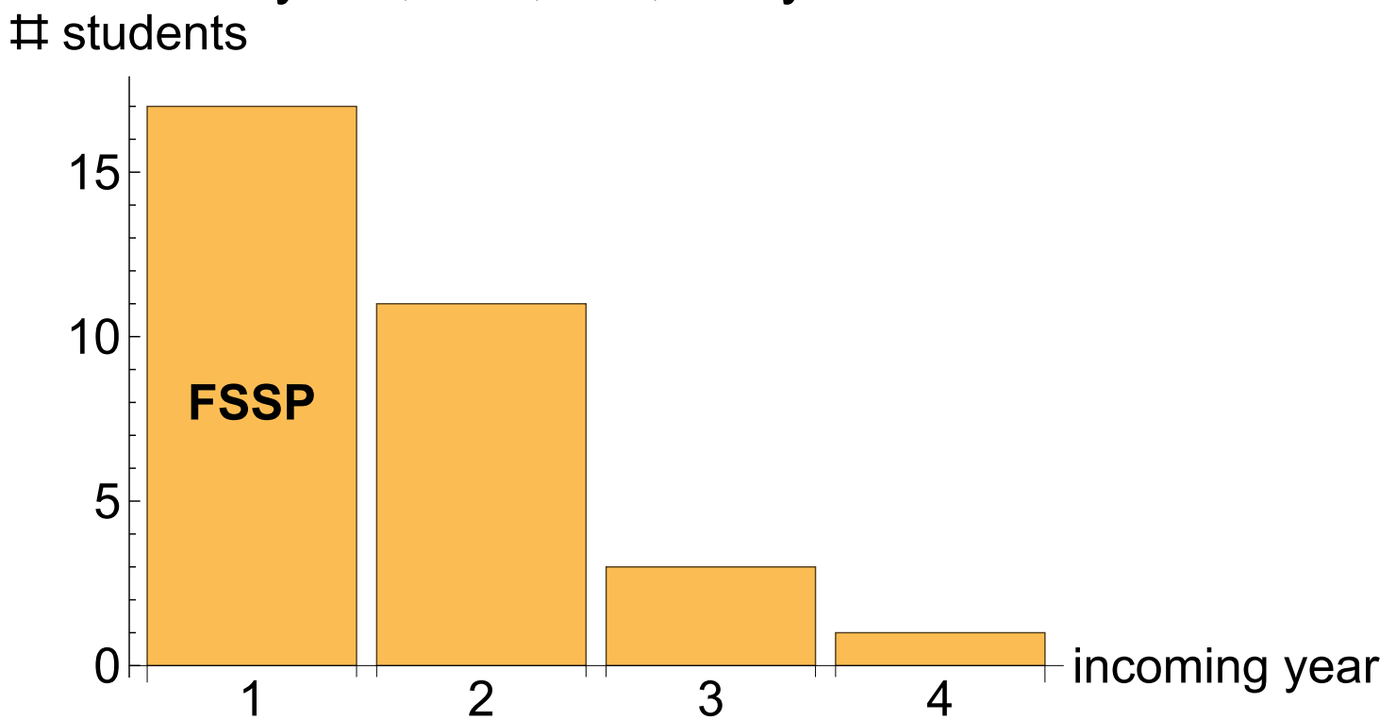
Tip: On separate sheet, keep track of what you deducted points for & how much

Get feedback

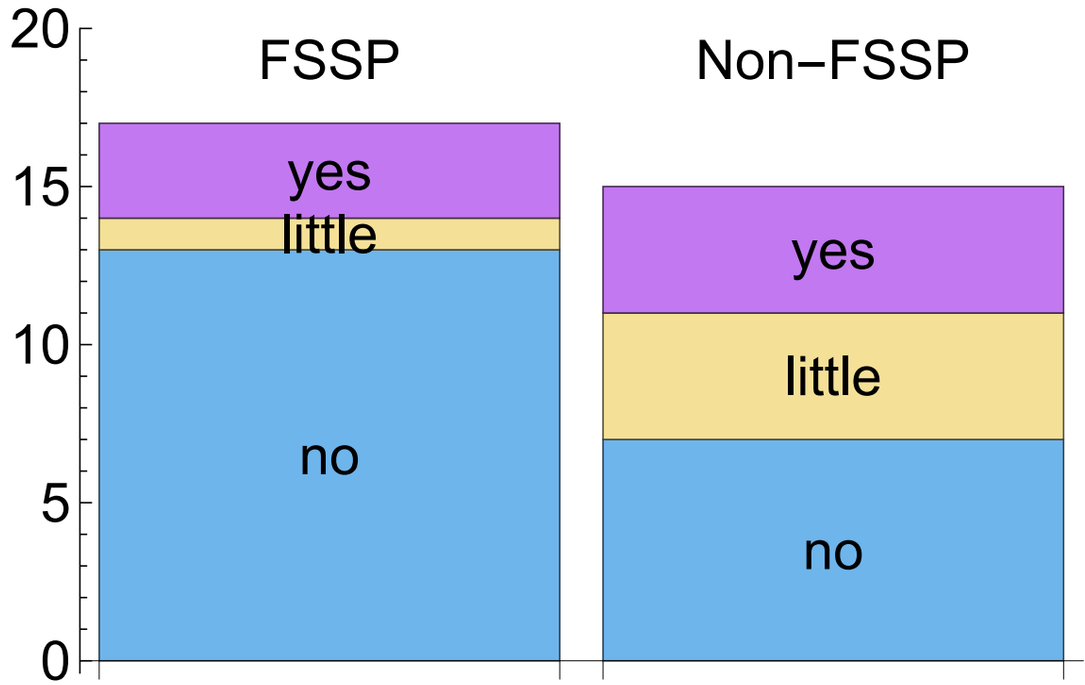
^ useful

Entrance survey

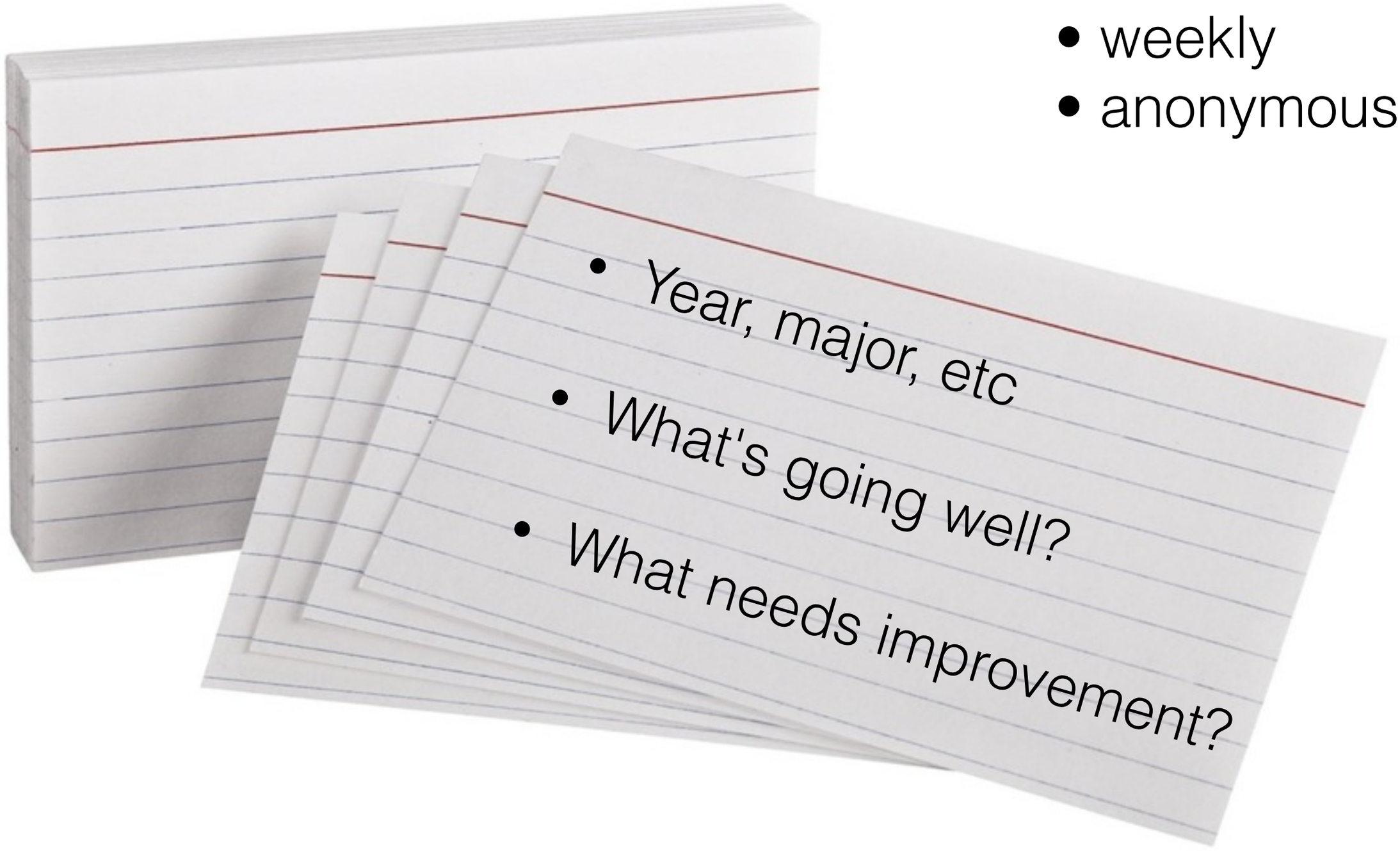
How many 1st, 2nd, 3rd, 4th year students?



Progammed before?



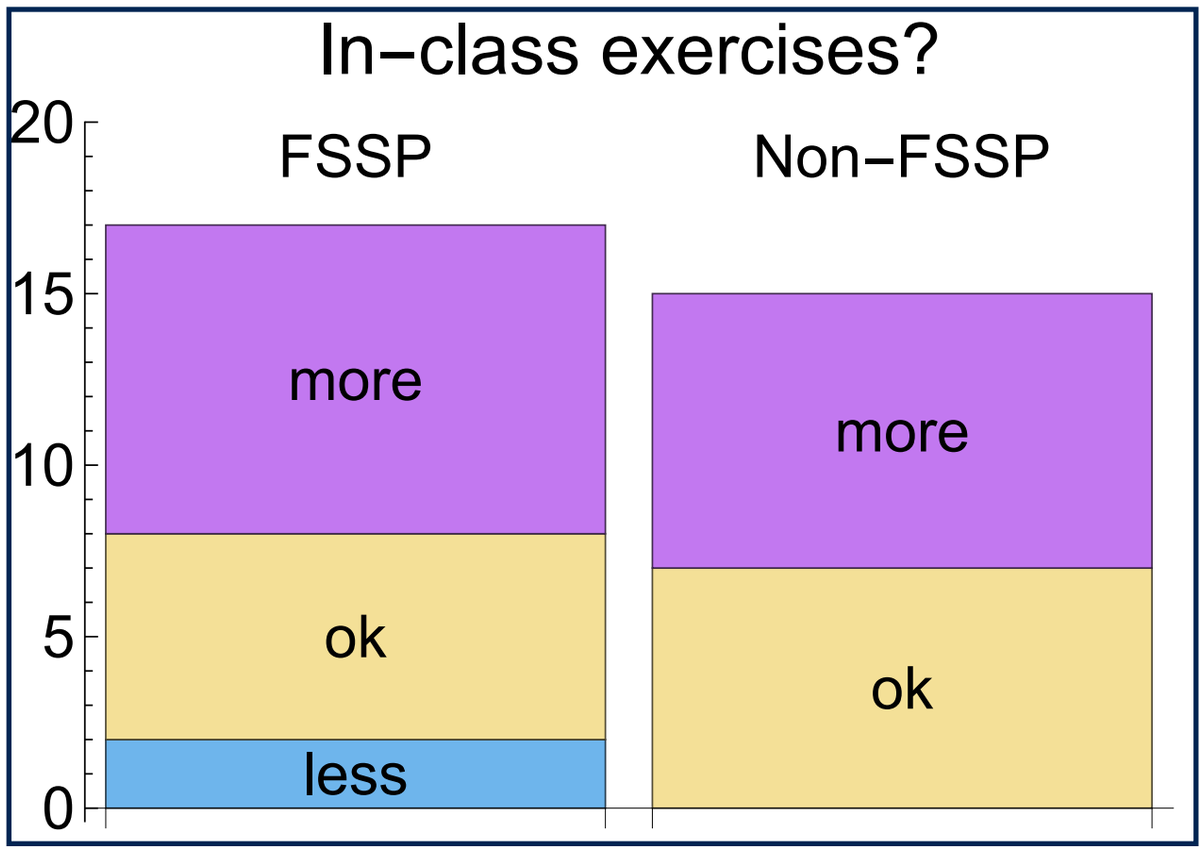
Feedback cards



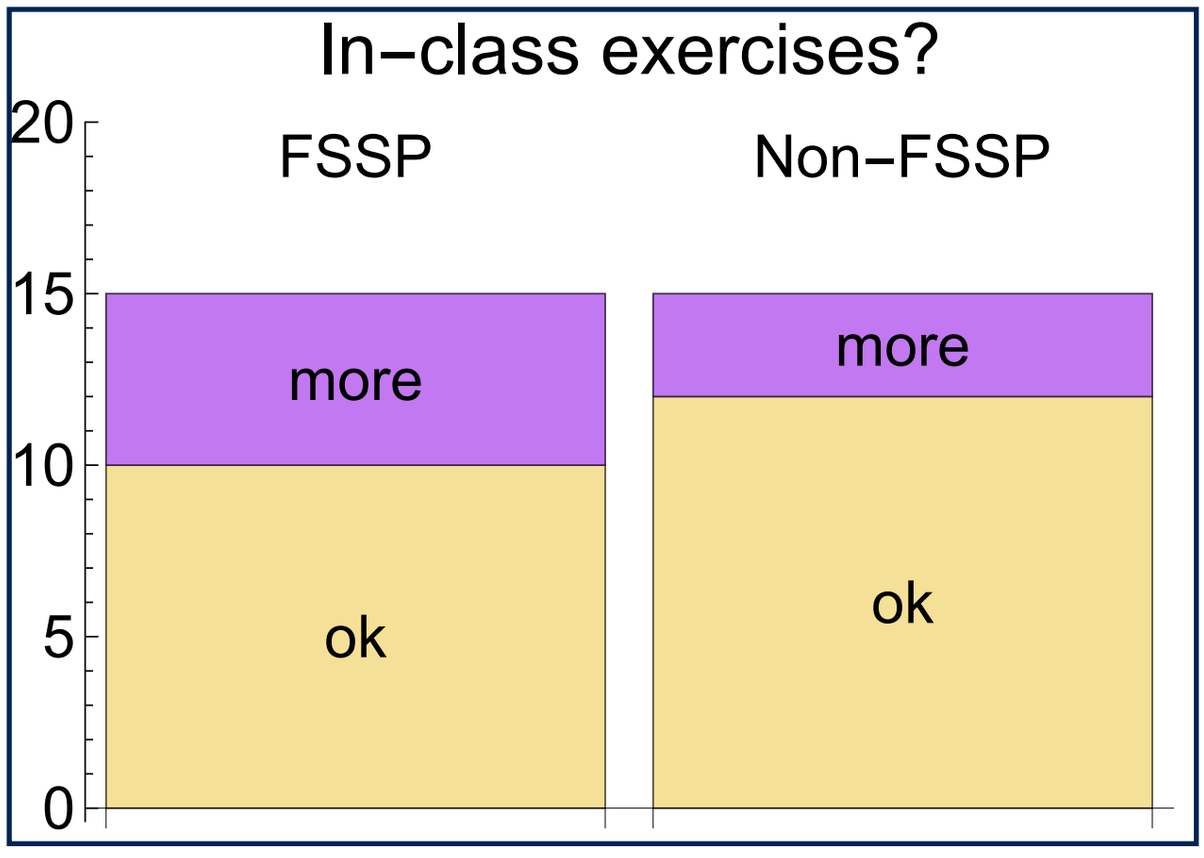
- weekly
- anonymous

Feedback cards

Before



After



Feedback cards

Do harder problems
Want more fun problems
More Hack Days
Didn't like studying syntax
More interaction
I can't compete with classmates w prog exp
More exercises
More examples
More applications
More real–world applications
I'm a little behind
More examples plz
Make hw shorter & harder
hw1 was hard
Go faster thru examples
Have hw due only on Fri

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What next?

- Slides online
- GauchoSpace training
- TA Consultation
- CCUT certificate?
- See "Resources" handout

Jean-Luc Doumont's "Teaching is not Learning: Going beyond the traditional Lecture"

end