

# Self-paced, Mastery-based Courses on Campus



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**Assoc. Provost of Learning Initiatives**



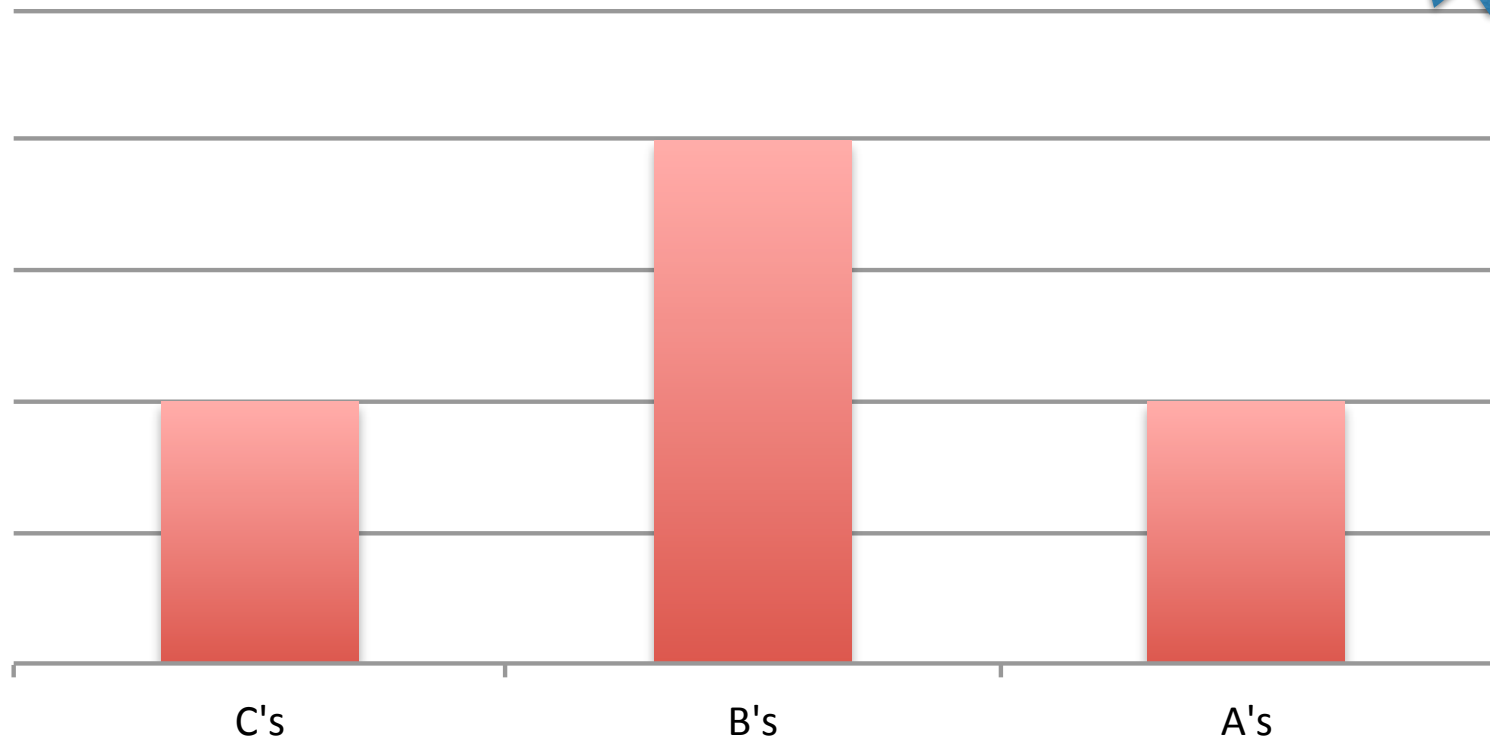


- Too many DWF's
- Inequitable - biased against under-prepared students
- Dissuades people without high technical confidence
- "weed out" mentality

# UX For Learning?

## Typical Grade Distribution

Everyone  
gets A's





# Paths to CS

- Elective
- Non-majors
- Technical programming course in Python



# Structure

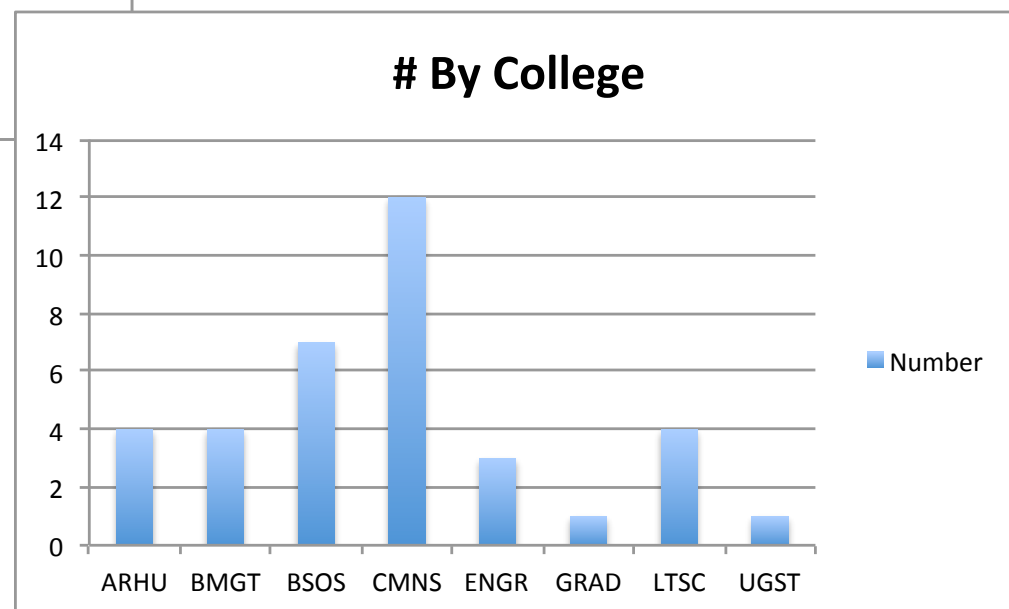
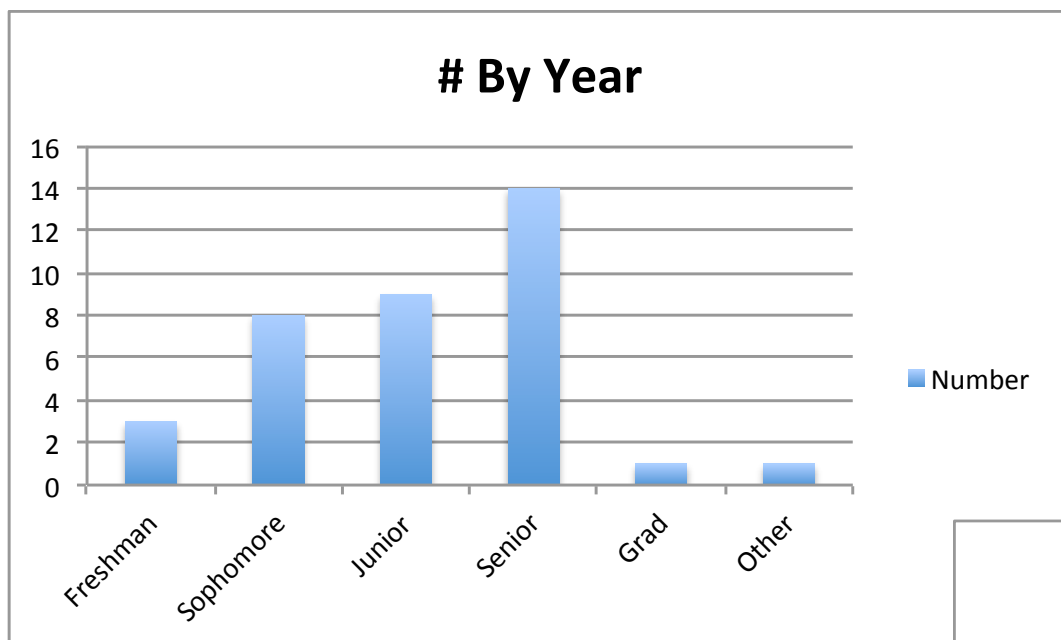
- 1 Credit at a time, 4 modules per credit
- Self-paced, mastery-based (must get A- to proceed)
- Class time
  - 1/3 mini-lecture, group presentations
  - 2/3 peer activities, work on homework, tests
- **No penalty to redo work**
- **Repeat until receive at least A-**

# Motivation

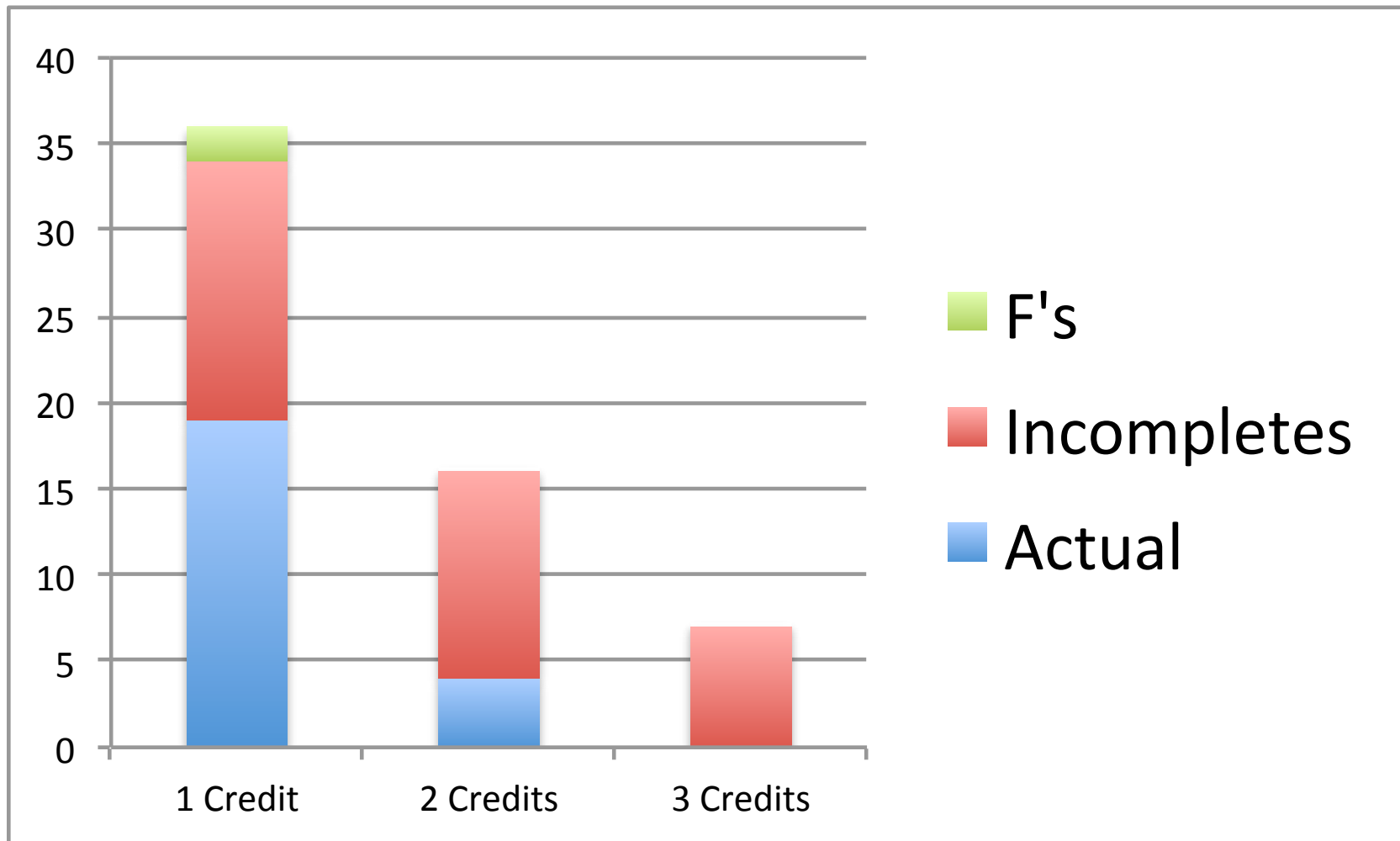
- Goals / Schedule
- Calendar
- Points with chocolate and 3D printer access



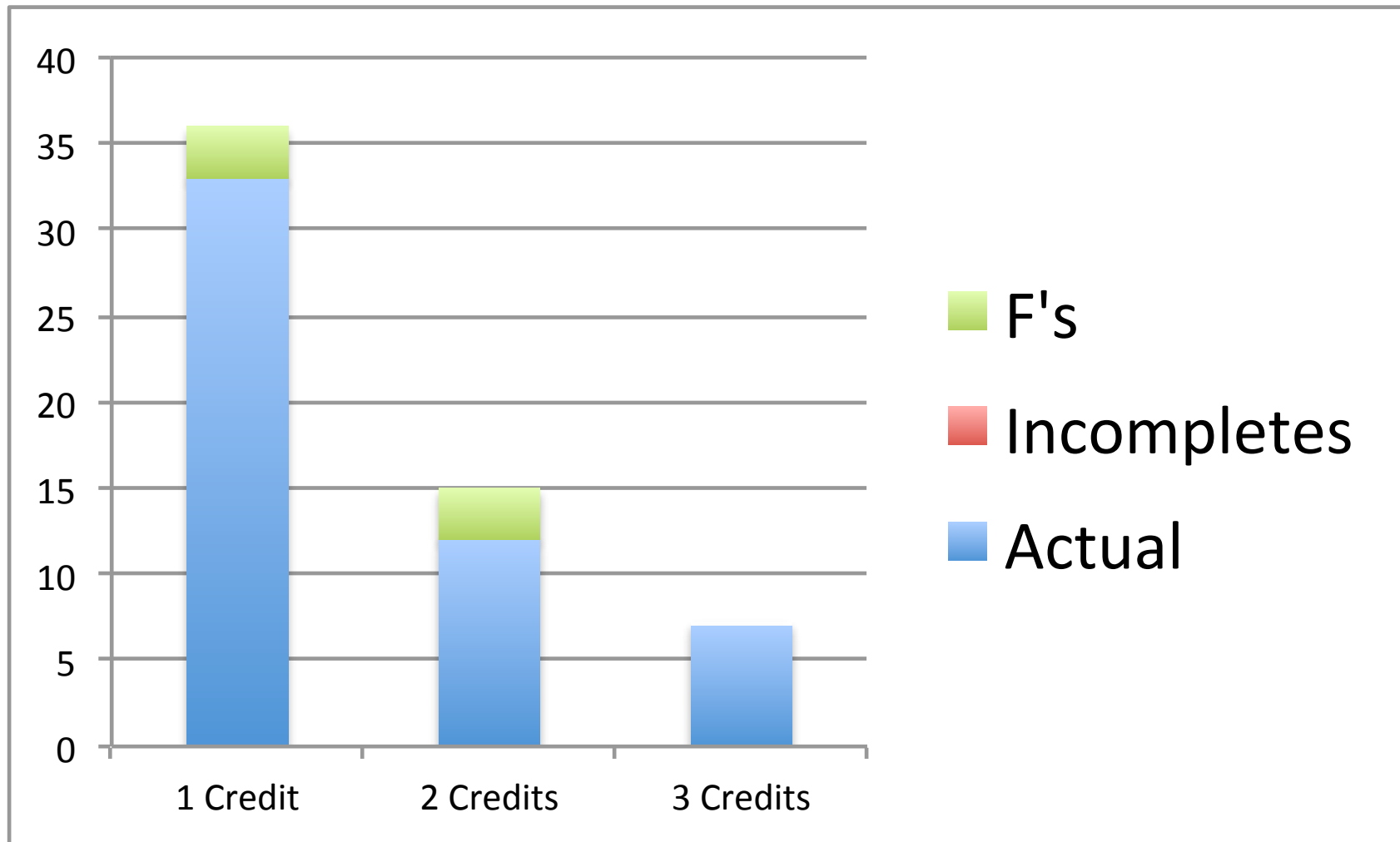
# Registration



# Actual Results at end of Fall 2013

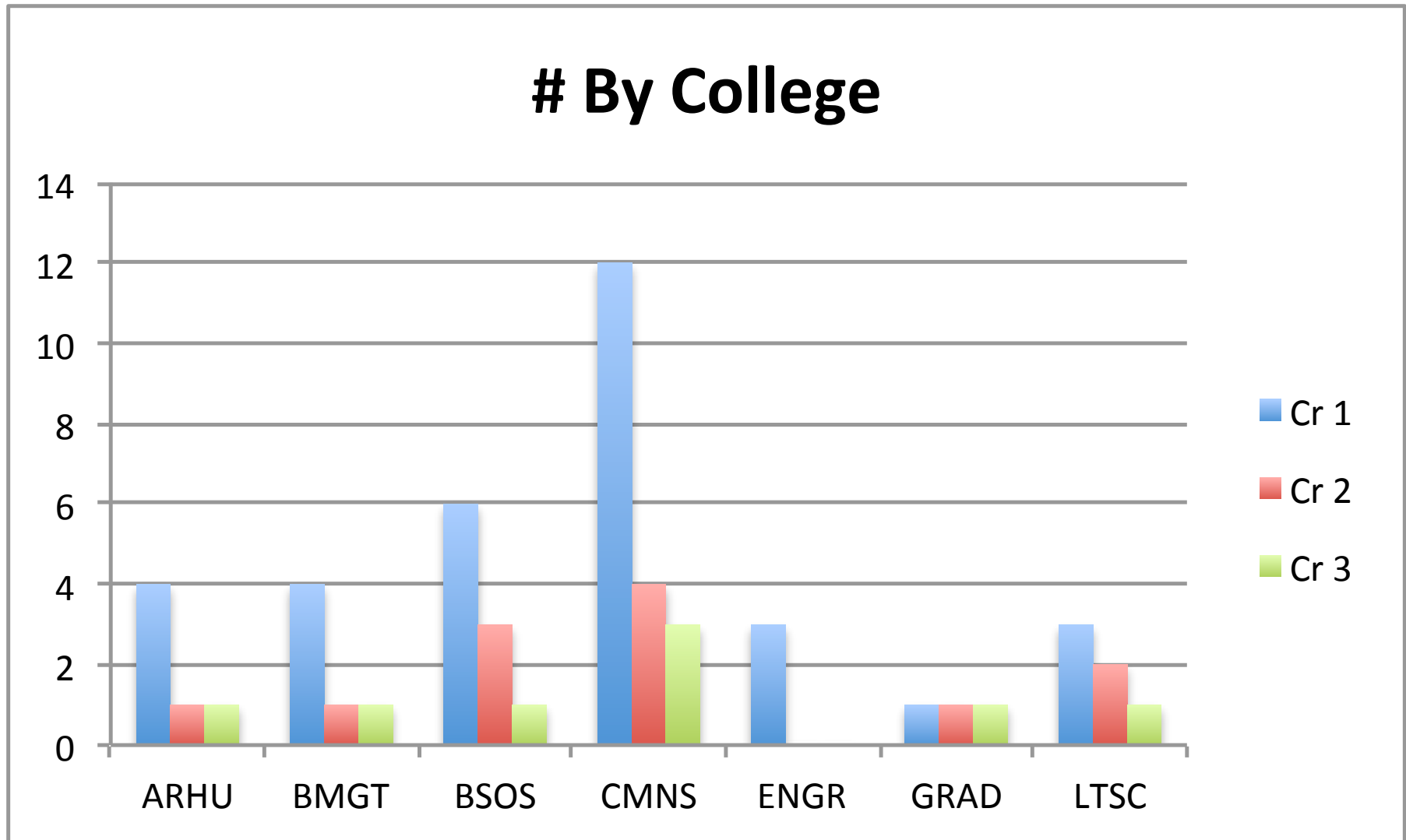


# Actual Results at end of Spring 2014

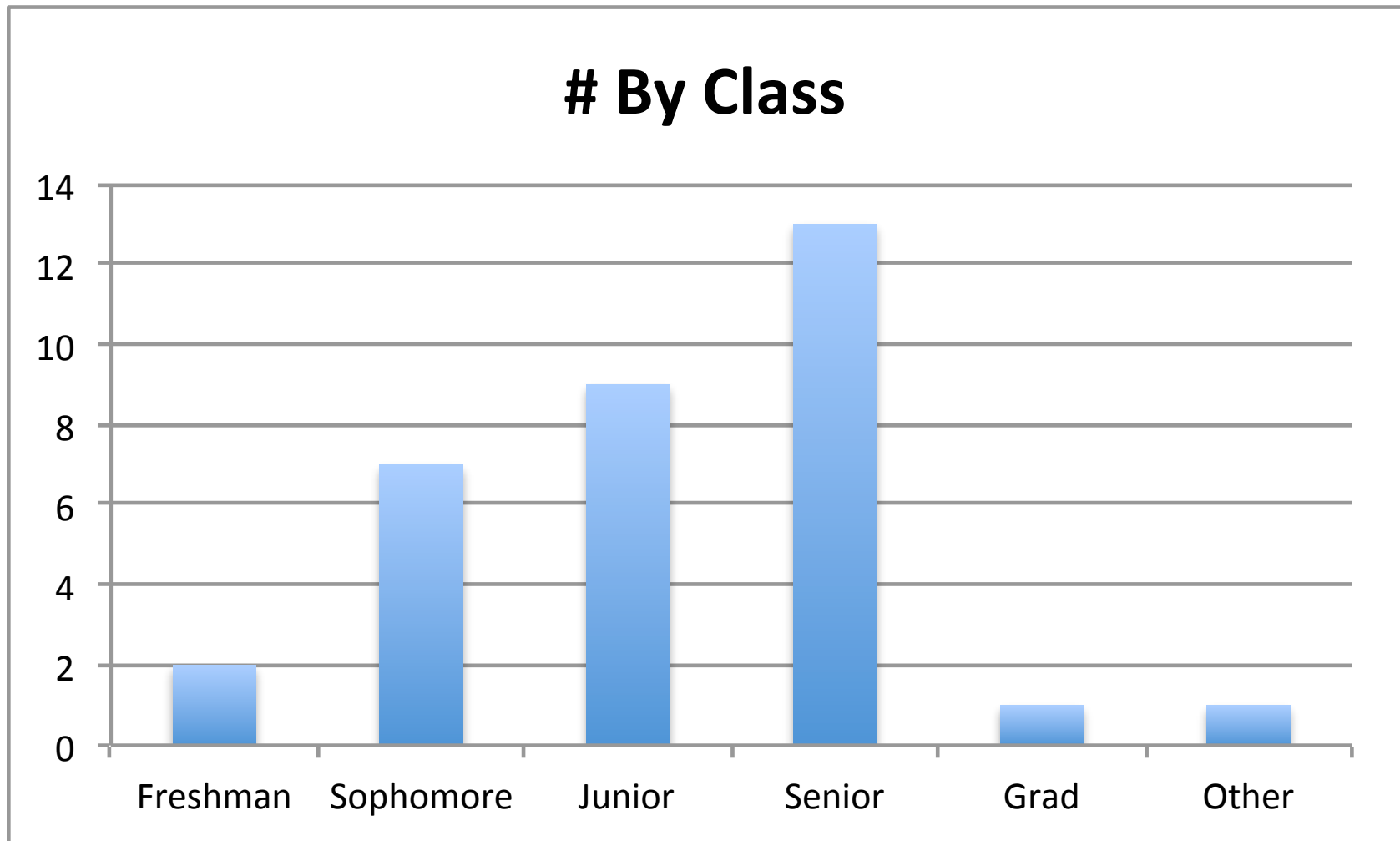




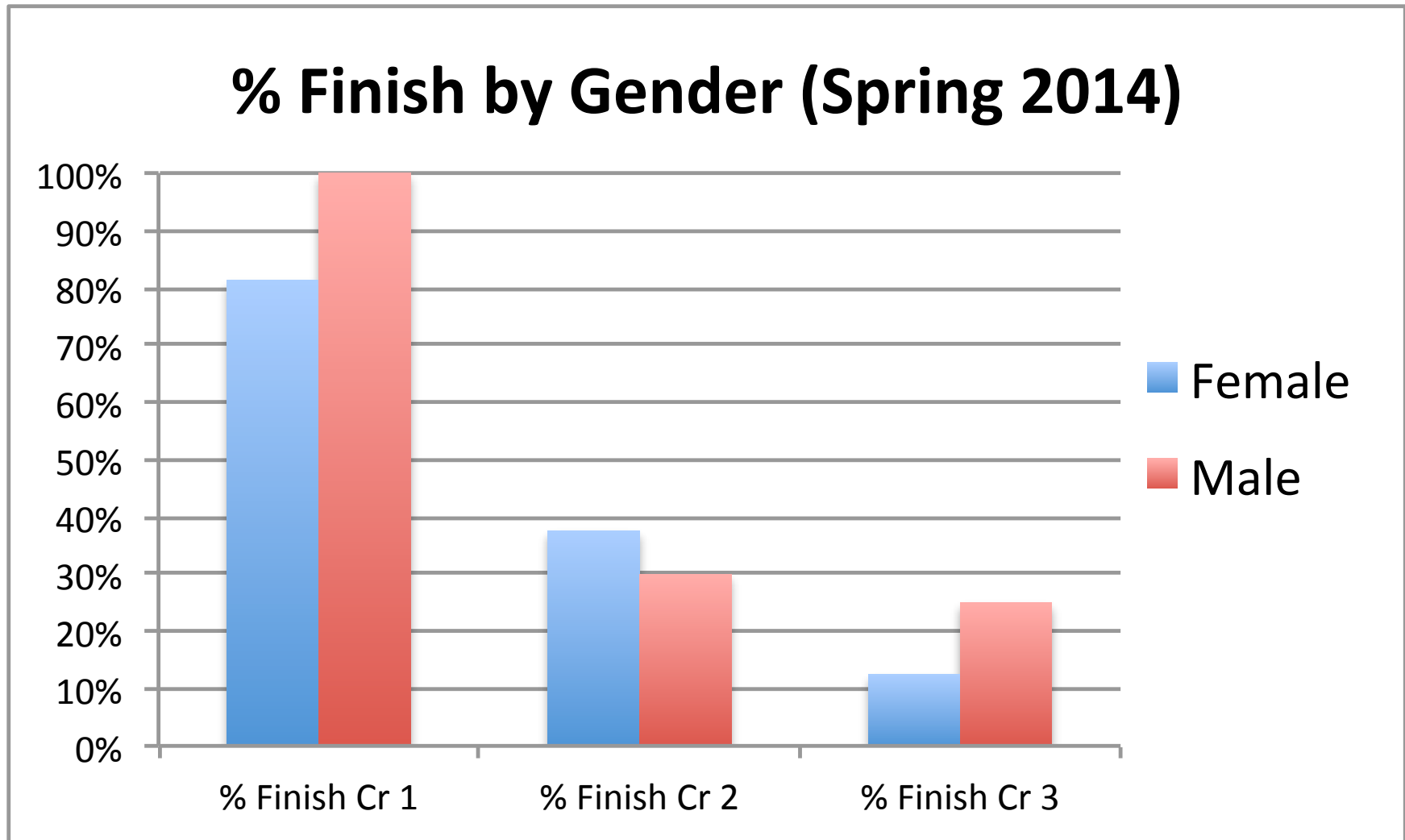
# Analysis by College



# Analysis by **Class**



# Analysis by Gender





# Course Evaluation

CMSC198C BL01							COLLEGE COMPARISON*		
	Number of Responses	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly Agree	Mean	Stdv.	Mean
The course was intellectually challenging.	29	0	0	3	21	76	3.72	0.528	3.19
I learned a lot from this course.	29	0	3	3	21	72	3.62	0.728	2.79

# Course Eval - Negative

- Incredibly time-consuming / too hard (4)
  - Ex: “I have never hated a subject more. But I do recognize that it is a valuable tool to learn for future employment. Unfortunately it is not for layman so I will probably not seek future employment in this field.”
- Group presentations out of place (1)
- Wanted more other topics (data structures, data bases, etc.) (1)

# Course Eval - Positive

- Loved online mini-lectures (1)
- Peer-coding exercises in class (2)
- Treated women well (1)
- Homework assignments interesting and captured attention (1)
- I really liked how we talked about the surrounding world of computer science instead of just focusing on the small stuff that we're doing (1)
- Love the whole idea of this course (6)
  - “In my opinion, this should be the new model. The availability of computers has made learning more accessible and affordable. There is a valid debate on the ability of individuals to learn on their own, however I believe a hybrid model such as this is the future.”
  - “(too hard) BUT I do not regret taking this class. Even though I'm barely finishing the first credit, I still feel like I got a lot out of CMSC198C. It teaches you a whole new way to think!”
  - “I really liked this class and its structure. I felt like because there was no real rush to cram material and I actually got to learn everything in detail. The only thing that could have been improved was that we should have spent class doing homework, and loose deadlines would have been better than just leaving us to our own devices. Other than that, this was one of my favorite courses this semester!”



# What to Change?

- Homeworks - too hard, too big a jump for non-programmers. I know how to fix this.
- Incentive structure:

Allow half speed for a B

Max 1 semester for 1 credit, 2 semesters for 3 credits

# Where Else?

- Incremental gateway courses
- Best for full-time students who don't depend on 2nd or 3rd credit for financial aid or FT status
- Slows down progress, but if reduces DWFs than overall impact could be positive