CSC 545 Getting Acquainted Questionnaire Spring 2015

This questionnaire is to help me get acquainted with you, and to help you feel comfortable coming to office hours. Please turn it in to me during office hours (Tuesdays 10:00–11:00am, Wednesdays 4:00–5:00pm) within the first two full weeks of class.

- What is your **name**, **nickname**, **year** in the program, **major**, and **minor** (if you have one)?

- Have you taken **CSC 445**, Introduction to Algorithms?

- How well do you **know** the following topics (where 1 is "not at all" and 5 is "I know it well")?

Basic proof techniques	1 2 3 4 5
Basic graph theory	1 2 3 4 5
Big-Oh notation (like $O(n \log n)$)	1 2 3 4 5
Divide and conquer	1 2 3 4 5
Greedy algorithms	1 2 3 4 5
Dynamic programming	1 2 3 4 5
Basic graph algorithms	1 2 3 4 5
Amortized time	1 2 3 4 5
NP-completeness	1 2 3 4 5

- What is the **best** and the **worst** Computer Science class you have taken?

- Why did you **enroll** in this class?

- What would you like to **learn** from this course?

- What is something interesting about **yourself** (like "I play the King's Gambit" or "My pizzicato is stunning")?

- How many **chocolate bars** did the top algorithms student get?

  Suppose there are five algorithms students ranked 1 through 5, and 100 chocolate bars. Algorithms students love chocolate, but to get a bar they must obey the following protocol.

  The top-ranked student, who thinks she knows best, proposes a *discrete distribution* of bars among the students (i.e. a way to distribute the chocolate that only uses whole bars). Each student votes "yes" or "no" for the distribution, and if at least half the votes are "yes," the bars are handed out according to the distribution, and class is dismissed.

  If the proposed distribution doesn't receive at leat half the votes, the top student is dismissed (and gets no chocolate), and the process repeats among the remaining students.

  Assuming algorithms students are highly *independent* (so they don't work in groups to sway votes), extremely *intelligent* (so each figures out the optimal way to vote for themselves), very *hungry* (so each votes so as to maximize the number of bars they get), and unusually *competitive* (so each votes to dismiss the proposer if they get the same bars whether or not the proposal wins), what is the optimal distribution proposed by the top student?

  (This puzzle actually relates to algorithm design: to solve it, you will likely have to use a recursive approach.)