

CS 444 - Final Quiz Review Suggestions - Spring 2015

last modified: 2015-05-09

- You are responsible for material covered in class sessions, projects, and individual assignments; but, here's a quick overview of especially important material to consider.
- Final Quiz is CUMULATIVE!
 - if it was fair game for Quiz 1, Quiz 2, Quiz 3, or Quiz 4, it is fair game for the Final Quiz;
 - Thus, using the posted review suggestions for Quiz 1, Quiz 2, Quiz 3, and Quiz 4 in your studying for the Final Quiz would be a good idea. (Note that they are still available from the public course web page, under "Course Handouts".)
 - studying your Quiz 1, Quiz 2, Quiz 3, and Quiz 4 would also be wise.
 - there may indeed be similar styles of questions on the Final Quiz as on those exams.
- You are permitted to bring into the quiz a single piece of paper (8.5" by 11") on which you have **handwritten** whatever you wish on one or both sides. This paper must include your name, it must be handwritten by you, and it will **not** be returned.
 - Other than this piece of paper, the quiz is closed-note, closed-book, and closed-computer.
- Final quizzes are **not returned**, although they will be kept on file for at least 2 years, and you are welcome to come by my office to look over your graded quiz once it has been graded.
- Remember that you are expected to still follow Java/leJOS conventions and class coding standards in your quiz answers.

SumoBots

- What is torque?
- What were the requirements for the SumoBot project? How did those influence your team's SumoBot design?
- You should be able to describe your team's approach to software control for your SumoBot.
- What three strategies did Scott Burgess note seemed to work well for SumoBots? Which of these seemed, in his experience, to be most essential?
 - In your opinion, was this born out in this semester's CS 444 SumoBot matches? How?/Why or why not?
- What are some of the design tradeoffs that we discussed that should be considered in your SumoBot designs? (most of these are more broadly applicable to other types of robots as well!)
- What quote of Sun Tzu's did Scott Burgess mention, and how did he advise that that applies to SumoBots?
- Don't forget to review the SuGO Science slides as well -- while these are SumoBot-oriented, many of these suggestions are broadly useful for other robots as well. For example:
 - For robustness...
 - ...at least how many attachment points do they recommend for all parts?

- ...what type of part do they recommend to brace square corners and prevent twisting?
- For balance...
- ...what do they recommend with regard to desirable center of gravity?
- ...what can help keep a robot from tipping over sideways?
- Related to torque...
- ...what can the wheels convert torque into?
- ...what size wheels, then, provide more of this?
- ...what can you use to change torque?
- ...how does battery charge affect torque?
- For pushing power...
- ...what helps wheels grip the ring? What are some means for increasing this?
- For agility...
- ...how does wheelbase affect this?
- ...how can the number of wheels and/or tires affect this?
- Related to sensors...
- ...why are they useful for a SumoBot?
- What are some strategies recommended in the SuGO Science slides?
- What do you feel was most successful with regard to your team's SumoBot? What would you improve, if you had the chance? What would you do differently?
 - Hold it -- am I saying that you might get a few Final Quiz points for thoughtful reflection on your team's SumoBot? Like, as a Final Quiz question, for points? Why, yes. Yes, I am. If you come in prepared for this, that would be good.