

CS 100 - Final Exam Review Suggestions - Fall 2012

last modified: 12-10-12

- This Final Exam is **comprehensive** -- so, you should use the Exam 1 and Exam 2 review suggestions (as well as Exam 1 and Exam 2) as part of your studying. You are responsible for material covered in class sessions, required reading, and homeworks for the entire semester; but, here's a quick overview of especially important material since Exam 2.
 - This exam covers all class lectures up through and including Week 15 Lecture 2, Chapters 1, 2, 3, 5, 6, 7, 8, 9, and 10 in the course textbook, and all homeworks up through and including Homework 12.
 - Note that there is some redundancy below (some topics are "approached" from different directions in more than one section).
- You are permitted to bring into the exam 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 be **turned in with your exam**, it must **include your name**, it must be **handwritten by you**, and it will **not** be returned.
 - **Other** than this piece of paper, the exam is **closed-note**, **closed-book**, and **closed-computer**. (Also **closed-cell-phone**!)
 - You are to work individually on all exams in this course.
 - (Note that final exams are **not** returned, although you can come by my office after they are graded to look at yours, if you would like. I'll keep them on file for at least two years.)
- General style of the final exam will be similar to Exams 1 and 2, **except** that the final exam will be **comprehensive**, and will deliberately encompass material from the entire semester.
 - (Thus, it would be a **very good idea** to understand anything that you missed on Exams 1 and 2; you've got those tests to study from, and you have the review suggestion sheets for Exam 1 and Exam 2, still available from the course web page under "Homeworks and Handouts".)
- And so, as for Exams 1 and 2, you only need to bring something to write with, and, if you'd like, the handwritten page of notes mentioned above.
- EXPECT IT --
 - ...you WILL have to determine whether phrases/sentences are logical statements or not
 - ...you WILL have to determine whether a given passage is an argument or not
 - ...you WILL have to identify the premises and conclusion of at least one argument
 - ...you WILL have to determine whether arguments are deductive or inductive
 - ...you WILL have to determine whether a deductive argument is valid or invalid, sound or unsound; you WILL have to determine whether an inductive argument is strong or weak, cogent or uncogent
 - ...you WILL have to identify common deductive and inductive patterns of reasoning -- you WILL have to complete some of these patterns, given premises
 - ...you WILL have to study arguments and identify the fallacies they contain

- ...you WILL have to diagram arguments
- ...you WILL have to at least answer questions about summarizing arguments by writing them in standard logical form
- A few side notes...
 - with regard to the "hasty generalization" fallacy -- an argument does not contain this fallacy if its conclusion is not a generalization;
 - with regard to the "weak analogy" fallacy -- an argument does not contain this fallacy unless it has the pattern of (attempted) argument from analogy;
 - with regard to the "false alternatives" fallacy -- an argument does not contain this fallacy unless it falsely limits the number of options and then argues against all but one of those.

Chapter 8 - Evaluating Arguments and Truth Claims

- When is an argument a "good" one (in a logical sense)?
- What does "good argument" NOT mean?
- When is it reasonable to accept a premise?
- What are some general guidelines for evaluating arguments?
- What is *reductio ad absurdum*, reducing to the absurd? How can this be used to show that a statement is false?
- What does it mean to refute an argument? What are some ways of refuting arguments?
- What is a counterexample? What is refutation by counterexample? How can this be used to show that a statement is false?

Chapter 9 - Categorical statements and Venn diagrams

- You should know what a categorical statement is; you should be able to answer questions about categorical statements.
- You should know the four standard categorical forms.
- EXPECT IT -- you will need to determine if statements are in standard categorical form.
- You should be able to convert categorical statements into standard categorical form.
- You should be able to answer questions about the four standard categorical forms (including their meaning/intent).
- What is a Venn diagram? How can Venn diagrams be used to depict categorical statements?
 - You should be able to look at a Venn diagram, and understand what it means in categorical statement terms; you should be able to answer questions about Venn diagrams.
 - Given a Venn diagram with 2 or 3 overlapping circles, what are the sets/classifications in that diagram?
 - What does it mean to shade a portion of a Venn diagram? What does it mean to put an X in a

portion of a Venn diagram?

- EXPECT IT -- you will have to give appropriate Venn diagrams for categorical statements
- Reminder: what is a categorical syllogism?
- EXPECT IT -- you will have to use Venn diagrams to show whether categorical syllogisms are valid or not.
- You could also be asked questions about the process of using Venn diagrams to show whether categorical syllogisms are valid.

Chapter 10 - Propositional logic and truth tables

- EXPECT IT -- you will have to write truth tables in propositional logic form
- You should be familiar with and able to write the truth tables for Boolean and (&), Boolean or (\vee), Boolean not (\sim), and conditional (\rightarrow) -- and know how they are expressed in propositional logic form.
 - In propositional logic, what is meant by conjunction? disjunction? negation?
- You should know and be able to follow the propositional logic conventions for truth tables as used in class.
- You should be able to read an argument expressed in propositional logic form; you should be able to convert an argument into propositional logic form.
- EXPECT IT -- you will have to write arguments in propositional logic form
- EXPECT IT -- you will have to use truth tables to show whether deductive arguments (that can be written in propositional logic form) are valid or not
- You should be able to answer questions about the steps involved in using truth table to show whether deductive arguments (that can be written in propositional logic form) are valid or not