

Examination 3 Student Guide

Examination 3 will have a different format, in comparison to Examinations 1 and 2. The purpose of the new format is to allow the students to have more control of the level of questions asked, and to make sure that the grade on the exam never depends on the order of questions asked.

Features that remain. Like in the Examination 2, a problem solved with a hint is considered partially solved. You can get at most one hint per Hard and Medium problems. No hints for Easy problems.

The exam is **cumulative**. It will cover three general groups of topics:

Group 1. Everything covered in class between Exam 1 and Exam 2.

Group 2. October 21 - November 2 topics, as listed on main web page.

Group 3. November 4 - November 20 topics, as listed on main web page.

Each student will start with one Easy problem in one of the groups (the choice of the group is up to the student). If solved, this “warm-up” problem will count as Easy problem solved for that group (see below). If not, there is no penalty.

On the actual exam that follows the warm-up problem, the student will do one problem from each of the topic groups. The order of the groups and the difficulty level will be determined by the student, one problem at a time.

For each problem solved, the student will earn points as follows:

Easy problem. Completely solved: **1 point**. Partially solved or not solved: **0 points**.

Medium Problem. Completely solved: **2 points**. Partially solved or solved with a hint: **1 point**. Partially solved with a hint: **0 points**.

Hard problem. Completely solved: **3 points**. Partially solved or solved with a hint: **2 points**. Partially solved with a hint: **1 point**. You may also get 1 point for just knowing how to start a Hard problem, at the discretion of the instructor.

For the problem in the same group as the warm-up problem the score, if higher, will **replace** the score obtained from the warm-up problem.

The grade is determined by the total score as follows:

7,8,9 → A

5,6 → B

3,4 → C

2 → D

0,1 → F

Here is the list of all possible scores, up to reordering, and the corresponding grades. Here H means a score of 3, M means a score of 2, E means a score of 1 and 0 means no credit. Note that there are other ways to get 2, 1, and 0 points for a problem, as explained above.

HHH (3+3+3=9)	
HHM (3+3+2=8)	A
HHE (3+3+1=7)	
HMM (3+2+2=7)	
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HH0 (3+3+0=6)	
HME (3+2+1=6)	
MMM (2+2+2=6)	B
HM0 (3+2+0=5)	
HEE (3+1+1=5)	
MME (2+2+1=5)	
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HE0 (3+1+0=4)	
MM0 (2+2+0=4)	
MEE (2+1+1=4)	C
H00 (3+0+0=3)	
ME0 (2+1+0=3)	
EEE (1+1+1=3)	
<hr/>	
M00 (2+0+0=2)	D
EE0 (1+1+0=2)	
<hr/>	
E00 (1+0+0=1)	F
000 (0+0+0=0)	
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Important. You should familiarize yourself with this new scheme and make a plan regarding the order and the difficulty level of problems you will ask for. This will depend on the grade that you hope / need to get on the exam and your level of understanding of different parts of the course. Your plan should include what to do if you did not solve a problem or partially solved it. You may want to discuss your plan with your instructor.

Most Important. No amount of exam planning will substitute for actually learning the material. Please see the tips on the most effective exam preparation in the “How to Study for Oral Exams” guide on the next page.

How to Study for Oral Exams

Oral exams can be a nerve-wracking experience, but they do not have to be. And they won't if you study for them properly.

There are two major differences between oral exams and traditional written exams.

1) To do well on oral exams, your knowledge of the material has to be **firm**. Think of the difference between being able to speak a foreign language versus being able to read and write: faster recall is needed. The stress of the exam may make you "blank out" if your knowledge is not firm.

2) Because of fewer (usually three, maybe four) questions asked, you need to know **all the material** to guarantee success. If you only study 70% of the material, the probability that all three questions asked will be on the topics that you studied is only about 35%. And there is about 20% chance that two of the questions (or all three!) will be on the other topics.

So, **on top of the regular day-by-day study of the material**, this is how you need to study for oral exams to do well on them.

1) Go over all sample problems, problems from homework assignments, quizzes, and the textbook. Try to do them yourself, but, if necessary, look up in your notes, books, re-watch lectures etc. Keep notes on what you had to look up. (If you are only trying to get a C on the exam, you can skip the Hard questions. But you should still do the Medium and Easy questions).

2) If you realize that you constantly need to look up material for certain topics in the course, re-learn that material and do the corresponding problems again.

3) Several hours later (preferably, **next day**), close all notes and go over all problems **in random order** and try to solve them. Ideally, try to answer them **aloud**, as if you were on the exam. You will not be able to solve some of them, even though you thought you understood them yesterday. This is normal, and not a reason to panic or give up. Just take note of the problems that you could not solve and after going through all problems once, study again the material on the problems that you missed and then solve them.

4) **Repeat Step 3** until you can confidently answer all sample questions in random order. This will probably take four or five iterations, but **you can do it!** You just need to start your exam preparation early enough, about a week before the test.