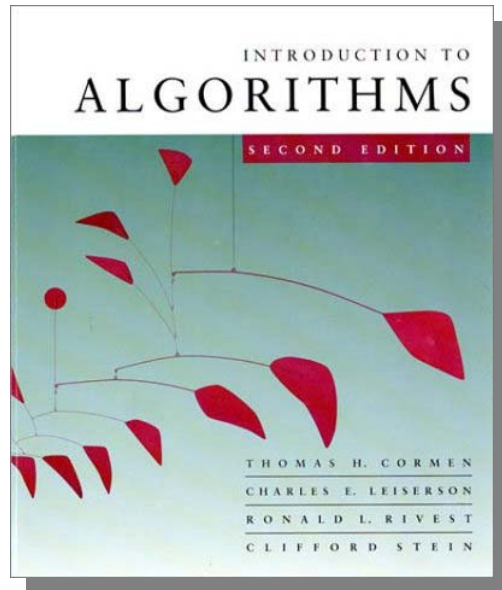


Introduction to Algorithms

6.046J/18.401J

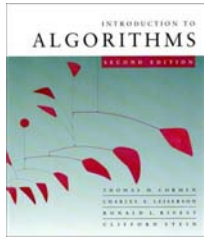


LECTURE 19

Take-home exam

- Instructions
- Academic honesty
- Strategies for doing well

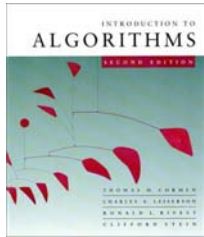
Prof. Charles E. Leiserson



Take-home quiz

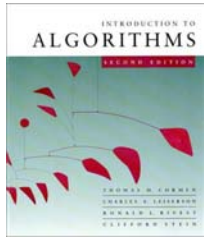
The take-home quiz contains 5 problems worth 25 points each, for a total of 125 points.

- 1 easy
- 2 moderate
- 1 hard
- 1 very hard



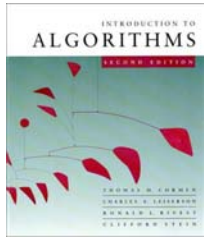
End of quiz

- Your exam is due between 10:00 and 11:00 A.M. on Monday, November 22, 2004.
- Late exams will not be accepted unless you obtain a Dean's Excuse or make prior arrangements with your recitation instructor.
- You must hand in your own exam in person.



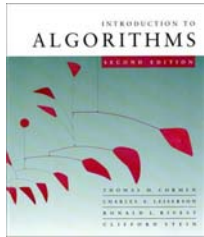
Planning

- The quiz should take you about 12 hours to do, but you have five days in which to do it.
- Plan your time wisely. Do not overwork, and get enough sleep.
- Ample partial credit will be given for good solutions, especially if they are well written.
- The better your asymptotic running-time bounds, the higher your score.
- Bonus points will be given for exceptionally efficient or elegant solutions.



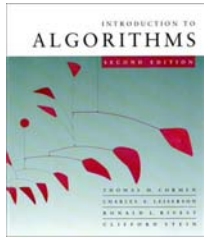
Format

- Each problem should be answered on a separate sheet (or sheets) of 3-hole punched paper.
- Mark the top of each problem with
 - your name,
 - 6.046J/18.410J,
 - the problem number,
 - your recitation time,
 - and your TA.



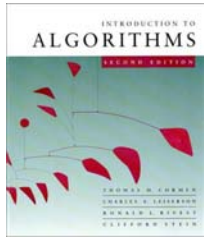
Executive summary

- Your solution to a problem should start with a topic paragraph that provides an executive summary of your solution.
- This executive summary should describe
 - the problem you are solving,
 - the techniques you use to solve it,
 - any important assumptions you make, and
 - the running time your algorithm achieves.



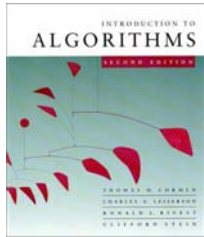
Solutions

- Write up your solutions cleanly and concisely to maximize the chance that we understand them.
- Be explicit about running time and algorithms.
 - For example, don't just say you sort n numbers, state that you are using heapsort, which sorts the n numbers in $O(n \lg n)$ time in the worst case.
- When describing an algorithm, give an English description of the main idea of the algorithm.
- Use pseudocode only if necessary to clarify your solution.



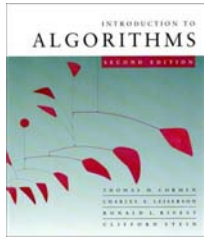
Solutions

- Give examples, and draw figures.
- Provide succinct and convincing arguments for the correctness of your solutions.
- Do not regurgitate material presented in class.
- Cite algorithms and theorems from CLRS, lecture, and recitation to simplify your solutions.



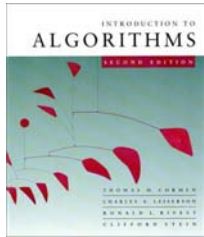
Assumptions

- Part of the goal of this exam is to test engineering common sense.
- If you find that a question is unclear or ambiguous, make reasonable assumptions in order to solve the problem.
- State clearly in your write-up what assumptions you have made.
- Be careful what you assume, however, because you will receive little credit if you make a strong assumption that renders a problem trivial.



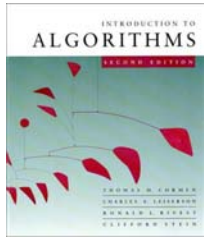
Bugs, etc.

- If you think that you've found a bug, please send email.
- Corrections and clarifications will be sent to the class via email.
- Check your email daily to avoid missing potentially important announcements.
- If you did not receive an email last night reminding you about Quiz 2, then you are not on the class email list. Please let your recitation instructor know immediately.



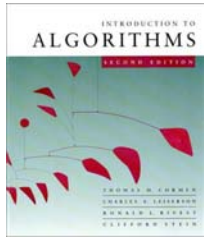
Academic honesty

- This quiz is “limited open book.”
- You may use
 - your course notes,
 - the CLRS textbook,
 - lecture videos,
 - basic reference materials such as dictionaries, and
 - any of the handouts posted on the server.
- ***No other sources whatsoever may be consulted!***



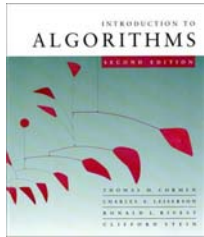
Academic honesty

- For example, you may not use notes or solutions from other times that this course or other related courses have been taught, or materials on the server.
 - These materials will not help you, but you may not use them anyhow.
- You may not communicate with any person except members of the 6.046 staff about any aspect of the exam until after noon on Monday, November 22, even if you have already handed in your exam.



Academic honesty

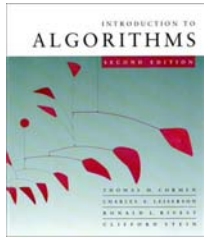
- If at any time you feel that you may have violated this policy, it is imperative that you contact the course staff immediately.
- It will be much the worse for you if third parties divulge your indiscretion.
- If you have any questions about what resources may or may not be used during the quiz, send email.



Poll of 78 quiz takers

Question 1: “Did you cheat?”

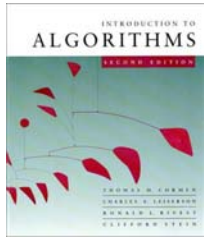
- 76 — “No.”
- 1 — “Yes.”
- 1 — “Abstain.”



Poll of 78 quiz takers

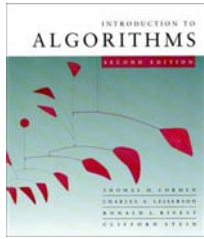
Question 2: “How many people do you know who cheated?”

- 72 — “None.”
- 2 — “3 people compared answers.”
- 1 — “Suspect 2, but don’t know.”
- 1 — “Either 0 or 2.”
- 1 — “Abstain.”
- 1 — “10” (the cheater).



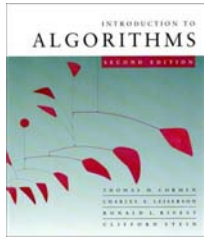
Reread instructions

Please reread the exam instructions in their entirety at least once a day during the exam.



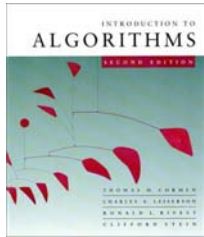
Test-taking strategies

- **Manage your time.**
- **Manage your psyche.**
- **Brainstorm.**
- **Write-up early and often.**



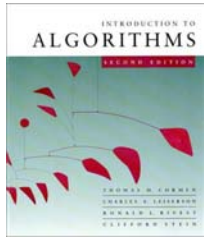
Manage your time

- Work on all problems the first day.
- Budget time for write-ups and debugging.
- Don't get sucked into one problem at the expense of others.
- Replan your strategy every day.



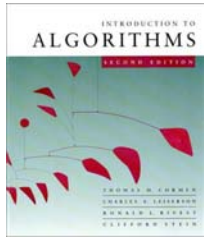
Manage your psyche

- Get enough sleep.
- Maintain a patient, persistent, and positive attitude.
- Use adrenaline productively.
- Relax, and have fun.
 - It's not the end of the world!



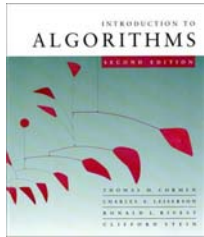
Brainstorm

- Get an upper bound, even if it is loose.
- Look for analogies with problems you've seen.
- Exploit special structure.
- Solve a simpler problem.
- Draw diagrams.
- Contemplate.
- Be wary of self-imposed constraints — think “out of the box.”
- Work out small examples, and abstract.
- Understand things in two ways: *sanity checks*.



Write up early and often

- Write up partial solutions.
- Groom your work every day.
- Work on shortening and simplifying.
- Provide an executive summary.
- Ample partial credit will be given!
- Unnecessarily long answers will be penalized.



Positive attitude

Have Fun!