

Algorithms – CS-27200/37000    Homework – March 7, 2005  
Guest lecturer: Pedro Felzenszwalb    Ry-162C  
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**TA SCHEDULE:** TA sessions are held in Ryerson-255, Tuesday and Thursday 5–6pm, Saturday 11am–noon, and (this is new) **Wednesday after class** 12:30–1:20 or 1:30–2:20 depending on demand. Indicate your interest in the Wednesday session to the instructor immediately after class.

**TA schedule during exam week:** TA sessions will continue through March 18 (final exam) on the same schedule. On Wednesday, March 14, Hari will be available both at 12:30 and at 1:30pm.

**ADVICE.** Take advantage of the TA sessions.

Check the class website, <http://www.classes.cs.uchicago.edu/current/27200-1>.

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**DATES TO REMEMBER:** Fri Mar 11: Last class. **ATTENDANCE REQUIRED.**    Fri Mar 18, 10:30–12:30: Final Exam

- 20.1 Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  and  $g: \mathbb{R} \rightarrow \mathbb{R}$  be two continuous functions that cross exactly once ( $f(x) = g(x)$  for exactly one value of  $x$ ). Give an algorithm that finds the smallest integer  $i$  between 0 and  $n$  such that  $f(i) > g(i)$  if such integer exists (it could be that  $f$  is always below  $g$  in this range). Your algorithm should run in  $O(\log n)$  time assuming it takes constant time to evaluate  $f$  and  $g$  at a particular point.