

5.95 (Spring 2009)

Homework 4

Due in class on Tuesday, 31 March 2009.

Here are questions to work on and readings for Lecture 6 (March 31). The only item to bring in is your writeup for **Problem 2**, so that you can trade it with a colleague. (And bring your problems from last time to exchange, which I forgot to arrange in lecture on the 17th.)

1. Readings on lectures and interactive teaching

The website (mit.edu/5.95) has readings related to lectures and interactive teaching – the topic of the next lecture:

- a. Benjamin Bloom (1984), 'The 2-sigma problem: The search for methods of group instruction as effective as one-to-one tutoring', *Educational Researcher* 13(6):4–16.
- b. Edwin F. Taylor (1992), 'Guest comment: Only the student knows', *American Journal of Physics* 60(3):201–202.
- c. Robert Morrison (1985), 'The lecture system in teaching science', in *Proceedings of the Chicago Conferences on Liberal Education*, No. 1, *Undergraduate Education in Chemistry and Physics*, edited by Marian R. Rice, The College Center for Curricular Thought, The University of Chicago, October 18–19, 1985.

Read all three! One is short (two pages), one is written in a highly enjoyable style (it's a transcript of a wonderful talk), and all are interesting. Write a question about each reading for yourself (no need to turn it in).

2. Big ideas

For a course that you might teach or would like to teach, look through the standard course materials (e.g. the usual textbook and problems), and find several – perhaps four or five – big ideas or core reasoning methods around which to reorganize the course. If you find more than five, try to clump them as I did for the Art of Approximation course (which had eight ideas).

Then select topics and examples for each big idea, and thereby make a rough course outline.

3. Holiday

Have a good spring break!