5.95J / 6.982J / 7.59J / 8.395J / 18.094J Teaching College-Level Science and Engineering
Spring 2009

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**

   This week's readings are 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!