

## On-Line Algorithms – F14 – Lecture 4

### **Lecture, February 10**

We finished chapter 1 and began on chapter 2 in the textbook, covering up through section 2.2. (We may finish chapter 2 in a discussion section.)

### **Lecture, February 13**

Kim Skak Larsen will lecture on chapter 3 and begin on chapter 4.

### **Lecture, February 19**

Kim Skak Larsen will finish chapter 4.

### **Problems for February 20**

1. Do Exercise 3.2 in the textbook.
2. Do Exercise 3.3 in the textbook.
3. Do Exercise 3.6 in the textbook.
4. Do Exercise 3.7 in the textbook.
5. Do Exercise 3.8 in the textbook.
6. Do Exercise 3.9 in the textbook.
7. Do Exercise 3.10 in the textbook.

8. Prove that for any pair of deterministic lazy paging algorithms,  $A$  and  $B$ , any sequence length  $n$ , cache size  $k$ , and memory size  $N$ , for any number of faults  $s$ , the number of sequences of length  $n$  where  $A$  has  $s$  faults is equal to the number of sequences of length  $n$  where  $B$  has  $s$  faults. Do this by induction on the length of the sequence,  $n$ , by finding a bijection  $f$  which maps sequences where  $A$  has a particular number of faults to sequences where  $B$  has the same number of faults.