

## SCI 199Y, L0411, 2008–9: Probabilities Everywhere

### Group Exercise about Random Exam Seating

Working cooperatively with your group, consider the following questions.

[Based on a true story.]

A professor is worried about exam cheating. She fears there are students in her class (she doesn't know who) who will cheat if they sit next to each other (either side by side, or in front/back) at the final exam. She has therefore decided to assign her exam seating *randomly*.

**1.** Do you think this random seating assignment is a good way to thwart the cheating? Why or why not?

**2.** Can you think of any other solutions to the problem, besides random seating assignment?

**3.** Suppose there are 120 students in her class, and precisely two students who will cheat if they sit next to each other (either beside, or front/back). Compute the probability that they will be able to cheat if the final exam room consists of:

- (a) 10 rows of 12 students each.
- (b) 8 rows of 15 students each.
- (c) 6 rows of 20 students each.
- (d) 5 rows of 24 students each.
- (e) 3 rows of 40 students each.
- (f) 1 row of 120 students.

**4.** Think of several other examples where using randomness could help to avoid some sort of problem that might arise.