**Stor 831: Advanced Probability**  
**Fall, 2013**

**Place and Time:** Hanes 125; Monday and Wednesday, 11:00AM-12:15PM. There will be a few times during the semester when I will ask to move a Monday class to Friday, same place and time.

**Instructor:** Vladas Pipiras; office: Hanes 305; e-mail: pipiras@email.unc.edu; phone: 843-2430; office hours: Tuesday 9:00AM-12:00PM. If contacting me by e-mail, please start the Subject line with “Stor 831:”, e.g. Subject: Stor 831: Homework 2.

**Homework:** Homework will be assigned regularly, usually on Wednesday and due the following Wednesday. Each HW will be graded as: Poor, Good or Excellent.

**Grades:** At least 50% of the HWs earning a grade of Good or better will earn a grade of P or better. 100% of HWs earning a grade of Good or better and at least 50% earning an Excellent will be an H.

**Course website:** The course website is at [http://sakai.unc.edu](http://sakai.unc.edu). Homework assignments, lectures notes, announcements and other information will be posted there.

**Prerequisite:** Probability and statistics background at the graduate level; some topology, analysis and functional analysis background.

**Syllabus:** The course will be devoted to several forms of weak convergence (convergence in distribution) and applications. The convergence in distribution is that of random maps taking values in a metric space. The first part of the course will concern the classical theory when the metric space is separable and complete, and random maps are measurable (that is, random elements). I will somewhat follow the classical textbook:


The applications will be those to the convergence of stochastic processes in spaces C and D. The second part of the course will concern the case when the metric space is not separable and random maps are not measurable. Here, I will mostly draw from the textbook:


In applications, the focus will be on empirical processes and some of their statistical applications. The two (or three) textbooks will be placed on reserve in the undergraduate library.