Empirical Processes and Statistics, Winter, 2009
Organizer: Jon A. Wellner

**Tentative Times: Tuesday or Thursday 10:30 - 12:00 AM, or Wednesday or
Friday 3:30 - 5:00 PM**

First Meeting: Tuesday or Wednesday, January 13 or 14, 2009

I intend to organize a seminar series (or working group) on empirical process theory and its application to statistics during Winter and Spring quarters 2009. Please let me know which of the four times listed above work best for you. (If several times are possible, please let me know that as well. I will try to choose a time that accomodates as many of those expressing interest as possible.)

The tentative plan is to review modern empirical process theory, and then move to applications of this theory to a variety of statistical problems. We will continue the meetings during Spring quarter (if there is sufficient interest).

I have made a web site for this seminar series at

   http://www.stat.washington.edu/jaw/COURSES/EPWG/w09.html.

The first few meetings of the group will probably be organized around various sections of my book with Aad van der Vaart: see

   http://www.stat.washington.edu/jaw/RESEARCH/BOOKS/book4.html

Success of the working group will depend on volunteers from those of you who expressed interest, so let me know your preference(s)!

Jon W.

Tentative Topics / Outline

- **Empirical Process Basics:**
  Exponential bounds and Chaining;
  Empirical Processes and Gaussian Limits;
  Vapnik - Chervonenkis classes of sets and functions;
  Uniform covering numbers; bracketing covering numbers;
  Glivenko-Cantelli classes; Donsker classes;

- **Some possible Applications of Empirical Processes to Statistics:**
  Likelihood estimation in semiparametric models;
  Likelihood estimation for shape constraints;
  Regression models with two - phase sampling and data missing "by design".

- **Adaptive Nonparametric Estimation: isoperimentric inequalities and model selection**
  isoperimetric inequalities;
  model selection.

Books:

- Van der Vaart, A. W. and Wellner, Jon A. (1996). *Weak Convergence and Empirical Processes*, Springer, New York.

- Van de Geer, S. A. (1999). *Applications of Empirical Process Theory*, Cambridge University Press, Cambridge.