ABSTRACT:
R has become the 'lingua franca' of statistical computing, especially for cutting-edge methods. Most students in our department will write at least some R code and often whole R packages as part of their research. However, as an interpreted language, R can be slow at compute-intensive tasks, especially those that cannot easily be vectorized. Throughout the history of the S language it has been possible to write code in compiled languages, (C, C++, Fortran and, to some extent, Java) to be called from the interpreted code, but this can be both tedious and error-prone. The Rcpp package by Dirk Eddelbuettel and Romain François provides templated C++ classes and utilities to make the process much easier, especially in conjunction with the inline package. The Eigen package of templated C++ classes for numerical linear algebra allows for vectorized code to be written simply. The RcppEigen package combines Rcpp and Eigen to make writing high-performance code much, much simpler. I will use examples from research projects by graduate students in our department to illustrate this.

TITLE:
High-performance computing with R, Rcpp and RcppEigen

SPEAKER:
Professor Doug Bates
Department of Statistics
UW-Madison

TIME & PLACE:
Wednesday, March 14, 2012
Room 140 Bardeen
4:00-5:00p

Cookies & Coffee @ 3:30 in Rm 1210 MSC