

MATH 666: SEMINAR MATHEMATICS AND STATISTICS

STATISTICAL COMPUTATION IN R

Instructor : David A. Stephens (Burnside 1225)
Email : d.stephens@math.mcgill.ca
Website: www.math.mcgill.ca/~dstephens/666/

Time & Location : Friday, 10am-12pm, Trottier 3120

Format : 10 x 2 hour classes

Evaluation : Attendance, completion of in-class tasks.
Credits : 2

TARGET SYLLABUS

- 1 The R environment: workspace, command line, scripting, R objects, packages.
- 2 Core functions: matrix and linear algebra, numerics, special functions, plot, basic R Graphics.
- 3 Elementary Statistics: statistical summaries, testing, random number generation, linear regression.
- 4 Advanced functions: apply, lapply etc., user-defined functions, optim.
- 5 Intermediate statistics: glm, classification, penalized regression.
- 6 Intermediate statistics: mixed models, time series.
- 7 Intermediate statistics: survival analysis, bootstrap methods.
- 8 Advanced graphics.
- 9 Advanced statistics: MCMC.
- 10 Advanced topics: writing packages, interface with C/C++.

ACADEMIC INTEGRITY

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see

<http://www.mcgill.ca/integrity/>

for more information).

- In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.
- In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

David A. Stephens.
June 7, 2012.