Inf 523 Fundamentals of Information Technology
Introduction to R Programming
(Fall 2012)

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1 Administrivia

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2 Catalog Description

A university-wide offering that introduces fundamentals of information technology in an intensive graduate format. The course focuses on selected topics such as database applications, introduction to programming, web technologies, and Unix and networking that are offered in one credit modules, each lasting for half a semester.

3 A more Honest Description:

- Introduction: R environment; using R interactively; getting help; R commands

- Data Structures: Vectors, Matrices, Arrays, Lists, Dataframes.

- Control Structures and Functions:

- Input and Output

4 About the Course

The R programming language has become the language of choice for statistical computing, design of statistical software, as well as web analytics. A language with object-oriented as well as functional programming features, it is ideally suited for the manipulation of data.

The course should be of interest to any student interested in statistics, web analytics, data mining, text analytics, social network analytics, and generally interested in data based research in any discipline.

The course does not assume any background in statistics beyond basic statistics (mean, mode, standard deviation, etc), but does assume a healthy attitude to learning, lack of aversion to some programming, and a familiarity with using computers (PCs, macs, unix, any computers). Some knowledge of matrices, vectors etc is helpful but not necessary as the basics will be covered in class.

In this 1 credit course, we study the data structures, control structures, and their use in building simple functions to solve problems. We emphasize the language features rather than the wealth of statistical routines available in R.

The class meets once a week for 3 hours each (T uesdays 2:00-5:00 PM, in Husted Room: HS0004) during august 28 to september 18.

5 Textbooks

- *The Art of R Programming*, by Norman Matloff. This book in its entirety is available at:

  https://csclub.uwaterloo.ca/ ajacob/books/The.Art.of.R.Programming.%281593273843%29.pdf

- http://cran.r-project.org/doc/manuals/R-admin.pdf

- http://cran.r-project.org/doc/manuals/R-intro.pdf

- lecturenotes.pdf

6 Grading

The final grading is based on the following: 25 points Quizzes (when given)
75 points Take home test
The grading in the course is relative.