ENTM 798V: Introduction to R for computation and analysis in Ecology and Evolutionary Biology (1 credit graduate seminar, Fall 2009, 2 hrs class time weekly)

Time and place: Wed 1800-2000 (6-8pm), 4102 Plant Sciences Bldg (1st meeting: Sep. 2 2009)

Instructor: Dan Gruner [4142 Plant Sciences Bldg., 5-3957, dsgruner@umd.edu]
Office hours: 9AM-10:30AM F or by appointment

One book is recommended for the course:

Additional lists of recommended books, library reserves, websites and other resources are posted on the course site on the elms system (www.elms.umd.edu/).

Beginning with the organizational meeting, please bring notebook computers with R installed to work through problems interactively in class; if you cannot bring a computer, please alert the instructor in advance to arrange a loaner to use during the class session.

We will begin this seminar with 3 instructor-led sessions to acquaint students with basic concepts and operations, frequently used commands, and available resources (books, websites, etc). Thereafter, O will open each 2 hr session (30 min.) with code and tips or specific applications and exercises. The remaining 1.5 hours will be reserved for students to present a specific topic of their choosing or instruct the class on applications of R. Students may work in small teams but each student must take a leadership role on one topic during the semester. These can be from recommended resources (e.g. exercises in Bolker text), or to work collaboratively through a problem posing difficulty in your work. At all points we will rely on class participation for active input and discussion. Grade will be determined entirely on participation and attendance; please notify the instructor in advance if you expect an absence.

What is R?

R is an integrated suite of software facilities for data manipulation, calculation and graphical display (http://www.r-project.org/). This open source software is free, unlike most other off-the-shelf statistical or modeling packages such as SAS, SPSS, Systat and Matlab, and it runs on a variety of platforms including Windows, Linux and MacOS. Among other utilities it has:

- an effective data handling and storage facility,
- a suite of operators for calculations on arrays, in particular matrices,
- a large, coherent, integrated collection of intermediate tools for data analysis,
- graphical facilities for data analysis and display, and
- a well developed, simple and effective programming language (called 'S') which includes conditionals, loops, user defined recursive functions and input and output facilities. (Indeed most of the system supplied functions are themselves written in the S language.)

R is more than a statistical package, although most modern and classical statistical procedures are implemented in one or more of the many packages that can be loaded when needed. These tools are developed by users.

R is NOT:
A commercial, drop-down menu “GUI” program for canned statistics.

R IS:
Tremendously flexible, versatile, powerful, interactive, and increasingly popular;
Absolutely, completely, unequivocally FREE;
A challenge, and if you like this sort of thing, a lot of fun.

CourseEvalUM will be open for students to complete their evaluations for this course between Tuesday, December 1, and Sunday, December 13. Students can go directly to the website [www.courseevalum.umd.edu](http://www.courseevalum.umd.edu) to complete evaluations beginning on December 1.