

**Biostatistics-II, Multivariate Statistics**  
**BIOS-870 (#01270)**  
**Spring Quarter 2007**

NOTE: This course is co-taught by Donald B. Miles and Brian C. McCarthy

This syllabus is relevant ONLY to BCMs portion of the course (weeks 1-5).

**Instructor:** Brian C. McCarthy (weeks 1-5, only)  
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**Email:** mccarthy@ohio.edu  
**WWW:** <http://www.plantbio.ohiou.edu/epb/instruct/multivariate/multivariate.htm>  
**Office Hours:** By appointment (email or call)  
**Teaching Asst:**

**Scheduling:** *Lecture:* Tuesday & Thursday 9:10-11:00, Porter Hall 417  
*Laboratory:* Tuesday & Thursday 11:10-12:00, Porter Hall 407

**Required Text:** McCune, B. and J.B. Grace. 2002. Analysis of ecological communities. MjM Software Design, Gleneden Beach, OR.

**Reccomended Text:** Legendre, P. and L. Legendre. 1998. Numerical Ecology, 2<sup>nd</sup> ed., English. Elsevier, New York. (Currently out of print, but available used.)

**Grading:** There will be 2-3 take-home problem sets/exams (50% of final grade).

**Academic:** *Attendance*, while not formally taken, is expected for all lectures and laboratories.

The *Code of Student Conduct* should be strictly adhered to. Academic misconduct (cheating, plagiarism, etc.) will result in a grade of F for the course with subsequent referral to the Office of University Judiciaries. The university policies regarding the student code of conduct and academic integrity are clearly and completely summarized at:

<http://www.cats.ohiou.edu/judiciaries/index.htm>.

If you are unclear as to what these policies are, please consult the website.

**Goals of Course:** The goal of this half of the course is to introduce upper-level students in the biological sciences (particularly ecology, systematics, and evolutionary biology) to multivariate statistical

techniques and technological tools necessary to evaluate the literature and be able to carry out original research in the discipline.

A large number of statistical software packages now provide easy access to a range of multivariate techniques, yet documentation is often poor and user decisions are many, and interpretation difficult. Furthermore, there is [unfortunately] no single software package that is adequate for all multivariate procedures that a practicing biologist is likely to encounter and employ during research. Thus, lectures & labs will integrate both theoretical aspects of specific multivariate techniques and concomitantly provide solutions and interpretations from various software packages. The software reviewed will be expansive (minimally: R, SAS, NCSS, MVSP, PC-ORD, SYSTAT, NT-SYS, CANOCO, BASIC). The student is not necessarily required to acquire or learn the intricacies of all of these packages, just be aware of the opportunities. I will try to provide as much software as possible in the P BIO computer lab, but due to budgetary limitations, I will likely only be able to provide one workstation for each software application.