

**BIOL 650 - Environmental Analysis and Modeling
Spring 2001**

Week	Lecture Topic	Reading	Lab Topic	Package
1/15	No lecture		Spreadsheets*	Quattro Pro
1/22	Nature of Ecological Analysis Indices, Sim/Dissim Measures	P:1-12 P:40-62	Indices	MVSP
1/29	Classification: Cluster Analysis	P:13-40 P:63-78	Cluster Analysis	MVSP
2/5	Review Papers using Indices, Cluster Analysis	TBA	Cluster Analysis	MVSP
2/12	Ordination: PCA	P:83-199	PCA	MVSP
2/19	Ordination: PCA	P:83-199	PCA	MVSP
2/26	Review papers using ordination Hand out midterm	TBA	Lab open for MIDTERM	
3/5	SPRING BREAK - No Class		Lab open for MIDTERM	
3/12	Midterm Due Modeling Process	H:Ch.1-3	Simple Models*	Stella
3/19	Model Formulation Simulation Methods, Numerical Techniques	H:Ch.4,6	Brewing beer	Stella
3/26	Parameter Estimation Model Validation, Models of growth	H:Ch.7,8, 13,14	Algal growth	Stella
4/2	Models of Environmental Factors		DO sag curve	Stella
4/9	Compartment Models Material cycling and energy flows		Age-struct. Pop'n*	Stella
4/16	Stochastic and other Models	H: Ch.10	Pesticide fate	Stella
4/23	Review of papers using simulation Final given out.		Lab open to work on final	

4/30 No class. Work on Final.
FINAL due: Monday, May 7 at 5 pm. No Exceptions.

*labs will have to be rescheduled due to room conflict.

BOOKS: Pielou, E.C. *The Interpretation of Ecological Data. A primer of ordination and classification.* 1984. Wiley-Interscience.
Haefner, J.W. *Modeling Biological Systems. Principles and applications.* 1996. Chapman and Hall.

Grading:	Weekly exercises/Homework	30%
	Midterm	35%
	Final	35%

Tests will be take-home open book, but no help from other people either inside or outside of class. Exams will test understanding of the methodologies presented, ability to apply them to data sets, and ability to interpret results and apply them to ecological questions.

Roll will be taken in lab. Only those attending lab can turn in the exercise for that lab unless prior permission of the instructor is obtained. There will be time available during lab to work on the exercises, but this time may not be sufficient to complete the lab. Lab exercises will be due at the start of the following week's lab. Students should make a copy of the exercise and their answers before submission. Instructors will post answers for previous week's lab for students to check their work. Graded papers will be returned one week later.

Instructor:	Dr. R. C. Jones 3015 King Hall (703) 993-1127 EMAIL: rcjones@gmu.edu WEBSITE: osf1.gmu.edu/~rcjones/index.htm	Office Hrs: T 12-4 or By appt. Fax: (703) 993-1046
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Lab Instructor	Anita Marx 17 Krug Hall (703) 993-1029 EMAIL: amarx@gmu.edu	Office Hrs: M 1-3 or By appt.
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