FISH 631: Data Analysis in Community Ecology
Course Syllabus

1. Course information:
Title: Data Analysis in Community Ecology
Number: Fisheries (FISH) 631
Credits: 3
Prerequisites: STAT 200, STAT 401, MSL 494, or equivalent, FISH 693 (Stat. Comp. with R) or familiarity with R, general ecology, graduate standing in fisheries or permission of instructor.
Locations: Juneau: TBD; Fairbanks: TBD
Meeting times: TBD

2. Instructor:
Franz Mueter, office: Lena Point 315, Office Hours: Tue & Thu 1-5pm or by appointment

Hand -outs or pdf files

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(*Principal Components Analysis, Multi-dimensional Scaling, Correspondence Analysis, Detrended Correspondence Analysis, Canonical Correspondence Analysis*), and cluster analysis. The emphasis throughout the course is on relating the presence, abundance, or other attributes of one (univariate) or many species (multivariate) to underlying environmental gradients, or to compare attributes among levels of a factor. Methods for drawing valid statistical inferences are illustrated with case studies and through hands-on labs, including the use of generalized linear models for modeling univariate data (logistic regression, Gaussian regression, Poisson regression), and distance-based randomization approaches for analyzing multivariate data.

5. Course goals:
General:

- Provide students with a general understanding of the quantitative methods that have been developed specifically to address problems in community ecology and to detect and test for spatial patterns, temporal trends, and multi-species interactions in environmental and ecological data sets.
- Provide students with the tools and the skills required to implement these methods.
- Prepare students for a career requiring the exploration and analysis of ecological datasets.

Student learning outcomes:

- Familiarity with multivariate statistical methods and software packages to implement them
- Ability to independently conduct exploratory analyses of multivariate environmental and biological datasets and to test specific hypotheses about patterns, trends, and relationships.
- Ability to communicate results from multivariate analyses to the public and to decision makers.

6. Instructional methods:
Lecture format with question and answer periods and occasional group discussions; short hands-on sessions will introduce methods discussed in class; weekly homework assignments will re-

26	3.d.vi. Identifying species and station groups in species abundance data 1. Overview
27	2. Cluster analysis
28	Review & questions
29	Final Examination

8. Course policies:

a. Attendance is mandatory unless excused beforehand
b. Tardiness is unacceptable and will impact evaluations
c. Class participation is encouraged and will be part of your grade. You are encouraged to ask questions and comment as you feel appropriate in class.
d. Small-group discussions and collaboration on homework assignments and projects are encouraged
e. I will try to schedule exams to avoid conflicts. However, there are some unavoidable circumstances that may take precedence (such as field work). If you inform me in a timely manner, I will arrange for a makeup exam.
f. Plagiarism is unacceptable and will result in a failing grade for the assignment

9. Evaluation: See Table below.

Item	**Date**	**Percent of Grade**
1. Homework assignments	Throughout semester	40
2. Mid-term examination	See course outline	10
3. Individual project	Last day of classes	20
4. Final examination	See course outline	20