



## UNIVERSITY OF MIAMI DEPARTMENT OF BIOLOGY

### **Biostatistics**

<b>Course Title</b>	SPSS Lab
<b>Number</b>	BIL 312
<b>Credits</b>	1

### **Instructor Information**

<b>Name/Title</b>	Dr. Patricia Buendia
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### **Laboratory Objectives**

The goal of this course is to acquaint you with data analysis, the science of examining, summarizing, and drawing conclusions from data. Good data analysis involves a mixture of common sense, technical expertise, and curiosity. The best way to learn data analysis is to actually do it. In this course you will analyze a variety of data sets. Statistical software is essential for analyzing data. You will learn to use the statistical techniques offered by the SPSS 15 software tool to solve the problems intelligently. SPSS has many options designed to tailor a given test to your particular needs.

Statistical analysis utilizing Microsoft Excel (for comparison purposes) and SPSS will be used and taught in this lab and will have to be used for the lab assignments.

### **Prerequisites:**

MTH 105 or 108 or scores of Mathematics Placement Test sufficient for admission to a calculus course, plus 12 credits in biology. Not open to students with credit in MTH 224 or PSY 204 or equivalent.

### **Textbook**

*No textbook is required.*

*I will post links to files with step-by-step instructions on the course's web site.*

Free Online Resources:

**SPSS Tutorial:** <http://www.stat.tamu.edu/spss.php>  
**Online Training Workshop** (previous SPSS version):  
<http://calcnnet.mth.cmich.edu/org/spss/toc.htm>

Optional Textbooks:

- *SPSS 15.0 Guide to Data Analysis*
- *Discovering Statistics using SPSS*

## **Lab Outline**

1. An introductory tour of SPSS
2. Counting Responses for 1 Variable: Tables and Charts
3. Counting Responses for 1 Variable: Histograms, Mode, Median, Percentiles
4. Descriptive Statistics: Mean, Variance, Standard Deviation
5. Comparing Groups
6. Looking at distributions (histograms stem-and leaf plots and box plots)
7. Counting Responses for Combination of Variables
8. Plotting Data
9. Evaluating Results from Samples
10. The normal Distribution
11. Testing a Hypothesis about a single mean
12. Testing a Hypothesis about two related means
13. Testing a Hypothesis about two independent means
14. Non-parametric tests
15. Comparing Observed and Expected Counts: Chi-Square Test
16. Linear Regression and Correlation
17. One-Way Analysis of Variance
18. Factorial Analysis of Variance

*The topics per date might be revised during the semester.*

## **Attendance**

This is a participatory course and you must be in the lab to succeed.

## **Lab Etiquette**

Out of respect for your fellow students, and me, I request that you turn up to class on time, stay in class for the full period, avoid unnecessary noise or chatter and turn off your cell phone.

## **Assignment Guidelines**

All lab assignments are to be completed during the lab and submitted after the lab or on the next lab meeting. If the assignment is not handed in on the due date, a grade of 0 will be

assigned. If an assignment is late due to an unforeseen circumstance please notify the instructor.

All assignments will be evaluated using the following criteria:

- Correct result
- Detailed description of Results

In this lab, the assignments are designed to have you practice doing statistical calculations and to use SPSS to analyze data. For this reason it is your responsibility to ensure that no other student in this class has access to either hard-copy or machine-readable versions of your assignment. Academic dishonesty will not be tolerated under any circumstances.

### **Collaboration and Policy on Academic Dishonesty**

You are required to uphold the student Honor Code, which can be found at: [http://www6.miami.edu/UMH/CDA/UMH\\_Main/0,1770,2618-1;12148-3,00.html](http://www6.miami.edu/UMH/CDA/UMH_Main/0,1770,2618-1;12148-3,00.html).

### **Grading Policy**

<b><i>Grading Criteria</i></b>	<b><i>number</i></b>	<b><i>percent of total</i></b>
<i>Attendance</i>		10%
<i>Lab Assignments</i>	~13	90%

<b><i>Final Grading Scale</i></b>	<b><i>A (A-, A, A+)</i></b>	<b><i>B (B-, B, B+)</i></b>	<b><i>C (C-, C, C+)</i></b>	<b><i>D (D-, D, D+)</i></b>
<b><i>Percentage Score</i></b>	90-100	80-89	70-79	60-69