

Syllabus for BIOL 291.2

Introduction to Biostatistics

Instructor: Dr. Frank T. Kuserk
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Office Hours: MWF 10:00-11:00 AM and by appointment

Classrooms: 206 Collier Hall of Science; TR 11:45 AM-12:55 PM
Course runs from 1/18/2016 to 3/4/16

Course Description: Biostatistics is the application of statistical analysis to topics in the biological, medical, agricultural and environmental sciences. The course will focus on the design of experiments, the collection and analysis of data from those experiments, and the interpretation of the results. Specific topics include tools for describing central tendency and variability in data; methods for performing inference on population means and proportions via sample data; statistical hypothesis testing and its application to group comparisons; issues of power and sample size in study designs; and random sample and other study types.

Course Objectives: Upon completion of this course students will be able to:

- 1) apply the principles of study design and data collection to research problems in the life and environmental sciences
- 2) understand the basic mathematical and statistical procedures used to analyze data
- 3) apply these techniques utilizing a standard analytical package
- 4) understand the concepts of random variation and bias
- 5) produce and interpret graphical summaries of data
- 6) recognize pitfalls in interpreting data

Texts: No specific texts are required for this course. All instructional materials will be distributed by the instructor or available on Blackboard.

Class Attendance: It has been my experience that students who do poorly in my courses generally have numerous absences. I strongly suggest that you attend and participate in all sessions unless you have a valid reason not to. Because this class requires your participation attendance in class is required. You get two (2) free absences without

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penalty. Absences beyond this number, whether excused or unexcused will result in the lowering of your final grade by 5% for each absence. You are still required to complete any assignment associated with a class in order to receive the points associated with that assignment.

Grading: The grading system is as follows:

A = 93.0 - 100.0	C = 73.0 - 76.9
A- = 90.0 - 92.9	C- = 70.0 - 72.9
B+ = 87.0 - 89.9	D+ = 67.0 - 69.9
B = 83.0 - 86.9	D = 63.0 - 66.9
B- = 80.0 - 82.9	D- = 60.0 - 62.9
C+ = 77.0 - 79.9	F = 59.9 and below

Assignments:	Homework	25%
	Quizzes	50%
	Final Exam	<u>25%</u>
		100%

Policy on Academic Honesty: Moravian College expects its students to perform their academic work honestly and fairly. A Moravian student, moreover, should neither hinder nor unfairly assist the efforts of other students to complete their work successfully. This policy of academic integrity is the foundation on which learning at Moravian is built. The College's expectations and the consequences of failure to meet these expectations are outlined below. If at any point in your academic work at Moravian you are uncertain about your responsibility as a scholar or about the propriety of a particular action, consult your instructor.

Disability Accommodations: Students who wish to request accommodations in this class for a disability should contact the Academic Support Center, located in the lower level of Monocacy Hall, or by calling 610-861-1401. Accommodations cannot be provided until authorization is received from the Academic Support Center.

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Class Schedule* Spring 2016

Day & Date			Topic
T	Jan.	19	Significant Figures Excel: Functions & Graphs
R	Jan.	21	Units and Conversions; Manipulating Numbers
T	Jan.	26	Excel: Functions & Macros
R	Jan.	28	Molarities and Dilutions
T	Feb.	02	Areas and Volumes
R	Feb.	04	Exponents and Logs
T	Feb.	09	Introduction to Statistics; Descriptive Statistics
R	Feb.	11	Probability
T	Feb.	16	Inferential Statistics: Hypothesis Testing; Student's t-test
R	Feb.	18	Inferential Statistics: Analysis of Variance and Chi-Square
T	Feb.	23	Regression and Correlation
R	Feb.	25	Non-Parametric Statistics
T	Mar.	01	Experimental Design
R	Mar.	25	Miscellaneous Analyses

*These topics and dates are tentative and subject to change.