Course Data

Number: CB7600
Title: Applied Cancer Biostatistics
Credit-hours: 2
Meeting Day: Thursday
Meeting Time: 1:30 PM – 3:30 PM
Meeting Place: 3rd Floor Conference Room at Mid Med Lofts
Department: Cancer Biology Program, Department of Oncology
School/College: School of Medicine, Wayne State University
Type: Lecture

Course Description

The objective of this course is to provide students with the ability to understand and utilize basic biostatistical concepts and tools through IBM SPSS, as might be required when conducting or reviewing research in the field of biological science. Students learn and apply IBM SPSS to capture and manipulate, biological data, including recoding and transforming, and to generate descriptive statistics.

Course Objectives

The course focuses on the data management, data processing, and statistical computing methods and tools utilized in the field of biological science. Students are able to acquire the skills necessary for preparing and analyzing biological research data through the use of software packages such as IBM SPSS. Emphasis is on storing and manipulating research data and on elementary- and intermediate-level data analyses and presentations. Upon completion of this course, the successful student is able to:

- Process data into a spreadsheet or statistical package from various sources.
- Merge data sets and communicate data with minimal errors.
- Analyze data sets for errors.
- Create elementary databases, including databases with related tables.
- Build useful basic graphs and tables that are acceptable for submission as part of a journal article.
- Conduct elementary- to intermediate- level statistical analyses using a statistical software package.
- Interpret statistical reports.
- Apply new data management and statistical techniques independently using a statistical software package.

Prerequisites

No prerequisites.

Course Instructor

Name	Office	Phone	Email
Seongho Kim, Ph.D.	Biostatistics Core 3rd floor, Mid Med Lofts	313-576-8653	kimse@karmanos.org

The course instructors welcome conversations with students outside of class. Students may correspond with instructors by email or set up appointments.

Course Topics and Schedule

IMPORTANT NOTE: The schedule and topics may change as the course unfolds. Changes are posted on Blackboard.

Class	Date	Topic	Note
1	9/1	Introduction	
2	9/8	**No class**	**Pharmacology/Cancer Biology Department Event**
3	9/15	Data Management, SPSS, Managing Data	Chpt 3,4
4	9/22	Graphing and Presentation of Data	Chpt 5
5	9/29	Frequencies, Estimation, and Descriptive Statistics Cross tabulation and Chi-Square Analysis	Chpt 6, 7 Chpt 8
6	10/6	Means Procedure and Bivariate Correlation	Chpt 9, 10
7	10/13	One-Way Inference (T-Test)	Chpt 11, 12 **Midterm (take home)**
8	10/20 **(3-5pm)**	One-Way ANOVA	Chpt 12 **Due Midterm Due Data Description**
9	10/27 **(3-5pm)**	Two-Way ANOVA Linear Mixed-effects Models	Chpt 13
10	11/3	Simple Linear Regression Multiple Regression	Chpt 15 Chpt 16
11	11/11 **(1:30-3:30pm)**	**Reproducibility** **Meeting place: HWCRC Auditorium (2nd floor)**	**Xiaohong (Mary) Zhang, Ph.D.** 313-576-8672 zhangx@karmanos.org
12	11/17	Logistic Regression Survival Analysis	Chpt 25
13	11/24	**No class**	**Thanksgiving**
14	12/1	**Small Project Presentation**	
15	12/8	**In-class Final (open book(s) and note(s))**	**Final Exam**

Course Materials

Required Textbooks:

George and Mallery. *IBM SPSS Statistics 23 Step by Step: A Simple Guide and Reference (14*th
Edition or more). Routledge (2016). (13th Edition would be acceptable.)

Other Required Reading:

IBM SPSS Statistics Tutorial (available in IBM SPSS Statistics Software)

Required Software:

IBM SPSS Statistics. Software version 23.0 or later

Suggested Textbook:

Daniel, BIOSTATISTICS: *A Foundation for Analysis in the Health Sciences*, 8th, 9th, or 10th
Edition. New York: John Wiley & Sons.

Morgan, Leech, Gloeckner, and Barrett, *IBM SPSS for Introductory Statistics: Use and
Interpretation (5*th *Edition*). Routledge (Taylor & Francis Group). ISBN-9781848729827

Course Policies

1. Students are allowed to have group discussion on homework matters, but they must work through and write up the assignments entirely on their own without looking at the assignments of their peers. If asked, they should be able to explain fully and reproduce the answers.

2. Students are expected to complete all assignments by the due dates communicated in class. Grade penalties will be imposed on homework accepted late. Late acceptance is at the discretion of the instructor.

3. Students should check their email and the course web-page regularly for homework assignments and other course related communication.

4. Participants should read from the lecture notes given in the previous lecture and from the suggested/required textbooks prior to each.

5. Learners are expected to participate by attending every class possible and by taking responsibility for course material when attendance is impossible. Participation also means actively engaged in class discussions, assignments, and activities.

6. Participants are expected to act with integrity.

Attendance

Attendance at lecture is required, although exceptions will be made for reasons such as illness or family emergency. Excessive absences will result in a reduced classroom participation score at the instructor's discretion, and **will negatively impact the overall course grade**.

Student Evaluation

The components of student evaluation are weighted as follows:

1. Class Participation (25%): Regular assignments/quizzes will be given.
2. Project and presentation (20%)
3. Mid-term (25%)
4. Final (30%)

Grading is on an A-F basis.

Final Grade	Final Percent
A	90 - 100%
B	80 - 89%
C	75 - 79%
F	< 75%

Other Policies

Late Instructor Instructions

Students must wait 20 minutes if the instructor is late.

Syllabus Revision

The course director reserves the right to modify any portion of this syllabus. A best effort is made to provide an opportunity for students to comment on a proposed change before the change takes place.

Inclement Weather

This course adheres to the University's policy and decisions regarding cancellation or delayed class schedules. Adjustments are made to the class schedule as necessary to take into account any delays or cancellations of this class. Local television and radio stations broadcast University delays or closings.