

Office of Public Health Studies, University of Hawaii at Manoa
Department of Public Health Sciences
PH 656 Biostatistics II
Spring 2018 Syllabus

Time : Tuesday 12:00 – 2:30
Three (3) credit core course
Location : **Biomed D207**

Instructor

Name: Thomas Lee, Ph.D.
Email: Tlee3@hawaii.com
Course site: <https://laulima.hawaii.edu>
Office: Biomed D104H
Office hours: By Appointment Only

Course Description

ANOVA, two-way ANOVA, simple and multiple linear regression, model diagnostics, logistic regression, likelihood ratio testing. Pre: PH 655, completion of one semester of calculus or consent.

Course Learning Objectives

- 1) Understand model assumptions and design matrices in multiple regression models
- 2) Interpret regression coefficient obtained from linear regression.
- 3) Dummy coding for dichotomous and polytomous variables.
- 4) Interpret main and interaction effects of two or more explanatory variables
- 5) Compute tests based on one-way and two-way ANOVA.
- 6) Build models using backward, forward, stepwise strategies
- 7) Check outliers and model assumptions using model diagnostic techniques.
- 8) Analyze two-way, three-way table with logistic regression models.
- 9) Identify proper regression models for various types of response variables.

Recommended Textbooks (No Required Textbook):

1. *Using Multivariate Statistics*, by Barbara Tabachnick, Linda Fidell (PDF version available)
2. *Regression Analysis by Example*, by Samprit Chatterjee, Ali S. Hadi

SAS datasets will be provided through Laulima

Course Policies:

- All students are expected to attend the class and do the assigned homework/project. Statistical software need to be used for homework and projects.
- Plagiarism is unacceptable for all exams and will result in a failing grade for the course, depending on the extent of the violation. Please be familiar with the University of Hawaii Student Conduct Code, available at the Office of Student Affairs at the Student Services Center.
- The course schedule may need to be revised and some topics may be rescheduled depending on the progress of the class.
- Students are encouraged to come during office hours to ask questions.

Grading Scheme	Percentage
Project 1	25%
Project 2	25%
Final Project/Presentation	25%
Assignments and Attendance	25%

A+ = 98-100% A = 95-97% A- = 90-94%	Excellent, distinctive work. Demonstrate sophisticated understanding of the course material and know how to use it in different situations.
B+ = 87-89% B = 84-86% B- = 80-83%	Above average work. Understand most of the statistics concepts and reasoning and can solve most of the problems.
C+ = 77-79% C = 70-76% C- = 66-69%	Average work, sufficient, but not distinctive. Understand basic statistics concepts and reasoning and can use statistical tools to solve basic problems.
D+ = 63-65% D = 60-62% D- = 55-59%	Poor, insufficient work for understanding statistics concepts and reasoning.
F < 55%	Unacceptable work for understanding statistics concepts and reasoning.

PH 656 Course Schedule (Subject to change)

week #	Date	Topic
1	9-Jan	Introduction/Review of EDA/Hypothesis Testing
2	16-Jan	Review: Comparing Means/Comparing Proportions
3	23-Jan	Simple Linear Regression
4	30-Jan	Simple Linear Regression/Multiple Linear Regression
5	6-Feb	Multiple Linear Regression
6	13-Feb	Dummy Variable Coding
7	20-Feb	One-Way ANOVA/Two-Way ANOVA
8	27-Feb	Two-Way ANOVA/ANCOVA Principle of Marginality, Type I,II,III SS Assignment 1 Due
9	6-Mar	Model/Variable Selection Collinearity
10	13-Mar	Model Diagnostics Unusual and Influential Data
11	20-Mar	Simple Logistic Regression
12	27-Mar	Spring Recess
13	3-Apr	Multiple Logistic Regression Assignment 2 Due
14	10-Apr	Multiple Logistic Regression
15	17-Apr	Introduction to Survival Analysis
16	24-Apr	Review
17	1-May	Presentation Final Projects

University Policy and Accommodations

1. Non-Discrimination

The University is committed to a policy of nondiscrimination on the basis of race, sex, age, religion, color, national origin, ancestry, handicap, marital status, arrest and court record, sexual orientation, and veteran status.

2. Accommodations

Any student who may need an accommodation based on the impact of a disability is invited to contact me privately within first weeks of the course. I would be happy to work with you, and the KOKUA Program (Office for Students with Disabilities) to ensure reasonable accommodations in my course. KOKUA can be reached at (808) 956-7511 or (808) 956-7612 (voice/text) in room 013 of the Queen Lili'uokalani Center for Student Services

MPH Competencies:

CPH6. Apply basic statistical methods for inference (BIOSTATS).

CPH7. Apply descriptive techniques commonly used to summarize public health data (BIOSTATS).

CPH8. Interpret results of statistical analyses found in public health studies (BIOSTATS).

EB2/EPI2. Demonstrate proficiency in computer-based data collection, management and analysis using major statistical software and fundamental strategies for biostatistical analysis.