MHA: Introduction to Statistics

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Classroom	518
Class	January 17 (6:00pm – 10:00pm), January 18th (8:30am – 5:00pm)
	January 24 (6:00pm – 10:00pm), January 25 (8:30am – 5:00pm)

Course Objectives

In healthcare analytics, working knowledge of basic statistical modeling tools is absolutely essential to be a successful professional. The goal of this tutorial is to

- Introduce or reintroduce participants to data analysis and basic statistical techniques in a powerful, but playful manner and help fostering the development of a life-long learning in this area.
- Understand the fundamental concepts of statistics and how these concepts could be applied into the domain of interest. The material covered in this tutorial may be useful in other MHA courses as well where additional statistical based applications may be developed.
- Contribute to learning by experiencing first-hand the power of statistics and Microsoft Excel to reveal unexpected patterns and stimulate new perspective and insights. Various in-class assignments and activities will be used to support the course content, critical thinking, and learning.
- Emphasis will be placed, using in-class discussions and group activities, on how, what, and why certain statistical techniques are useful. This will necessitate some manipulations of formulas and data.

Learning Outcomes

At the end of the course, participants are expected to

- Have a clear understanding of how the content of this course is applicable to future professional practice.
- Have knowledge and confidence to explore, interpret, and answer critical business questions using the statistical approach.
- Learn to think creatively about linking data, statistics, and Microsoft Excel with the subject-matter expertise.
- Learn to work effectively as a member of a team, including demonstrating collaboration, problem-solving, and critical thinking skills.

Learning Methods

- Instructor presentation of material teaching fundamentals of statistical concepts. The material presented will be sparse and undetailed in nature, therefore note taking is essential.
- In-class interactive and fun activities and discussions of statistical concepts and applications.
- Problems to practice the lecture material.
- In-class quizzes to test participants' knowledge on the key statistical concepts and quantitative methods covered in the course.

Prerequisite

- Access to Microsoft Excel 2010 ® and Microsoft Windows Operating Systems
- MHA: Introduction to Microsoft Excel course or Intermediate level of experience with Excel 2010

Assignments

Participants will form teams (3-4 members per team) of their own to do the assignments. Participants, with complementary skills, will bring dynamic perspective to solve problems in teams.

Participation

As a group, we will create a collaborative environment and share each other's views, insights, and analysis on topics covered in the course such as assigned problems or cases. It is important you actively participate in the class. The quality, not quantity, of the discussion depends heavily on you and your preparation of the assigned problems.

Quizzes

There will be multiple in-class quizzes conducted during the class sessions. These quizzes will consist of multiple choice questions and are intended to be taken "closed book."

In-Class Computer/Phone Usage

In-class computer usage should be related to the material being covered in class. The use of computer or cell phone for general internet browsing/text-messaging/Facebooking/Twittering/ social networking websites during class is very distracting to both the instructor and nearby participants. Please be respectful of your classmates and instructors. If you must use any of the above means

during the class session, please feel free to momentarily step out of the room or wait until the next break to do so.

Course Outline/Class Schedule

The in-class sessions will generally follow the structure below.

Date	Topic
Jan 17 (6:00 pm to 10:00 pm)	Introduction Course Objectives Big Picture - Importance of Understanding Statistics Introduction to Descriptive and Inferential Statistics Types of Data Data Presentation Techniques - Graphical Methods Summary
Jan 12 (8:00 am to 5:00 pm)	Data Presentation Techniques - Graphical Methods (Cont'd) Numerical Descriptive Techniques Measures of Central Location and Measures of Variability Introduction to Random Variables Discrete Probability Distributions Continuous Probability Distributions Estimation Methods Summary
Jan 24 (6:00 pm to 10:00 pm)	Sampling Distributions Data Collection Methods Introduction to Hypothesis Testing Interpreting the Results
Jan 25 (8:00 am to 5:00 pm)	Introduction to inference about a Population Inference about a population mean Inference about a population variance Inference about comparing two populations Inference about difference between two means Inference about the ratio of two population variances Case Discussion Summary and Conclusion

This course schedule may be altered at any point during the class.

Reference Material

There is no required textbook for this course. I recommend the following book for your reference: BSTAT (1st edition) by Gerald Keller. South-Western College Pub.

COURSE POLICIES

The College of Health Professions and Pacific University policies concerning academic integrity and dishonesty, as well as student conduct are described in the Pacific University Student Handbook. The Handbook incorporates College and University policies to ensure the proper handling of all academic, professional, and experiential issues faced by students. You are required to adhere to all College and University standards regarding academic integrity.

Academic Dishonesty will not be tolerated and will result in a grade of 'F' and possible expulsion from the MHA program.

Please refer the Handbook regarding academic dishonesty and integrity. In addition, applicable University policies may also be found at:

Code of Academic Conduct	http://www.pacificu.edu/studentlife/handbook/index.cfm#conduct_code
Statement of Student's Rights and Responsibilities	http://www.pacificu.edu/studentlife/handbook/index.cfm#students_rights

The course instructors retain the right to implement any policies designed to help prevent academic misconduct in this course.

Students are responsible for maintaining current virus scan software on their personal computers. Files should be scanned before uploading onto the course site or sent as e-mail attachments. Files containing a virus will be deleted to protect the system integrity. No credit will be given for assignments that cannot be evaluated due to the presence of a virus.

American Disability Act and Learning Support Services (LSS) for Students with Disabilities

Pacific University is committed to providing an educational environment that is accessible to all students. Services and accommodations are available to students covered under the Americans with Disabilities Act. If you require accommodations in this course, you must immediately contact Edna K. Gehring, Director of Learning Support Services for Students with Disabilities at ext. 2107 or email her at gehringe@pacificu.edu. She will meet with you, review the documentation of your disability and discuss the services Pacific University offers and any accommodations you require for specific courses. If you require any

accommodation and have received your LSS documentation, please contact Laura Dimmler (ldimmler@pacificu.edu) by e-mail prior to noon on the first day of the block.

Attendance and Late Assignments Policy

Students are expected to complete course work by the announced deadline and attend all in-class sessions. Important learning opportunities are lost when students miss deadlines or in-class sessions. It is especially important to complete work assigned in advance of in-class sessions so that everyone comes to class prepared for group work and discussions. Students who report to an in-class session unprepared or late will not be given any extra time.

Grades for course assignments submitted after the announced deadline or will be reduced by 50 percent. Students who miss in-class sessions are responsible for completing all in-class course assignments with a 50 percent grade reduction.

If a deadline is missed either for online assignments or in-class work, the grade penalties will not be applied if the student is considered "excused" due to any of the following situations (valid documentation may be required):

- Hospitalization of the student or an immediate family member due to illness or accident.
- Death in the student's immediate family (i.e.; spouse, parents, grandparents, guardians, siblings, children, etc.).
- Summons of the student to appear for jury duty or before a court.
- Any other valid excuse that has been approved by the course instructor or program director in advance.

When excused from a deadline, the student shall complete late assignments according to a schedule that has been mutually agreed to by the student and the instructor.