STA 6327, Section U01, (Class Ref # 14346)
(Advance) Mathematical Statistics II Course Outlines
(Semester: Spring 2018; Time: 2:00 - 3:15 PM; Days: Tu & Th; Room: Academic Health Science 3 214; Credit Hours: 3)

Prerequisite:
STA 6326 (Or equivalence)

Instructor: **Dr. H. Zahedi (Office:** DM 403C, **Phone:** (305)348-2927, **Fax:** (305)348-6895, **Email:** zahedih@fiu.edu,
WebPage: http://faculty.fiu.edu/~zahedih , **Blackboard login:** http://online.fiu.edu/login_uts.html

Formal Office hours:
Tuesday and Thursdays : 3:30 - 4:50 PM (no appointments are necessary)
Other Times: by appointments.
Feel free to consult with me as often as you need and whenever problems arise.

Text Book:
"An Introduction to Probability and Statistics" by V.K. Rohatgi and A.K. Md. Ehsanes Saleh, Third Edition, 2015, John Wiley & Sons
(You may be able to use the earlier edition provided you do the correct assigned homework problems.)

Coverage:
Topics from chapters 1- 6, plus some supplementary class notes. **See page 2 for the SYLLABUS**.

References:
a. "Modern Probability Theory and Its Applications" by E. Parzen.
b. "An Intro. to Prob. Theory and Its Applications"; by W. Feller; Vol. I.
c. "Statistical Inference" second edition, by George Casella and Roger L. Berger
d. " Graduate Course in Probability", by H.G. Tucker.

Assignments:
Weekly Assignments (8 -15 Problems each, TBA)

Exams:
Possible Review Quizzes: (TBA)
Midterm Exam: (Thursday, February 22)
Final Exam: TBA*
**(Students should not register for courses that have an examination conflict.)*

Grading:
30% Class Assignments & Possible Review quizzes; **35%** Midterm Exam, **35%** Final Exam

Approximate Grade Scaling:

[90 - 100] A	[85 - 89] A-	[80- 84] B+	[75 - 79] B	[70 - 74] B-	[60 - 69] C
[50 - 59] D	[less than 50] F				

Policies & Remarks:
1. This is a **Web Assisted Course**. The students enrolled in this course are expected to have an FIU email account and to be familiar with basics of internet use. The purpose of web-based materials in this course is to enhance and compliment the classroom and book materials and to facilitate the learning of the concepts. **They are not intended to substitute classroom lectures and you are expected to attend classes regularly.**
2. The course outline is only intended to provide a general guideline for the course. However, minor deviation and changes may be necessary. Withing the university guideline, the instructor assume the sole authority in all matters related to the course content, grading and classroom procedures.
3. Exams are based on all the materials covered and assigned in the classroom, in the homework assignments, and in the web-based projects. So students are strongly advised to attend all the lectures and to be on time.
4. Anyone who misses any exam/ or quiz will receive an F for that exam/ or quiz. Anyone who misses the final exam will receive an F for the course.
5. Failure to hand in any possible homework assignment on time may result in the reduction of points from the overall grade. Failure to complete any web-based project on time may result an F grade for that project.
6. A make up exam will be given only if the student misses an exam due to those emergency cases which meet all the university's requirements, such as student illness, or loss of an immediate family member.
7. No active beepers or cellular phones are allowed in the classroom. If you carry them with you, make sure they are switched off.
8. Academic Misconduct: Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.
9. The Following Statement is Required by the University: Plagiarism and cheating are serious offensive punishable by expulsion from the university.

Some Important Dates:

January 8 Monday:	**Classes Begin**
January 15 Monday:	Martin Luther King Holiday (University Closed)**.**
January 16 Tuesday:	Last day to add courses; last day to drop courses or withdraw from the University without incurring a financial liability or tuition or fees (Last day to change grading basis)
February 2 Friday:	**Last day to apply for graduation at the end of Spring 2018 term. Last day to withdraw from the University with a 25% refund of tuition.**
March 12-18 :	Spring Break. (University Open, No classes)
March 19 Monday:	**Last day to drop a course with a DR grade. Last day to withdraw from the University with a WI grade.**
April 23 - April 28:	**Final week of the semester - modified class schedule: Final Exams and other course assessment activities are scheduled during this week.**
May 3 Thursday:	Complete grade report available to students by web.

For further information and other important dates please visit the Florida International University's Home Page at http://www.fiu.edu .

Note: **The course outline is subject to possible changes.** ***In case of any possible changes you will be notified in advance.***

STA 6327
Mathematical Statistics II
Course Syllabus
(Rev 2018)

Prerequisites:
STA 6326 (or equivalence)

Terms Offered:
Spring

Text Book:
"An Introduction to Probability and Statistics" by V.K. Rohatgi and A.K. Md. Ehsanes Saleh, Second Edition, 2001, John Wiley & Sons

Coverage: (Most of the topics from the following chapters)

Chapter 6.
Sample Statistics and Their Distributions

Introduction, Random Sampling, Sample characteristics and Their distributions, Chi-Square, t-, and F-Distributions (Exact Sampling Distributions), Large-

Distribution of ($\overline{X}, \ S^2$) in Sampling from a Normal Population, Sampling from a Bivariate Normal distribution

Chapter 7.
Basic Asymptotic: Large Sample Theory (Partially Review & Partially New Materials)

Introduction, Modes of Convergence, Weak Law of Large Numbers, Strong Law of Large Numbers, Limiting Moment Generating Functions, Central Limit Theorem, Large Sample Theory

Chapter 8.
Parametric Point Estimation

Introduction, Problem of Point Estimation, Sufficiency, Completeness, and Ancillarity, Unbiased estimation, Unbiased Estimation: Lower Bound for the Variance of an Estimator, Substitution Principle (Method of Moments), Maximum Likelihood Estimators, Bayes and Minimax Estimation, Principle of Equivariance,

Chapter 9.
Neyman-Pearson theory of testing of Hypotheses

Introduction, Some Fundamental Notions of Hypothesis testing, Neyman-Pearson Lemma, Families with Monotone Likelihood Ratio, Unbiased and Invariant Tests, Locally Most Powerful Tests

Chapter 10.
Introduction, Generalized Likelihood Ratio Tests, Chi-Square Tests, t-Tests, F-Tests, Bayes and Minimax Procedures*

Chapter 11.
Confidence Estimation

Introduction, Some Fundamental Notions of confidence Estimation, Methods of finding confidence Intervals, Shortest-Length confidence Intervals, Unbiased and Equivariant Confidence Intervals*, Resampling* (Bootstrap Methods)

Chapter 12*.
General Linear Hypothesis
Introduction, General Linear Hypothesis (and related inference), Regression Analysis (Multiple Linear Regression, Logistic* and Poisson Regression*)

* Only as much as time permits.