

**STA 6327-U01, (Course ID # 11412), Spring 2025, Main Session (16 Weeks)
Mathematical Statistics, II (Graduate Level)**

Course Syllabus and Policies Outlines

Semester: Spring 2025

Time: 5:00PM- 6:15 PM

Days: Mondays and Wednesdays

Classroom: DM 163

Credit Hours: 3

Prerequisite: STA 6326 (or equivalence)

Instructor:

Dr. H. Zahedi

Office: DM 405

Phone: (305)348-2927

Email: zahedih@fiu.edu,

Webpage: <http://faculty.fiu.edu/~zahedih>

Canvas login: <https://canvas.fiu.edu/>

Formal Office hours:

Mondays and Wednesdays: 4: 00PM – 4:50PM & 6:30PM – 7:00PM (no appointments are necessary)

Fridays: 10:30 AM - 10:55 AM (no appointments are necessary.)

Other Times/or Days: By Appointments.

Feel free to consult with me as often as you need and whenever problems arise.

Textbook:

“An Introduction to Probability and Statistics” by V.K. Rohatgi and A.K. Md. Ehsanes Saleh, Third Edition, 2015, John Wiley & Sons

Coverage:

Most Topics from chapters 6-12, plus some supplementary class notes. (See page 2 for the SYLLABUS.)

References if Needed:

a. "Statistical Inference" second edition, by George Casella and Roger L. Berger

b. "Modern Probability Theory and Its Applications" by E. Parzen. Consult the professor for additional references

Assignments:

Weekly Assignments (8 -12 Problems each, TBA)

Exams:

Possible Review Quizzes: TBA

Midterm Exam: Wednesday, February 19

Final Exam*: Monday, April 21, 2025, 5:00 PM - 7:00 PM, in DM 163

**(Students should not register for courses that have an examination conflict.)*

Grading:

25% Class Assignments, **5%** Attendance; **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 a FIU email account and to be familiar with the basics of internet use. The purpose of web-based materials in this course is to enhance and complement 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 guidelines, the instructor assumes 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. 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 in an F grade for that project.
6. A makeup 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 for Main Session:

- January 6 Monday: Classes Start***
- January 13, Monday: Last day to Add/Drop Courses or Withdraw from the University without Incurring Financial Liability for Tuition & Fees***
- January 20 Monday: Martin Luther King Day (Holiday, Closed).***
- February 24–March 1: Spring Break (University open, no classes)***
- March 17, Nonday: Last Day to Drop a Course with a DR Grade and/or Withdraw from the University with a WI Grade***
- April 19, Saturday: Last Regular Class Day***
- April 21 - April 26: Finals week - modified class schedule: (Final Exams and other course assessment activities are scheduled during this week.) ****
- *If a final exam is not required, classes are expected to be held during finals week***
- Saturday, April 26: Last day of Classes and Exams***
- Thursday, May 1: Grades Post (Available at my.fiu.edu)***

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
General Course Syllabus

Prerequisites:

STA 6326 (or equivalence)

Terms Offered:

Spring

Textbook:

“An Introduction to Probability and Statistics” by V.K. Rohatgi and A.K. Md. Ehsanes Saleh, Third Edition, 2015, John Wiley & Sons

Coverage: (Most of the topics from the following chapters)**Chapter 6.****Sample Statistics and Their Distributions (Partially Reviews and Partially New Materials)**

Introduction, Random Sampling, Sample characteristics and Their distributions, Chi-Square, t-, and F-Distributions (Exact Sampling Distributions), Large-Sample Distributions of (Sample Mean and Sample Variance) in Sampling from a Normal Population, Sampling from a Bivariate Normal distributions.

Chapter 7.**Basic Asymptotic: Large Sample Theory (Partially Reviews & 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 Ancillary Statistics, Pivotal Quantities, 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 if time permits.