Marshall University

STA 446/546 – SEC 202 – Probability and Statistics II (Hybrid) CRN 4994/4998 – Spring 2018
Class Time: MWF 1:00 – 1:50 PM

(Tentative Syllabus)

INSTRUCTOR: Dr. Raid Al-Aqtash
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OFFICE HOURS: M&W 10:00 AM – 12:50 PM, others by appointment.

UNIVERSITY POLICIES: By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to
http://www.marshall.edu/academic-affairs/policies/
Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment. The most recent revision of the 2015-2016 undergraduate catalog can be obtained at
http://www.marshall.edu/catalog/files/UG_15-16_final_published.pdf

Academic Integrity:
- The University Rules, including the Code of Conduct, and other documented policies of the department, college, and university related to academic integrity, will be enforced. **Any violation of these regulations will be dealt with on an individual basis according to the severity of the misconduct**.

- Please note that **any act** of *Plagiarism*, *Cheating*, or/and *Academic Dishonesty* will be **prosecuted to the maximum extent according to MU catalog**.

CLASS RULES:
1. **SILENT YOUR PHONES**.
2. If you need to leave the class early, inform your instructor before the class begins. Please **show your respect** to your classmates and your instructor.
3. **Good attendance is a major key to success in this (or any) class!** Students are expected to attend all scheduled classes.
4. **A person signing someone else's name is FORGERY.** This certainly includes anyone signing my name, such as on a drop slip in which the instructor's signature is required.

5. **When working on homework assignments, you are encouraged to collaborate with other students, but you need to submit your own work in your own words. Late submission is NOT accepted.**

TEXTBOOK:
Mathematical Statistics with Applications, 7th Edition, by Wackerly, Mendenhall & Scheaffer.
(ISBN : 978-0-495-11081-1**)** Publisher : BROOKS/COLE [CENGAGE].

REFERENCES:
- *Introduction to Mathematical Statistics*, 7th Ed, by Hogg, McKean & Craig. PEARSON.
- *John E. Freund's Mathematical Statistics with* Applications, 8th Ed, by Miller & Miller. CENGAGE.
- Introduction *to Probability and* Statistics, 14th Ed, by Mendenhall, Beaver & Beaver. PEARSON.
- Using *R for Introductory Statistics*, by John Verzani.
- http://cran.r-project.org/

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COURSE DESCRIPTION AND OBJECTIVES:
This course covers topics in Mathematical Statistics. Topics include moment generating functions, random vectors, joint, marginal, and conditional distributions, independence, covariance, the distribution of functions of random variables, etc. The principle objective of this course is to cover statistical inference topics like estimation and hypothesis testing as well as applied topics like chi-square tests and regression analysis. **PREREQUISITES**: Grade C or higher in MTH 445/545 or by permission.

The main objective of the course is to introduce graduate and advanced undergraduate students to many topics in Mathematical Statistics and statistical inference topics (estimation & hypothesis testing) and to prepare them for more advanced topics such as time series, regression analysis, and multivariate statistical analysis.

You are advised to visit the R home page http://www.r-project.org/ or http://en.wikipedia.org/wiki/R and download the R programming language/software from your preferred CRAN mirror. These sites contain more information about R and instructions for downloading and installation. The R software will be utilized in classroom discussions. You are encouraged to bring your laptops to class. But please do not use it for any activities other than our discussions in the classroom.

CALCULATOR:
- You may use the calculator on all work and assignments in this class.
- You may not use your phone, iPad, laptop, etc. as a calculator on any quiz or exam.
- No other technology may be used in class without permission.

STUDENT LEARNING OUTCOMES: The table below shows the following relationships: How each student learning outcomes will be practiced and assessed in the course:

Course Student Learning Outcomes Student will	How students will practice each outcome in this Course	How student achievement of each outcome will be assessed in this Course
- have better understanding of multivariate distributions, independence, conditioning, and functions of random variables, including the ability to compute expectations, moments, and correlation functions. - have understanding of central limit theorem and also other sampling distributions like t-distribution, chi-square and F-distributions. - be able to do point and interval estimations using different techniques and will also be able to carry out appropriate hypothesis testing.	Classroom discussions, intensive readings (textbook), in-class activities, Homework, Sample Exam Problems	Midterm & Final Exams

MATERIAL: We will cover most of the chapters of the text, with additional topics as time allows.
Week 1-8:   Chapter 5, 6, 7, 8   (Midterm)
Week 9-15:   Chapter 9, 10 & Final Test Review.

GRADED WORK: (400 points)
1. Exams:
There will be one midterm test and a final exam. **The final exam will be cumulative & comprehensive**. In case of extreme emergency, serious illness, or university related activity, when I have been notified with evidence or approval, or excused absences approved by the Dean of Student Affairs, the student will be allowed to make up the missed exam.

Midterm Test: *Friday, March 2nd, 2018*   (100 points)   ~ 25%
Final Exam: *Friday, May 4th, 2018, 12:45 – 2:45 PM*   (150 points)   ~ 37.5%
2. Quizzes/Activities/Homework Assignments: (150 points)   ~ 37.5%

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- There will be at least **6 assignments**, TBD. Each assignment weighs 25 points.
- Homework problems will be assigned about every two weeks on blackboard. When collected, homework is due at the beginning of class. Late homework will not be accepted.
- Some of the assignments might be online (blackboard). Further instructions on how to answer them will be given later.
- Your solution should be written neatly and it should follow logically from the learned topics. If I have to spend too much time to understand what is written, you may not get whole credit for the problem.
- **You are encouraged to collaborate with other students, however you are required to submit your own work in your own words.**

ATTENDANCE POLICY
Good attendance is a major key to success in this (or any) class!
- Students are expected to attend all scheduled classes. It is the student's responsibility to find out what was discussed in a missed class.
- **In case of an emergency, when I am notified ahead of time, or when the absence is excused by the office of the dean of affairs, a student will be allowed to makeup a missed work.**

Roughly speaking 90% is at least an A , 80% is at least a B, 70% is at least a C, 60% is at least a D. Final grades will be determined by the end of the semester.

DROP: The last day to drop class (no entry to academic record) is Friday, January 12th, 2018.

Martin Luther King, Jr. Holiday (Monday January 15th 2018) – University closed.

Withdrawals: Friday (March 16th, 2018) is the last day to withdraw "W" from the class.

Spring Break (Monday March 19th – Saturday March 24th) Classes dismissed.

Dead Week (Monday April 23 – Friday April 27).

The complete academic calendar is available at
http://www.marshall.edu/academic-calendar/academic/spring2018/

Blackboard / Electronic Communications:
MUonline <Blackboard> will be used to post pertinent class information and course documents. For technical problems with Blackboard contact IT Services Desk 304-696-3200.

Special Needs Policy:
Policy for Students with Disabilities: Marshall University is committed to equal opportunity education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disability Services (ODS) in Prichard Hall 117 (304.696.2467) to provide documentation of their disability. Following this, the ODS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experience, outside assignment, testing, and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, access the website for the Office of Disabled Student Services:
http://www.marshall.edu/disabled