

Marshall University Syllabus

Course Title/Number	Applied Probability & Statistics/MTH 345/201/4163 (3CH)
Semester/Year	Spring/2015
Days/Time	TR/11:00AM – 12:15PM
Location	SH 516
Instructor	Alfred Akinsete
Office	SH 524
Phone	304.696.6010
E-Mail	akinsete@marshall.edu
Office/Hours	2:00PM – 4:30PM on Tues. & Thurs. Any other time 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/?page_id=802 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

Course Description: From Catalog

Statistical methods in scientific/engineering research, with emphasis on applications. The course will address probability modeling, experimental design/survey sampling, estimation/hypothesis testing procedures, regression, ANOVA/factor analysis. Practical applications will be implemented with statistical software such as R, Minitab, JMP, Excel, and SAS.

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

Course Student Learning Outcomes	How students will practice each outcome in this Course	How student achievement of each outcome will be assessed in this Course
Students will be able to interpret and apply the results of published statistical studies	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.
Students will be able to plan and implement various statistical studies	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.

Students will be able to summarize the results of a study using graphs and numerical measures, and be able to draw conclusions from data	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.
Students will be able to choose appropriate probability models to describe real-world situations, and use data to estimate parameters of interest	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.
Students will be able to identify the appropriate statistical procedure for analyzing data, and using data to test the plausibility of a specified hypothesis	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.
Students will be able to implement appropriate statistical procedure, with and without computer software	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.
Students will be able to interpret statistical computer output and to report statistical results in a clear and coherent form	Students are required to participate in class discussions, group work, intensive reading of relevant chapters, and most importantly, practice numerous exercises that are available at the end of every chapter of the recommended textbook.	Homework assignments, quizzes, classroom participation, projects, group work, and exams.

Required Texts, Additional Reading, and Other Materials

1. Ross, S. M. (2014). *Introduction to Probability and Statistics for Engineers and Scientists, 5th Ed.*, San Diego, CA: Academic Press. ISBN – 10: 0-123-94811-3; ISBN – 13: 978-0-12-394811-3.
2. An Introduction to R - Notes on R: A Programming Environment for Data Analysis and Graphics (Version 2.14.1 (2011-12-22)). This text is available online upon downloading the R package. It is intended to guide you on the implementation of statistical analysis that will be discussed in class, and NOT to be used, or substitute as a textbook for the courses. Students will always be pointed to the portion to be read when needed.

Course Requirements / Due Dates

1. Pre-requisite requirement: Grade C or better in either MTH 230 or IST 230, or by permission
2. Computer requirement: There are many statistical packages and you are free to use any that you find applicable. You are encouraged to use the Computer Lab in SH 532. The SAS software is installed on those computers for those of you who would like to use SAS. Students will be introduced to the R-package. See Statistical Resources below.
3. Software requirement: The Student Website of the textbook at www.thomsonedu.com/statistics/devore includes some Java™ applets. Other statistical resources may be found at <http://lock5stat.com/statkey/>, www.socr.ucla.edu, and www.causeweb.org/resources Also, every student is advised to visit <http://www.r-project.org/> or <http://en.wikipedia.org/wiki/R> and download the R package from your preferred CRAN mirror. It will be needed in the cause of our discussion. Note that your knowledge of the programming language is not the focus in this course. A basic R source manual needed for statistical computing in this course is listed under the required texts, and is free in R.
4. Behavioral requirement: Students are advised to turn their cell phones and other voice generating devices off prior to entering the class. In the case where a student awaits any emergency call, the volume should be restricted and made personal. And in this case, I should be notified as soon as the student enters the classroom. Food items besides water or soft drinks are not allowed in the class. The reading of any unrelated materials, either printed or in electronic devices, while the class is in session is prohibited. Drastic actions will be taken against anyone who violates this order. Please ensure that other students are respected.
5. Withdrawal from course: Last Day to Completely Withdraw from Spring Semester is Friday, May 1, 2015.
6. Final Exam Day: **Thursday, May 7, 2015 @ 10:15AM – 12:15PM. Venue is SH 516.**

Grading Policy

All tests will be given during the regular class sessions. No makeup quiz (if any) will be given under any circumstances. Also, no makeup test will be given unless an acceptable excuse is given to the instructor, for example, in the case of illness, a note from a physician. All excuses must be approved by the Dean of Student Affairs. All scheduled tests will be conducted in the classroom.

The final grade will be based on the following components:

2 Tests [40%]	200 points	(Test 1: 2/19/2015; Test 2: 4/2/2015)	Dates may change if necessary.
Homework Exercises ¹ [20%]	100 points		
Miscellaneous ² [10%]	050 points		
Final Examination ³ [30%]	150 points	(Thursday, May 7, 2015 @ 10:15AM – 12:15PM. Venue is SH 516)	

Total 500 points

The semester grade will be based on the percentage of the 600 total possible points, using the following scale.

%	Point	Grade
90 -100%	[450, 500]	-- A
80 - 89%	[400, 450)	-- B
70 - 79%	[350, 400)	-- C
60 - 69%	[300, 350)	-- D
0 - 59%	[0, 300)	-- F

¹Homework exercises to be graded among those assigned will be indicated. Students should endeavor to solve **correctly, at least ten (10) exercises** at the end of each chapter. Failure to do this means you are not studying sufficiently enough. ² This

may include quizzes, classroom participation, projects, and group work.³Final examination is comprehensive.

Attendance Policy

Attendance requirement: Students are advised to attend all scheduled classes. It is the student's responsibility to find out what was discussed in a missed class. Attendance will be taken, but will not be used to compute grades, except possibly in borderline cases. You should note that missing classes can be expected to significantly reduce your chances of success.