

**Syllabus for Probability and Statistics (MAT 305-01)
(CRN:23586) FALL 2015**

TIME/DAYS: TR 3:30-4:45 PM

ROOM NUMBER: ST 312B

INSTRUCTOR: Dr. Carolyn B. Morgan

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OFFICE TELEPHONE: (757) 727-5364

OFFICE HOURS: MTWTR 1:00 – 3:00 PM F 10:00-NOON

Also by appointment

COURSE CATALOG DESCRIPTION: Random Variables; Probability and density functions; Special distributions; Point and interval estimation; Tests of statistical hypotheses; Regression and analysis of variance; Six sigma and Quality Control.

COURSE OBJECTIVES: Students who successfully complete MAT 305 will be able to satisfy the following **Essential / Core Competencies:**

1. *Probability Rules.* Apply the rules of probability that encompass using such techniques as Venn Diagram, Tree Diagram, addition, complement and independence.
2. *Random Variables and Probability Distribution.* Illustrate the application of random variables to map random experiments to probability distributions such as binomial, uniform and normal. Joint probability distributions.
3. *Hypothesis Testing and Estimation.* Construct hypothesis to compare parameters using statistics from data sets and estimation techniques for mean and variance.
4. *Regression and Correlation.* Model the linear relationship between the dependent variable and one or more independent variable(s) using least square methods.
5. *Six Sigma and Quality Improvement.* Demonstrate ability to apply six sigma concepts and process capability to assess quality improvement.

REQUIRED TEXT: Applied Statistics and Probability for Engineers by Douglas Montgomery & George Runger, 6th ed. Wiley ISBN 978-1-118-53971-2

PRE-REQUISITE: MAT 152 (with grade C or better for School of Science majors).

COURSE OUTLINE	TEXT REFERENCE
<u>Probability:</u>	
Sample spaces, rules of probability, and conditional probability, independence, random variables	2.1-2.6 2.8
<u>Discrete Random Variables and Probability Distributions:</u>	
Probability distributions, expected values, binomial, hyper geometric, Poisson Distributions	3.1- 3.6, 3.8, 3.9
<u>Continuous Random Variables and Probability Distributions:</u>	
Probability density functions, cumulative distributions, expected values, normal, and gamma-type, Weibull distributions, joint probability distributions	4.1- 4.6 4.9, 4.10 5.1, 5.2
<u>Estimation and Testing Hypothesis:</u>	
Parameter estimation , inference for single sample, Inference for two samples, testing goodness of fit, confidence intervals	7.1 - 7.3, 7-4.2 8.1- 8.3 9.1-9.7; 10.1-10.2, 10.4
<u>Regression Analysis and Correlation:</u>	
Empirical models, method of least squares, linear regression, residuals, correlation, analysis of variance.	11.1-11.8 13.1 – 13.2 <u>Six</u>
<u>Sigma and Statistical Quality Control:</u>	
Six Sigma Approach to Quality; Tools for Quality Improvement	15.1-15.4

MINIMUM COURSE COMPETENCY: The student will be able to list all the possible outcomes for tossing a fair die. **This minimum competency is not directly associated with your final grade in this course. Successful accomplishment of the minimum competency demonstrate your basic knowledge of selected Specific Intended Student Learning Outcomes.**

SECTION 504 COMPLIANCE: Hampton University complies with the Americans with Disabilities Act, Section 504 of the Rehabilitation Act, and state and local requirements in this regard. Students with disabilities who require accommodations should (1) register with the Office of Testing Services and 504 Compliance to provide documentation and (2) bring the necessary information indicating the need for accommodation and type(s) of accommodation needed. This should be done during the first week of classes or as soon as the student receives the information. If the instructor is not notified in a timely manner, retroactive accommodations may not be provided.

DISCLAIMER: This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the professor reserves the right to modify, supplement and make changes as the course needs arises.

TEACHING LEARNING STRATEGIES: Each day of class, a new topic will be introduced and illustrated with examples. It is very important that the student completes the assigned homework problems and reads the appropriate sections in the textbook in order to reinforce the materials presented in class. Tests and graded homework assignments are given frequently to give both the student and the instructor feedback on how the students understand and master the material.

ATTENDANCE POLICY: Students are expected to attend each class and attendance will be taken. Students are expected to remain in class for the entire period. If tardy, a student must notify the instructor at the end of the class period. Any absence from class does not relieve any student of the responsibility for completing all class work and assignments. With a satisfactory explanation, an absence may be considered excused. In general, an excused absence will include any kind of illness, participation in university sponsored activities, recognized emergencies, etc., verified and supported by a written statement from the recognized official authority. Students are to dress in accordance with the Hampton University dress code.

POLICY ON ACADEMIC DISHONESTY (From Student Handbook): A student caught plagiarizing a paper or a test, which is part of a course grade, shall be given an "F" on the test/ paper and will be subject to dismissal from the University.

USE OF ELECTRONIC DEVICES: Students are not allowed to use any electronic device for non-course purposes. Students must turn cell phone ringer to off (not vibrate) during all formal class meetings.

CALCULATOR USAGE: A TI83/84 graphing calculators is required for this course. Calculators with symbolic computational capabilities are not permitted in this class. Calculators will be used in the course to complete problems in class, on homework, and on exams. During final examination and tests, sharing or passing of calculators, storing of memos, formulas/notes in the calculator memory is considered cheating and therefore is a violation of the Honor Code. The instructor reserves the right to reset the calculators during the tests/exam or during the class meetings, if needed.

GRADING POLICY: The final course grade will be based on the total number of points accumulated in four in-class tests (40%), graded homework assignments (10%), quizzes (15%), writing project (5%) and the final exam (30%).

In-Class Tests: Tentative test dates: 10/1 10/22 11/19 12/8

Cellular phones, laptops, PDAs and other electronic devices (except calculators) are not permitted during tests. A make-up test will be given only in the case one misses a test for an excused reason. If you have no verifiable excuse, a score of zero will be entered for the test.

Quizzes: Quiz dates will be announced in advance.

Writing Project: Specifics of the writing project will be announced later. Writing Project is due at 4 PM on Tuesday, December 1, 2015.

Graded Homework: Will be assigned throughout the semester at regular intervals.

MIDTERM GRADE: The midterm grade will be based on the average of the test 1 and test 2 grades.

COMPREHENSIVE **Final Examination**-----**Dec. 16, 2015 @ 3:10 - 5:00 PM**

GRADING SCALE: The final course grades will be assigned according to the Hampton University grading scale:

A+	98 -100	B	84-87	C-	70-73	F	Below 60
A	94-97	B-	80-83	D+	68-69		
A-	90-93	C+	78-79	D	64-67		
B+	88-89	C	74-77	D-	60-63		

Please read your *Student Handbook* regarding the policies on "I" (incomplete) grades and withdrawal from class.

MINIMUM GRADE REQUIREMENT: **The following information applies to all students in the School of Science:** In addition to the minimum grade requirements established by Hampton University, all majors within the School of Science must pass all required courses offered within the School of Science with a grade of “C” or better in order to satisfy degree requirements. The minimum grade requirement is in effect for all science courses taken during Fall 2001 and beyond.

USE OF ELECTRONIC DEVICES: Students are discouraged to use any electronic device for communication purposes during any formal meeting of the course including class, tutorial, tests and examination. They must turn the ringer of their cell/mobile phones to off/vibrate during the formal meetings.

INTERNATIONAL STUDENTS: All non-U.S. citizens please contact the International Student Advisor for further advice to complete the Federal Requirements.

ACADEMIC INTEGRITY: Students in this class are expected to uphold the highest standards of academic integrity. Cheating, plagiarism in written work, and receiving and providing unauthorized assistance are among behaviors that constitute violation of the department’s policy on academic integrity.

You are expected to be familiar with the University’s Policy of Academic dishonesty found in the Code of Conduct. In particular

All students are required to strictly adhere to the University Code of Conduct.

OTHER IMPORTANT DATES:

- End of Add/Drop Period-----Sept. 4, 2015
 - Mid – Semester Evaluations-----Oct. 19 – 23, 2015
 - End of period for withdraw pass/withdraw fail-----Nov. 6, 2015
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CODE OF CONDUCT

Joining the Hampton Family is an honor and requires each individual to uphold the policies, regulations, and guidelines established for students, faculty, administration, professional and other employees, and the laws of the Commonwealth of Virginia. Each member is required to adhere to and conform to the instructions and guidance of the leadership of his/her respective area. Therefore, the following are expected of each member of the Hampton Family:

1. To respect himself or herself.
2. To respect the dignity, feelings, worth, and values of others.
3. To respect the rights and property of others and to discourage vandalism and theft.
4. To prohibit discrimination, while striving to learn from differences in people, ideas, and opinions.
5. To practice personal, professional, and academic integrity, and to discourage all forms of dishonesty, plagiarism, deceit, and disloyalty to the Code of Conduct.
6. To foster a personal professional work ethic within the Hampton University Family.
7. To foster an open, fair, and caring environment.
8. To be fully responsible for upholding the Hampton University Code.

RULES GOVERNING COMMON FINAL EXAMINATION

1. The University's Honor code applies during the examination period.
2. Students must bring their HU student (picture) ID and keep it displayed during the examination period.
3. Students must adhere to seating assignment.
4. No student will be allowed to enter the examination room 30 minutes after the scheduled starting time of the examination.
5. Students should bring only items that are essential for the examination and must avoid bringing large pocketbooks, large purses, books, book bags, notes, etc.
6. Students must keep all answer sheets flat on the writing surface.
7. Students must avoid all behaviors that may be regarded as transferring information; this includes "thinking aloud", moving of the lips and gazing at another's paper.
8. Students should satisfy their physiological needs before the examination period begins.
9. A student should indicate a question or need during the examination period by raising a hand.
10. Students will not be allowed to transfer calculators, pens, pencils, etc. during the examination period.
11. Students are expected to follow the directions of the proctors during the examination.
12. All allowable calculators (basic, scientific and graphing) must have the covers removed and put away prior to the start of the exam.
13. The use of any texting or web capable device is prohibited during the exam.
14. Only paper provided by the instructor is to be used during the exam.
15. TI 89/92/92 plus or calculators with similar functionality are not permitted on this examination.