**STA 3033, Section U02, (Class Ref # 10726) Course Outline**
**Introduction to Probability & Statistics for CS and Engineering**

**(Semester: Spring 2017;    Time: 5:00 PM -6:15PM;    Days: Tu & Th;    Room: GL 139;    Credit Hours: 3)**

**Prerequisite:**    Calculus II  (MAC 2312  or  any  equivalence) **& Basic  Knowledge  of Using  Internet** .

**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:**
**Mondays, Tuesday, Wednesdays and Thursdays 3:55 - 4:55** (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:**
"Probability and Statistics for Engineers" by Sheafer, Mulekar  and McClave, 5th edition, 2011, Wadsworth Inc.

**Coverage & Objectives:**
We will cover most of the topics in chapters 1, 4, 5, 6, 8, 9, 10 and some of the topics in chapters 2, and 3. of the text book,  plus some additional related topics in form of class notes. This is an introductory, calculus based, undergraduate course in basic probability and statistics inference for Computer Science and Engineering Majors. The course is intended to teach these students some basic ideas and techniques in descriptive statistical analysis, random events and probabilities, commonly used univariate discrete and continuous probability models, point estimations, interval estimations and  testing  hypotheses  for some most commonly  used parameters. **(See the course syllabus on the second page for more details.)**

**Assignments:**
1. Weekly Homework, 8-12 problems each. **See Blackboard for the list of suggested homework problems from the text book and other supporting materials.**
2. Chapters' Review Problems posted in Blackboard.

**Tentative Exams:**
| | |
|---|---|
| **Quizzes:** | **TBA** |
| **Exam I:** | **Thursday February 9** |
| **Exam II:** | **Thursday March 23** |
| **Final Exam\*:** | **TBA** |

**\* You should not register for courses that have a final examination conflict with this course.**

**Grading:**
**15%** Quizzes,    **25%**  Exam I;    **25%** Exam II;    **35%** Final Exam.

**Approximate Grade Scaling:**
| | | | | | | |
|---|---|---|---|---|---|---|
| [93 - 100] A | [90 - 93)  A- | [85 - 90) B+ | [80 - 85) B | [75 -  80) B- | [70 - 75) C+ | [60 - 70) C |
| [50- 60) D | [0 - 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.** 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.
**3.** 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.
**4.** 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.
**5.** 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.
**6. No active beepers or cellular phones are allowed in the classroom. If you carry them with you, make sure they are switched off.**
**7.** Any failing student who has missed more than 60% of the classes may receive F0 instead of F.
**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 9 Monday:  Classes Begin** | |
| **January 16 Monday:** | Martin Luther King Holiday (University  Closed)**.** |
| **January 17 Tuesday:** | Last day to change grading option. Last day to add courses; last day to drop courses or withdraw from the University without incurring a financial liability or tuition or fees. |
| **February 3 Friday:** | **Last day to apply for graduation at the end of Spring 2015 term. Last day to withdraw from the University with a 25% refund of tuition.** |
| **March 13-18 :** | Spring Break. (University Open, No classes) |
| **March 20 Monday:** | **Last day to drop a course with a DR grade.  Last day to withdraw from the University with a WI grade.** |
| **April 24 - April 29:** | **Final week of the semester - modified class schedule: Final Exams and other course assessment activities are scheduled during this week.** |
| **May 4 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.***

<div align="center">
**STA 3033**
**Intro. To Probability & Statistics For CS and Engineering**
**Course Syllabus**
</div>

**Prerequisite:**
Calculus II

**Terms Offered:**
Fall, Spring and Summer

**Text Book :**
Probability and Statistics for Engineers, by Sheaffer, Mulekar and McClave, 5th Edition, 2011, Brooks/Cole, Cengage Learning.

**Additional Reading if needed:**
1. "Probability and Statistics For Engineering", by Lapin.
2. "Probability and Statistics in the Engineering and Computer Sciences", by J.S. Milton and J.C. Arnold.

**Topics Coverage:**

**Statistics:**
Introduction, Basic ideas and tools for displaying and analyzing data sets.
(Approximately 1.5 weeks)

**Probability:**
Probability and counting rules, conditional probability and independence, rules of probability.
(Approximately 2 weeks)

**Discrete Probability Distributions:**
Concepts of a random variable, probability distribution of a discrete random variable, cumulative distribution function, and mathematical expectation; Bernoulli Distribution, Binomial Distribution, Geometric Distribution, Negative Binomial Distribution, Poisson Distribution, Hypergeometric Distribution.
(Approximately 2 Weeks)

**Continuous Probability Distributions:**
Continuous random variable, its density and cumulative distribution functions; mathematical expectation, Uniform Distribution, Exponential Distribution, Gamma Distribution, Normal Distribution, Beta Distribution, Weibull Distribution.  Transformations and Functions of a Random Variable, Probability Integral Transformation Theorem and its Application in Generating (Simulating) Random Variates From a Given Probability Distribution.
(Approximately 2 weeks)

**Statistics and Sampling Distributions:**
Sample Mean and Sample Variance, Sampling Distribution of Sample Mean, Central Limit Theorem, Normal Approximation to the Binomial Distribution, Sampling Distribution of  Sample Variance.
(Approximately 1.5  week)

**Estimation:**
Point and Interval Estimators, Unbiasedness, Confidence intervals for means, proportions and variances. Prediction intervals.
(Approximately 1.5 Weeks)

**Hypotheses Testing:**
Testing the mean, the proportion p, the variance; testing the difference between two means, the difference between two proportions, paired t-test, testing the ratio of variances.
(Approximately 2 Weeks)