

## STA 3032 Engineering Statistics – Spring 2011

**Prerequisite:** MAC2311

Section 7370 MWF at 11:45 – 12:35 in LIT 109

Section 7661: MWF at 1:55 – 2:45 in LIT 101

### Instructor:

Dr. Yasar Yesilcay ([yy@stat.ufl.edu](mailto:yy@stat.ufl.edu))

**Office:** Griffin Floyd 101B, **Phone:** (352) 273 – 1839

**Office Hours:** Tuesday and Thursday 10:40 – 12:35 and by appointment

**Course Web Address:** [www.stat.ufl.edu/~yy/STA3032](http://www.stat.ufl.edu/~yy/STA3032)

### Teaching Assistants:

- Andreas Kakolyris in McCarthy C Room 427 Phone: 392-1946/228
- Office Hours: TBA or by appointment ([akakolyris@stat.ufl.edu](mailto:akakolyris@stat.ufl.edu))
- Yuanzhou Yang in McCarthy C Room 401, Phone: 392-1946/228
- Office Hours: TBA or by appointment ([ywu@stat.ufl.edu](mailto:ywu@stat.ufl.edu))

### Course Description:

In this course we will a survey of the basic concepts in probability and statistics with engineering applications. Topics include probability, discrete and continuous random variables, estimation, hypothesis testing and linear and multiple regression.

[General Education: Mathematics (M), Math Requirement (MR)]

### Course Materials Required:

- 1) Navidi, William *Statistics for Engineers and Scientists 3rd Ed.*, 2010, McGraw Hill  
[ISBN: 978-0-07-337633-2]
- 2) Calculator capable of calculating means and standard deviations

### Statistical software:

Some assignments require the use of statistical software, such as Minitab (a statistical computing package) and tests and lecture notes will use Minitab printouts. Minitab can be found on the CIRCA lab computers, may be purchased at the campus bookstore. You may also download Minitab free for 30 days at [www.minitab.com](http://www.minitab.com). [If you decide to download it, please wait until the assignments are announced.]

### Homework:

There will be about 10 problems assigned each week. (See last page of this document.) These will not be collected. However, **one or more of these questions will be a quiz question.**

**Quizzes:** There will be a **5 minute quiz every Friday**, based on the assigned homework questions. Students are permitted to copy the answers from their notebooks. Calculators will not be permitted during the quizzes when the quiz question(s) is/are not modified.

**Tests:** Three multiple choice tests will be given in class on the dates listed below. Exam dates are fixed; contents may change depending on what we can cover.

| Tests    | Dates                | Coverage         |
|----------|----------------------|------------------|
| Test - 1 | Friday, 2/11/2011    | Chapters 1, 2 4  |
| Test - 2 | Friday, 3/25/2011    | Chapters 5, 6    |
| Test - 3 | Wednesday, 4/20/2011 | Chapters 7, 8 10 |

Make sure to bring your calculator, pencils, eraser and A PICTURE ID to the tests. You will need to use a calculator in these exams. Make sure you know how to use your calculator. There will be no final exam for this course.

**Grades:** Grades will be based on the 3 test results (30% each) and the quiz grades (10%). Lowest 2 quiz grades will be deleted. The total points for the whole semester will be rounded up before assigning letter grades.

**Grading Scale:**

The grading scale will be as follows:

- A: (89 – 100] %
- B+: (84 – 89] %,
- B: (79 – 84] %,
- C+: (74 – 79] %
- C: (64 – 74] %,
- D+ Not given as department policy.
- D: (59 – 64] %
- E: [ 0 – 59] %.

No minus grades (like B- or C-) will be given. To see the effect of the + and – grades on your GPA, look at the following link: <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

**Makeup Exam:**

If a student is unable to take an exam at the scheduled time, they must get in touch with me at least one week prior to the exam for any arrangements to be made for a makeup. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite under such extenuating circumstances. In case of illness, the instructor must be notified before the day of the exam by 4 pm and must receive a medical excuse. There will be one makeup exam given at the end of the semester and it will be cumulative. No makeup will be given for quizzes.

## **Course Policies**

**Students with disabilities:** Students requesting classroom accommodation must first register with the Dean of Students office. The Dean of Students will provide documentation to the students who must then provide this documentation to the Instructor when requesting information.

**Academic Dishonesty:** I adhere to the University of Florida rules and guidelines for handling instances of academic dishonesty. Please refer to the Office of Students Services for detailed information about the current policies.

**Instructor's Honor Code:** We the members of the University of Florida community pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

**Grading:** Grades will be changed only when an error has been made by the instructor.

**Incomplete:** Incompletes are only assigned when extraordinary circumstances, arising after the date for dropping off the course, prevent the student from completing the course requirements. **The student must be currently passing the course and discuss the circumstances with the instructor before the final exam takes place.** *Having a failing grade in the course is not a valid reason for requesting an incomplete.*

**Getting Help:** Students may ask questions during the lectures (preferred) or the office hours. The teaching assistants will answer questions during their office hours. A list of private tutors (if needed) may be obtained from the Statistics Department Secretary in Griffin Floyd 103.

**Tentative schedule:**

| Wks | Dates           | Subjects   | Sections   | Assignments  |
|-----|-----------------|--|--|--|
| 1   | 1/5 – 1/7       | Introduction, sampling   | 1.1  | p.12, # 1 to 9   |
| 2   | 1/10 – 1/14     | Numerical and graphical summaries  | 1.2 – 1.3  | p.23, # 2, 3, 4, 14<br>p.40, # 7, 8, 4, 16   |
| 3   | 1/17            | <b>ML King Day (No Classes)</b>  | 2.1, 2.2   | p.60, # 2, 3, 13, 14, 16<br>p.68, # 2, 4, 8, 9, 10   |
|     | 1/17 – 1/21     | Basic Ideas of Probability   |  |  |
| 4   | 1/24 – 1/28     | Conditional Probability, Random variables  | 2.3 – 2.4  | p.84, # 2, 11, 13, 15, 26<br>p.112, # 3, 4, 5, 7, 10.  |
| 5   | 1/30 – 2/ 4     | Distributions of some Discrete and Continuous Random Variables, Central Limit Theorem                      | Lecture Notes & 4.11   | p.212, # 3, 4, 9<br>p.252, # 2, 4, 9, 11<br>p.278, # 1, 16,<br>p.300, # 1, 3, 4, 5, 10                                   |
| 6   | 2/7 – 2/9       | More on CLT  | Chapter 1, Sections 2.1, 2.2, 2.3, 2.4, Lecture Notes and Section 4.11 |  |
|     | Friday, 2/11    | Test - 1   |  |  |
| 7   | 2/14 – 2/18     | Confidence interval for population means   | 5.1, 5.3, 5.4, 5.6, 5.7  | p.335, # 1, 2, 4<br>p.352, # 2, 3, 4, 6, 8<br>p.356, # 1, 2, 6,<br>p.368, # 1, 2, 3, 4<br>p.372, # 1, 2, 4, 6            |
| 8   | 2/21 – 2/25     | Confidence interval for population proportions   | 5.2, 5.5,  | p. 341, # 1, 6, 7, 14<br>p.361, # 1, 2, 8, 9, 10   |
| 9   | 2/29 – 3/4      | Significance tests for population means  | 6.1, 6.2, 6.4  | p.403, # 1, 2, 13, 14, 15<br>p.411, #1, 3, 4, 10<br>p.421, # 1, 2, 12, 13  |
| 10  | 3/5 – 3/12      | Spring Break   |  |  |
| 10  | 3/14 – 3/ 18    | Significance tests for difference of two population means and for difference of two population proportions | 6.3, 6.5, 6.6, 6.7, 6.8  | p.416, # 1, 2, 4, 12<br>p.427, # 1, 2, 12, 13<br>p.433, #1, 2, 12, 14, 15<br>p.441, # 1, 2, 16, 17<br>p.446, #1, 2, 6, 8 |
| 11  | 3/21 – 3/23     | More on Inference  | Chapters 5 and 6   |  |
|     | Friday, 3/25    | Test - 2   |  |  |
| 12  | 3/28 – 4/1      | Simple Linear Regression and Correlation   | 7.1 – 7.4  | p.520, # 3, 7, 14<br>p.536, # 1, 8, 9<br>p.554, # 2, 3, 4, 15, 16<br>p.576, # 1, 8                                       |
| 13  | 4/ 4 – 4/8      | Multiple Linear Regression   | 8.1 – 8.2  | p.601, # 1, 7, 8, 9, 11<br>p.615, # 2, 3,  |
| 14  | 4/11 – 4/15     | Multiple Linear Regression   | 8.3  | p.634, # 4, 5, 6, 7, 9   |
| 15  | 4/17            | Statistical Quality Control  | Chapters 7, 8 and 10   |  |
|     | Wednesday, 4/20 | Test – 3   |  |  |