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**Course Website:** e-Learning

**Course Notes:** [http://www.stat.ufl.edu/~athienit/IntroStat/class\\_notes.pdf](http://www.stat.ufl.edu/~athienit/IntroStat/class_notes.pdf)

**Course Communication:** Via e-learning.

- Piazza Q&A discussion forum.
- Live conference hours. There will be no conference hours during holidays.
- E-mail for questions regarding course policies.

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussion and chats. Please refer to expected class netiquette.

The instructor reserves the right to update any parts of this syllabus as necessary.  
Students will promptly be notified of any changes.

**Required Text(s):** *Statistics for Engineers and Scientists*, 4<sup>th</sup> Edition

**Author(s):** William Navidi; **ISBN-13:** 978-0073401331

**Course Description:** A survey of the basic concepts in probability and statistics with engineering applications. Topics include probability, discrete and continuous random variables, confidence interval estimation, hypothesis testing, correlation, regression, and analysis of variance.

**Prerequisite(s):** MAC 2311. The use of integrals will be used greatly throughout the class.

**Credit Hours:** 3

**Software** You will need a computer for the homework assignments and practise. Some introductory lessons will be provided but students are expected to familiarize themselves with the software they wish use. The main software used in class will be **R** (<http://www.r-project.org/>) although you can use any other allowable software: Minitab, SPSS, SAS, JMP, Matlab, Mathematica. For more help visit <http://www.stat.ufl.edu/~athienit/software.html>

**Purpose of Course:** To comprehend basic concepts of probability and statistics, and to make meaningful inferences on relevant datasets.

**Course Goals and Objectives:**

At the completion of this course, students will be able to:

1. Access, manipulate and analyse data using statistical software.
2. Produce appropriate graphs and descriptive statistics for one and two variables, for both categorical and continuous data.
3. Interpret graphs and descriptive statistics for one and two variables.
4. Know and apply the basic probability rules, the concepts of expected value and variance for discrete and continuous variables.
5. Know and apply the Central Limit Theorem, which is crucial for inference.
6. Understand confidence intervals and hypothesis tests.
7. Carry out and interpret one-sample and two-sample analyses for means and proportions.
8. Carry out and interpret statistical modeling using multiple regression and analysis of variance.
9. Know and apply basic quality control procedures.

## Course Policies

### Assignments

- Students are expected to work independently. **Offering** and **accepting** solutions from others is an act. of **plagiarism**, which is a serious offense and **all involved parties will be penalized according to the Academic Honesty Policy**. Discussion amongst students is encouraged, but when in doubt, direct your questions to the instructor or teaching assistant.
- **No late assignments will be accepted under any circumstances.**

### Projects/Quizzes

Under each module in Canvas you will find **Projects** that are based on textbook exercises and timed online **Quizzes**. All deadlines are posted on Canvas. In Canvas, all uploaded files automatically get a grade of 0, until the teaching assistant, grades them.

For online quizzes, **please allow yourself enough time to complete the quiz before the deadline. Failure to do so will result in your (unfinished current) attempt to be automatically submitted.**

### Exams

After the completion of certain modules, exams will be administered via. ProctorU. For (more) complete information please visit, the start, page of the class website in Canvas.

- Exams are timed with a duration of 60 minutes and will be available for 48 hours, from 09:00 on the first, day. Be sure to study the material prior to the exam as time is limited.

- Exams are available on the class page in Canvas for which you have **only 1 attempt**.
- It is highly encouraged to use a **reliable device** with a **reliable wired ethernet internet connection**. Being disconnected means that you are no longer supervised which could potentially mean that your exam will not be graded.
- Each question will have a text window for which to write your answer. Math equations can be added in much the same way as in the Piazza discussion forum, in that they both use L<sup>A</sup>T<sub>E</sub>X. So please familiarize yourself with inserting math equations in text, windows in Canvas (or Piazza). For practise please visit <https://www.codecogs.com/latex/eqneditor.php>. Practice sets will be provided in the same format.
- You are required to create an account with ProctorU.
- You are required to meet the technical specification and test your device for ProctorU.
- Allow yourself 5-10 minutes for the startup process.

**Important dates:**

Exam $\phi'$	(Module1&2) .....	February 09-11,2016
Exam $\phi'$ 2	(Module3&4) .....	March 15-17,2016
Exam #3	(Module5&6) .....	April 19-21,2016

**Allowed material:**

- Instructor provided formula sheet. (Provided ahead of time.)
- Scientific/Graphing Calculator.
- Statistical software ONLY. Allowed software: R/R Studio, Minitab, SPSS, SAS, JMP, Matlab, Mathematica. No web browsing.
- Two sheets of scratch paper.

**Grading**

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

**Grade distribution:**

Module 1	5%
Module 2	13%
Module 3	14%
Module 4	6%
Module 5	15%
Module 6	7%,
Exams	40%) (5%) lowest, 17.5%) other two, for this term only)

**Letter grade distribution:**

		A	91 to 100	A-	87 to < 91
B+	84 to < 87	B	80 to < 84	B-	77 to < 80
c+	74 to < 77	C	70 to < 74	C-	67 to < 70
D+	64 to < 67	D	60 to < 64	D-	55 to < 60
E	< 55				

There will be *no rounding up* of scores. Students who actively participate in the discussion forum will be awarded **extra credit** (to the discretion of the instructor). To view the result of the letter grades to your GPA please visit

<http://www.registrar.ufl.edu/catalog/O11/policies/regulationgrades.html>

**Make-up policy:**

- Every effort should be made to complete the assignment/exam during the open period. Only extreme situations will warrant a makeup. Contact the instructor prior to the exam - as soon as you realize you will be unable to take the assignment/exam at the scheduled time. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite for scheduling a makeup under such extenuating circumstances.
- If you have an emergency on the day of the assignment/exam, the instructor must be contacted by midnight of the day of the assignment/exam.
- Additional Note: Being on vacation or booking a trip prior to the completion of the semester is not a valid reason to request a makeup. Please reference the Academic Calendar

**Incomplete:** An incomplete grade may be assigned at the discretion of the instructor as an interim grade for a course in which the student has completed a major portion of the course with a passing grade, been unable to complete course requirements before the end of the term because of extenuating circumstances, and obtained agreement from the instructor and arranged for resolution of the incomplete grade. Instructors are not required to assign incomplete grades.

## Getting help

For issues with technical difficulties for e-learning in Canvas, please contact the UF Help desk at:

- <https://lss.at.ufl.edu/help.shtml> or <http://helpdesk.ufl.edu/>
- 352-392-4357 - select option 2
- e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

Any requests for make-ups due to technical issues MUST be accompanied by the **ticket number** received from LSS when the problem is reported to them. The ticket number will document the time and date of the problem. You MUST contact your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help>.

Should you have any complaints with your experience in this course please visit <http://www.distance.ufl.edu/student-complaints>. You can always address any issues directly to the instructor at [athienit@ufl.edu](mailto:athienit@ufl.edu), or you may contact Ms. Tina Greenly [tgreenly@ufl.edu](mailto:tgreenly@ufl.edu) (anonymity will be honored) of the Department of Statistics to submit a complaint.

If you have any praises for the instructor and/or course, also feel free to contact the instructor and/or department. Unfortunately, no extra credit will be given.

## UF Policies

**Accommodating Students with Disabilities:** Students requesting accommodation for disabilities 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. You must submit this documentation prior to submitting any assignments for which you are requesting accommodation.

**Academic Misconduct:** Students are held accountable to the UF Honor Code.

## Tentative Course Outline

\* Additional topics included

Modules	Content	Class notes	Video	Textbook	Project/Quiz
1	Summary Statistics	5-7	1	1.1-1.2	1/1.1
	Graphical Summaries	8-13	2	1.3	
2	Sample Space, Events and Probability	14-17	3	2.1	2.1/2.1
	Counting Methods	18-20	4	2.2	
	Conditional Probabilities and Independence	21-25	5	2.3	
	Random Variables: Properties (I)	26-29	6	2.4	
	Random Variables: Properties (II)	30-32	7	2.4	
	Random Variables: Properties (III)	33-36	8	2.4, 2.6	
	Random Variables: Properties (IV)	37-40	9	2.5, 2.6	2.2/2.2
	Random Variables: Common discrete distributions	41-44	10	4.1-4.4	
	Random Variables: Common continuous distributions	45-48	11	4.5, 4.8	
	Central Limit Theorem	49-50	12	4.11	
	Normal Probability/Quantile Plot	51-52	13	4.10*	
Exam 1					
3	Inference for Population Mean (I)	54-58	14	5.1, 5.3	3.1/3.1
	Inference for Population Mean (II)	59-64	15	6.1-6.2, 6.4	
	Inference for Population Proportion	65-66	16	5.2, 6.3	
	Inference for Population Variance	67-69	17	5.8, 6.11	3.2/3.2
	Distribution Free Inference (I)	70-74	18	6.9*	
4	Inference for Population Means: Confidence Intervals	75-79	19	5.4-5.7	4/4.1
	Inference for Population Means: Hypothesis Tests	80-82	20	6.4-6.8	
	Inference for Population Variances	83-85	21	6.11*	
	Distribution Free Inference (II)	86-90	22	6.9*	
	Contingency Tables: Tests of Independence	91-93	23	6.10	
Exam 2					
5	Simple Linear Regression (I)	95-99	24	7.1-7.2	5.1/5.1
	Simple Linear Regression (II)	100-103	25	7.3	
	Checking Assumptions and Transforming Data	104-110	26	7.4*	
	Multiple Regression (I)	111-115	27	8.1-8.2	5.2/5.2
	Multiple Regression (II)	116-119	28	8.3	
	Qualitative Predictors	120-124	29	*	
6	Completely Randomized Design (I)	125-128	30	9.1	6/6.1
	Completely Randomized Design (II)	129-131	31	9.2	
	Randomized Block Design	134-138	33	9.4	
Exam 3					
Supplemental	Completely Randomized Design: Nonparametric	132-133	32	*	
	Randomized Block Design: Nonparametric	139-140	34	*	