

# MATH 3316: Statistical Inference Syllabus

Fall 2014

## 1 Instructor: Rachel Traylor

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- **Office Hours:** TTh 1-2pm

## 2 Course Elements

### 2.1 Prerequisites

This will be a fast-paced course with emphasis in both theory and actual data analysis. Basic knowledge of elementary statistics (e.g. AP Statistics, MATH 1308, etc) and *Calculus 1* are required for success in this course. Particularly, you should understand basic univariate integration and differentiation. Without these tools, you will not be able to understand why these statistical tools work.

### 2.2 Textbook and Software

The textbook we will use is:

*Statistics and Data Analysis: From Elementary to Intermediate, Tamhane and Dunlop, 2000*  
ISBN:0137444265

You will need a laptop to complete some assignments. We will be learning how to use R, an open-source statistical programming language. You can download R here:

<http://www.r-project.org>

A nice IDE that's a bit more intuitive to use is RStudio, downloadable here:

<http://www.rstudio.com>

Note: You must have both R and RStudio downloaded to use RStudio. In addition, you are free to use Minitab, SAS, JMP, Excel or any other statistical software you prefer. Just make sure you turn in any applicable code.

## 2.3 Attendance Policy

At The University of Texas at Arlington, taking attendance is not required. The lecture is **TTh 11-12:30 pm in PKH 111**. Attendance is not mandatory for this course, but no pity will be taken on those who fail to put sufficient effort to attend lecture.

## 2.4 Grade Components

Component	Weight
Homework	10%
Exam 1	15%
Exam 2	20 %
Exam 3	25%
Final Exam	30%

Exams will be in class according to the schedule below. Homework will be assigned and taken up occasionally, depending on the speed of lectures. No late homework will be accepted. I will choose 3-5 random problems (selected via random number generator) to grade for accuracy. This will represent 60% of your homework score. The other 40% will come from completion of the assignment. You will lose points on the completion portion if answers are given with no work shown. **No extra credit will be given.** If your final exam score is higher than your lowest test score, then that test score will be replaced with the final exam score.

## 2.5 Grading Scale

Numerical Score	Letter Grade
88.0% +	A
78.0% -87.9%	B
69.0% - 77.9%	C
59.0% - 68.9%	D
58.9% and below	F

**These cutoffs are strict.**

## 2.6 Exam Policy

You will be allowed 1 8.5 x 11 "cheat sheet", double sided. Calculators are also allowed. Late arrivals (more than 15 minutes) will not be admitted and will receive a 0 (that cannot be replaced). Any suspicion of cheating will result in a 0 (that cannot be replaced). All work must be shown to receive credit on any problem. You have 48 hours from the time I return exams in class to let me know if you believe there is a grading issue, and we will set a time to discuss it. Any notification sent after those 48 hours will not be considered.

### 3 Course Schedule

The course schedule below is subject to change. Homework assignments will be given in class with a respective due date of 1 week later.

Week	Dates	Sections	Topics
1	8/21	2.1	Basic Ideas of Probability
2	8/26, 8/28	2.2-2.5	Conditional Probability, Random Variables, Expectation/Variance, Distributions
3	9/2, 9/4	2.7-2.9	Statistical Studies
4	9/9, 9/11	3.1-3.4, 4.1	Types of Data
5	9/16, 9/18	4.2-4.4	Summarizing/Exploring Data
6	9/23, 9/25	Exam 1, 5.1-5.2	Sampling distribution of mean, variance
7	9/30, 10/1	5.3,5.4, 6.1	T and F distributions, Point Estimation
8	10/7, 10/9	6.2, 6.3	Confidence Intervals, Hypothesis Testing
9	10/14, 10/16	7.1, 7.2	Inferences on Means
10	10/21, 10/23	Exam 2, 7.3	Inferences on Variance
11	10/28, 10/30	8.1-8.3	Inferences for 2 samples
12	11/4, 11/6	9.1-9.3	Inferences on Proportions
13	11/11, 11/13	9.4, 10.1-10.2	Linear Regression
14	11/18, 11/20	10.3-10.4, Exam 3	Linear Regression
15	11/25, 11/27	10.5-10.6, Thanksgiving	Linear Regression
16	12/2		Review

The exam schedule is below:

Exam	Date	Material Tested
1	9/23	CH 2, 3, 4.1-4.2
2	10/23	CH 4.3-4.4, 5, 6, 7.1-7.2
3	11/20	CH 7.3, 8, 9, 10.1-10.2
Final Exam	12/9 11-130pm	Comprehensive

## **4 University Standard Stuff**

### **4.1 Drop Policy**

If you withdraw from the course for any reason, you must follow University procedures. It is your responsibility to execute these procedures correctly and within the deadlines. Instructors are unable to drop students. The Math Department Office can help with the withdrawal process. We strongly recommend that you drop the course if you are significantly behind in completing the required assignments. Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. For undergraduates, the last drop date will occur at a point two-thirds of the way through the semester. (For the exact date, refer to the academic calendar of the appropriate specific semester, at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal). Undergraduate students who drop on or before the last drop date will receive an automatic grade of "W" regardless of whether they have completed assignments or not. It is the students responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao>).

### **4.2 Accommodations and Americans with Disabilities Act**

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide reasonable accommodations to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

### **4.3 Academic Integrity**

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. This course includes a zero tolerance policy for academic dishonesty and students are expected to adhere to the UT Arlington Honor Code: I pledge, on my honor, to uphold UT Arlingtons tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. Students found guilty of cheating will receive a grade

of F for the course. "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents Rules and Regulations, Series 50101, Section 2.2)

#### **4.4 Student Support Services**

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

#### **4.5 Electronic Communication**

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

#### **4.6 Final Review Week**

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

#### **4.7 Student Feedback Survey**

At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit,

gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

#### **4.8 Emergency Exit Procedures**

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

#### **4.9 Student Intellectual Property Rights Statement**

A student shall retain all rights to work created as part of instruction or using university technology resources.

#### **4.10 Title IX**

The University of Texas at Arlington is committed to upholding U.S. Federal Law Title IX such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).