Syllabus: STAT 3332 – Statistics for Life Sciences, Spring 2026

Course Information

Section	Class/Course Number	Schedule	Location
STAT 3332.002	27712 / 012100	TTH 8:30am – 9:45am	GR 4.301

Professor Contact Information –

Professor	Kemelli Estacio-Hiroms
Office Phone	972-883-4511
Office Location	FN 3.120F
Email Address	kemelli@utdallas.edu
Office Hours	Tuesdays and Thursdays from 10:30a.m-11:30am, except during exam weeks, when they will be held only during our lecture time.
Preferred Method of Contact	I encourage you to attend office hours and email the Teaching Assistants throughout the course for help. Please, include your section number in every email to me. I generally respond to emails on weekdays from 9am-4pm. Responses over the weekend are limited.
TA info	**Stat3332.002**: TBD Office hours information in eLearning.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

One of the following 2 options is required: (a) MATH 1325 (Applied Calculus), or (b) MATH 2312 (Precalculus). This background is anticipated, but not emphasized, and can be refreshed as needed.

Course Description

In the life and health sciences, decision-making using data is pervasive. Essential to this purpose is proper design of the experiments that acquire the relevant data. Also essential is proper interpretation of the data, once gathered. Statistical science centers on these challenging goals.

For example, one may try to determine the true rate of occurrence for a certain kind of mutation. Or compare the effectiveness of two or more medical procedures. Or fit a line to explain the relationship between two variables. Or test whether two variables are related or independent.

Statistical science involves basic concepts about how to make inferences from data. It also involves practical tools for implementing the concepts. Although its tools include some mathematical or computational steps, statistical science is not a branch of mathematics. It is very different and very special – a conceptual discipline centering on data as a source of information that we can use profitably.

This course emphasizes critical statistical thinking, especially for applications in the life sciences. Key topics: design of experiments, descriptive statistics, correlation, regression, probability models, sampling, estimation, confidence intervals, and hypothesis testing.

Student Learning Objectives/Outcomes

An appreciation of *critical statistical thinking*, a working knowledge of *basic statistical methods* used in the life sciences, and a readiness to conduct *statistical discussions*. Particular goals are to:

1. Understand some basics of experimental design.
2. Have familiarity with the most basic probability models.
3. Recognize which statistical method (confidence interval or hypothesis testing) is appropriate for a given typical problem.
4. Apply statistical procedures to data and interpret the results.
5. Critically read statistical work in published literature.

Recommended Text
Freedman, D., Pisani, R., and Purves, R. *Statistics*, 4th edition, W. W. Norton, 2007. (The international edition is also acceptable.)

Required Materials
Laptop: A laptop with internet access is required for the days we will have quizzes in class. See tentative agenda below. The Student Technology Initiative offers resources like financial aid and a technology loaner program. See https://oit.utdallas.edu/technologyinitiative/ and https://oit.utdallas.edu/about/technology-experience-innovation/laptop-checkout/.

StatCrunch: StatCrunch subscription is required must be completed by **Thursday, February 29**. You will need StatCrunch throughout the course and its use is required during quizzes and exams. Visit http://www.statcrunch.com to subscribe. **A scientific calculator is required** during quizzes and exams. TI-83/84 or another graphing calculator is acceptable, but not required.

Tentative Agenda

Lect	Date	Topic	Quiz	Online HW
1	T 1/20	**PART I. DESIGN OF EXPERIMENTS** — Syllabus. Ch. 1: Controlled Experiments		
2	Th 1/22	Ch. 2: Observational Studies		OHW01, Sun 1/25
3	T 1/27	**PART II. DESCRIPTIVE STATISTICS** — Ch. 3: The Histogram. Ch. 4: Center and Spread		
4	Th 1/29	Ch. 5.4: Percentiles and Interquartile Range. Additional topic: The Boxplot		OHW02, Sun 2/1
5	T 2/3	Ch. 5: The Normal Approximation for Data		
6	Th 2/5	**PART III. CORRELATION AND REGRESSION** — Ch. 8: Correlation. Ch. 9.3: Outliers. Ch. 9.5: Association is Not Causation		OHW03, Sun 2/8
7	T 2/10	Ch. 10: Regression. Ch. 12: The Regression Line		
8	Th 2/12	Ch. 11.3: Residuals. Additional Topic: Extrapolation		OHW04, Sun 2/15
9	T 2/17	**PART IV. PROBABILITY** — Ch. 13, 14: What are the chances? Counting Outcomes. Conditional Probability. Independence. The Multiplication Rule. Listing the Ways	Quiz 1 (Lec. 1–8)	
—	Th 2/19	**EXAM 1 on Lectures 1 – 8: February 19-20** Chapters 1, 2, 3, 4, 5, 8, 9, 10, 11, 12.		OHW05, Sun 2/22
10	T 2/24	Ch. 13, 14: The Addition Rule. Mutually Exclusive Events. Ch. 15: Permutations. Combinations. The Binomial Distribution		
11	Th 2/26	The Binomial Distribution. Additional topic: The Geometric Distribution		OHW06, Sun 3/1
12	T 3/3	Additional topics: Geometric, Poisson and Exponential Distributions		
13	Th 3/5	**PART V. CHANCE VARIABILITY** — Ch. 16: Law of Averages. Ch. 17: Expected Value and Standard Error		OHW07, Sun 3/8
14	T 3/10	Ch. 18: The Normal Approximation for Histograms (CLT)	Quiz 2 (Lec. 9–12)	
—	Th 3/12	**OH in class.** **EXAM 2 on Lectures 9 – 12: March 11-12 (Wed & Thurs)**		OHW08, Sun 3/15

		Chapters 13, 14, 15 and all probability distributions		
—	3/16–20	**SPRING BREAK — No class**		
15	T 3/24	**PART VI. SAMPLING** — Ch. 19: Sample Surveys. Ch. 20: Chance Errors in Sampling		
16	Th 3/26	Ch. 21: Estimation and Confidence Interval for a Population Percentage		OHW09, Sun 3/29
17	T 3/31	Ch. 23: Estimation and Confidence Interval for a Population Mean. The t-distribution		
18	Th 4/2	**PART VIII. TESTS OF SIGNIFICANCE** — Ch. 26: Hypothesis Testing. The One-Sample z-Test		OHW10, Sun 4/5
19	T 4/7	Ch. 26 (Cont.): Significance Level. P-Value. The One-Sample t-Test. Types of Errors	Quiz 3 (Lec. 13–17)	
—	Th 4/9	**OH in class.** **EXAM 3 on Lectures 14 – 17: April 8-9 (Wed & Thurs)** Chapters 16, 17, 18, 19, 20, 21, 23.		OHW11, Sun 4/12
20	T 4/14	Ch. 27: Matched/Paired Data Tests. Two-Sample Tests of Means and Proportions (z- or t-tests)		
21	Th 4/16	Additional topic: The Sign Test. The Wilcoxon Rank Sum Test		OHW12, Sun 4/19
22	T 4/21	Ch. 28: The Chi-Square Distributions. The Goodness of Fit Test	Quiz 4 (Lec. 18–20)	
23	Th 4/23	Ch. 28 (Cont.): Chi-Square Test of Independence. Additional topic: The Chi-Square Test of Homogeneity		OHW13, Sun 4/26
24	T 4/28	Additional topic: The F-Distributions. Analysis of Variance: The One-Way Layout		
25	Th 4/30	Additional topic: Analysis of Variance: The Two-Way Layout		OHW14, Sun 5/3
26	T 5/5	Review	Quiz 5 (Lec. 21–25)	
	Finals week	**EXAM 4 on Lectures 19 – 26: May 13-14 (Wed & Thurs)** Chapters 26, 27 and 28, and additional topics		

Exams & Testing Center

Exams will be held on the date listed in the **Testing Center** (https://ets.utdallas.edu/testing-center). In order to help you find the necessary time for the exam, class will not meet on exams days. Class meets normally on quizzes days.

The Testing Center is located in the SP2 building across Waterview Parkway from Residence Halls NW and N. Note that the sole form of ID accepted at the Testing Center is your Comet Card. More information is available at utdallas.edu/cometcard.

All student guidelines can be found here: https://ets.utdallas.edu/testing-center/students/. Please review these prior to your first exam.

***** Registration for all assignments opens on the first day of the semester, January 20, 2026. It is strongly recommended that you register for all your Stat3332 exams then.*****

You must register for a seat using RegisterBlast (www.RegisterBlast.com/utdallas) at least 48 hours in advance for each exam. The registration system closes 48 hours before an assignment begins, and you will **not** be able to make an appointment after that time. Dr. Estacio-Hiroms is unable to assist in this situation.

Testing Center Hours on Exams' days:

Exam 1

- **Wednesday:** 1:00 p.m. – 5:30 p.m.
- **Thursday:** 8:30 a.m. – 5:30 p.m.

Exams 2, 3 and 4:

- **Wednesday:** 3:00 p.m. – 9:00 p.m.
- **Thursday:** 8:30 a.m. – 9:00 p.m.

Failing to follow testing center procedures, including but not limited to not having an appointment, not showing up for your appointment, not abiding by the stated time limit, or not having your CometCard, does not allow a student to take a makeup exam and you may be referred to the Office of Student Conduct for failing to adhere to all Testing Center policies. This includes, but is not limited to, discussing material on the quiz/exam prior with other students before the test/quiz window has ended (in person or via electronic medium).
For fairness, Dr. EH does not help students on exams days outside class time. See the Agenda for details.

Grading Policy

5% Attendance
15% Online Homework
20% Quizzes
60% Exams 1-4.

The lowest grade of Exams 1-3 will be dropped to improve your grade. The Exam 4 grade will not be dropped. *The course grade is based on the overall course score*, as follows:

A+ [97, ∞);	A [93, 97);	A- [90-93);
B+ [87, 90);	B [83, 87);	B- [80-83);
C+ [77, 80);	C [73, 77);	C- [70-73);
D+ [67, 70);	D [63, 67);	D- [60-63);
F [0,60)		

No rounding and no curving will be applied to grades. In the interest of equitable treatment for all students, individual requests for special projects, extra assignments, additional exams, or similar exceptions will not be granted. Furthermore, any request for special treatment will result in the forfeiture of any extra credit awarded during the semester.

Course & Instructor Policies

Quizzes
There will be **5 closed-book 20-minute quizzes taken in class.** See the tentative agenda for the dates. **You must bring your laptop on those days.** Each quiz will consist of **10 multiple-choice questions** of equal value.
In general, each quiz will be based on the material covered since the previous quiz up to (and including) the material covered in the previous class or week. See the Tentative Schedule for their coverage.
For quizzes, the use of any internet resource including but not limited to AI tool is strictly prohibited, as they are intended to evaluate your own independent understanding and application of the course material. This means no assistance from tools like ChatGPT or other AI platforms for generating answers, drafting responses, or completing any part of the assessment.
The lowest quiz grade will be dropped. The remaining quiz grades will be averaged together and count for **20%** of the overall course score.

Exams
There will be **4 closed-book 70-minute exams taken at the UTD Testing Center.** Each exam will consist of **25 multiple-choice questions** of equal value. Exams will be open on Wednesday and Thursday, during Testing Center hours. You must reserve a seat at least 48 hours prior to each exam on the RegisterBlast website. See the Tentative Schedule for the exact dates.

In general, each exam will be based on the material covered since the previous exam up to (and including) the material covered in the previous class or week. See the previous table for their coverage. The quizzes and exams are not intended to strain memory. As a practical matter, however, we need to be able to call forth from memory at least some basic information and details. I would not ask a student to state a complicated formula from memory but would require selecting the correct one from given choices. Depth and scope of understanding of concepts and methods will be tested.

The lowest grade of Exams 1-3 may be dropped to improve your grade. The remaining two exam grades plus the Exam 4 grade will be averaged together and count for **60%** of the overall course score. The Exam 4 grade will not be dropped.

Online Homework
Homework will be assigned through eLearning. There will be **1 open-book online homework week** (OHW), with about **10 questions** each. You have **60 minutes** to complete it once started. Each OHW will open early in the week (Monday at 12:00am) and will close on Sunday of the same week at 11:59pm. You will have 2 attempts and the average will be your final score. The intent of the OHW is to help students to keep a good, steady, and consistent learning pace. You should attend the lectures, review the concepts, and answer the questions in the OHW before the next week's lectures. Online HW will count for **15%** of the overall course score.

Supplementary Homework
Extra homework is assigned roughly on a weekly basis. It is not collected for grading.

Make-up quizzes and exams
If up a quiz is missed, they will count as the dropped quizzes. For a further missed quiz, if the absence is excused based on documentation, then the average of the non-dropped quizzes will be used for the missing grade. If one exam is missed, it will count as the dropped exam. Again, the Exam 4 grade cannot be dropped.

If the absence is known in advance (e.g., university-related events, job interview) communicate with me in advance. If the absence is not known in advance (e.g., illness) then you must contact me immediately.
If the absence is not excused, the further missed exam or quiz receives the grade of zero. Absences due to oversleeping, forgetfulness, car-trouble, internet issues, etc., will not be excused.

Attendance/Participation
Mandatory and will be taken. You are expected to attend all classes and arrive on time. You are responsible for the material assigned from the text as well as any additional material covered in class. If you are absent from a class, you should contact another student to get a copy of the student's class notes. Class time will be spent discussing important concepts, working examples, answering questions, and demonstrating Statcrunch perform data analysis, modeling and inference.
Multiple choice questions will be asked in class and students must choose an answer using laptops. Each question will be worth 2 points of which the second point will count towards extra credit. So, correct answer = 2 points, incorrect answer = 1 point, no answer chosen/absent = 0 point. Attendance is calculated based on the number of missed classes, not the number of total points you will have.
Attendance & Participation account for **5%** of the course grade.

Classroom citizenship
I believe that all distractions to students and instructor should be avoided for the benefit of all. We must all respect our fellow students by conducting the class in a professional manner. A student entering or leaving the classroom after the class has begun distracts other students and the instructor. Cell phones interrupt the instructor's presentation and the students' concentration. Therefore, please arrive at the classroom prior to the scheduled class time, silence your cell phone and put it away.

Text messaging, MP3 players, headphones/earbuds and similar electronic devices, are **not** permitted during class. Use of laptop computers is limited to class activates, e.g. quizzes and note taking, as directed by the instructor, thus surfing the web, visiting on-line chat-rooms and e-mailing are not permitted during class.

Extra Credit / Late Work

Extra credit will be given based on attendance points. Each time a student answers an attendance question correctly, a point will be accumulated and count towards the extra credit points at the end of the semester.
Since our assignments are done in eLearning, late submission is not an option and thus, the online homework or quiz will receive grade of zero.
Furthermore, any request for special treatment will result in the forfeiture of any extra credit awarded during the semester.

Student Accessibility

"It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the AccessAbility Resource Center (ARC) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow one-week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the ARC for a confidential discussion. ARC is located in the Administration Building, suite 2.224. They can be reached by phone at 972- 883-2098, or by email at studentaccess@utdallas.edu.

Religious Holy Days

The University of Texas at Dallas excuses students from class or other required activities for the purpose of travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated. In the case of such an absence, the student is encouraged to notify the instructor as soon as possible, preferably in advance. Missed assignments, quizzes, tests, or exams, will be covered by the professor's policy for excused missed or late work.

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.
Please see http://go.utdallas.edu/academic-support-resources.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

Syllabus last updated on: 1/12/2026