

BIOL 2300: Introduction to Biostatistics
Spring 2018

Instructor(s): Dr. Walter Schargel

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Note about emails: on a typical semester I have more than 400 students in different classes and sometimes it is difficult for me to reply to every single email I get. Part of the problem is students who email me without providing me a full name or the course/section they are taking from me. In other cases questions asked are in the syllabus (e.g. "when is our final?"). The bottom-line is: email me if it's important and always include your full information. It is always better to talk to me after class; I don't mind staying a few more minutes to answer your questions. Also, we have paid TAs that will help out with this course by grading assignments and holding office hours. If you have homework questions I recommend you email the TAs (their contact information will be provided via blackboard).

Faculty Profile: <http://www.uta.edu/profiles/Walter-Schargel>

Office Hours: Tuesday & Thursday: 9:00 – 10:50 a.m., Friday: 11:00am–noon; or by appointment

Section Information: BIOL 2300 sec 001

Time and Place of Class Meetings: COBA 245W, T&TH 11:00 am -12:20 pm

Description of Course Content: Introduction to the collection, description, and analysis of data with statistical methods appropriate for biological sciences. Specific topics covered include but are not limited to: descriptive statistics, frequency distributions, random sampling, probabilities, binomial distribution, normal distribution theory and calculations, confidence intervals, t-tests (independent sample and paired designs), Chi-square tests (one-way and two-way analysis), analysis of variance, correlation and linear regression.

Student Learning Outcomes: Students successfully completing this course are expected to: 1) develop a good conceptual understanding of fundamental aspects of statistics such as statistical inference and hypothesis testing; 2) become competent in applying simple parametric statistical analyses appropriate for research in biological sciences; 3) be able to interpret data and draw scientific conclusions based on statistical analyses; and 4) understand basic principles of experimental design such as levels of replication. These outcomes will be assessed with numerical problems and embedded questions in course exams. Critical thinking is crucial to perform well in this course. Students will have to be able to figure out by themselves the appropriate statistical technique to be used on specific exam questions.

Required Textbooks and Other Course Materials:

- 1) The book is required for this course: Glover, T. and K. Mitchell. *An Introduction to Biostatistics*. Third edition (2015).
- 2) You will need to use a computer with web-browser access to the internet to obtain data for some assignments.
- 3) Basic scientific calculator for exams (**Cell phones, programmable or graphing calculators are not allowed!!!**).

Attendance: At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I allow students to attend class at their own discretion; however, like with all math based courses attendance is strongly recommended because the material builds upon itself.

Grading: Grades are based on exams and homework assignments according to the following breakdown. Following strict Biology-Department policy, there is no extra credit.

- 1) Homework Assignments (five total, **lowest grade dropped**): 25%
- 2) Midterm Examinations (two, **both will count**): 45%
- 3) Final Examination (comprehensive): 30%

Make-up Exams: There will be no make-up exams unless an unanticipated and severe problem prevents attendance on the scheduled date, or unless the student is representing the University in an officially recognized activity for which University policy allows an excusable absence (e.g. intercollegiate athletics). Written documentation of circumstances is required for make-up exams. Valid documentation includes: Doctor's notes, court orders, and police reports. Make-up exams will be given only at times scheduled by the Biology Department for this purpose.

Homework Policy: Homework assignments will be announced in class and the due date will be assigned at that time. Homework assignments will always be due the first 10 min of class on the due date. **Late assignments will not be accepted. Homework assignments that are not stapled will be penalized -10%.** Students are responsible for being aware of due dates. Each student should complete his or her own homework reports. **Copying from another student is not allowed** and will be reported to Student Judicial Affairs as an act of academic dishonesty. Homework reports should be properly prepared: neatly written, and stapled together (if necessary) with your name on each page in case the pages are separated. **The instructor and TAs may refuse to accept homework that is not properly prepared, and to turn it back without credit if it so poorly prepared that it cannot be graded with ease. Homework slipped under my office door will not be accepted.**

Drop Policy: 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. Drops can continue through a point two-thirds of the way through the term or session. It is the student's 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/>).

Disability Accommodations: UT 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)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. 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 disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD)**. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. **Counseling and Psychological Services, (CAPS)** www.uta.edu/caps/ or calling 817-272-3671.

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 or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit www.uta.edu/titleIX.*

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's 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.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

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>.

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>.

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.

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 individuals with disabilities.

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, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>

Course Schedule

Week	Topic
1 st : Jan 16–19	Syllabus / <u>Chapter 1</u> : Introduction to Data Analysis
2 nd : Jan 22–26	Chapter 1 Continued; <u>Chapter 2</u> : Introduction to Probability
3 rd : Jan 29–Feb 2	<u>Chapter 3</u> : Probability Distributions
4 th : Feb 5–9	<u>Chapter 3</u> : Continued; <u>Chapter 4</u> : Sampling Distributions
5 th : Feb 12–16	<u>Chapter 4</u> : Continued; Review
6 th : Feb 19–23	Midterm Exam 1 / <u>Chapter 5</u> : Introduction to Hypothesis Testing
7 th : Feb 26–Mar 2	<u>Chapter 6</u> : One-Sample Tests of Hypothesis
8 th : Mar 5–9	<u>Chapter 7</u> : Tests of Hypothesis Involving Two Samples
9 th : Mar 12–17	Spring break!!!
10 th : Mar 19–23	<u>Chapter 8</u> : The Analysis of Variance Catch up/ Review
11 th : Mar 26–30	Midterm 2 / <u>Chapter 9</u> : Two-Factor Analysis
12 th : Apr 2–6	<u>Chapter 9</u> : Continued
13 th : Apr 9–13	<u>Chapter 10</u> : Linear Regression and Correlation
14 th : Apr 16–20	<u>Chapter 11</u> : Goodness of Fit Tests
15 th : Apr 23–27	Chapter 11 Continued
16 th : Apr 30–May 4	Catch up/ Final Review/Clinic
May 8 (Tuesday)	FINAL EXAM 11:00 – 1:30 pm.

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – Dr. Walter E. Schargel

<p>Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (from a non-campus phone), 2-3003 (from a campus phone). You may also dial 911.</p>
