

**BIOL 5314: BIOMETRY**  
Spring 2018

**Instructor(s):** Dr. Walter E. Schargel

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**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 5314 sec 001

**Time and Place of Class Meetings:** Monday and Wednesday, 5:30 – 6:50 pm, LS 102

**Description of Course Content:** An examination of statistical methods and procedures in relation to the design of biological experiments and the analysis of their results.

**Student Learning Outcomes:** The student should develop an understanding of the most fundamental aspects of statistics, such as theoretical statistical distributions, hypothesis testing, analysis of variance and regression analysis. Students are also expected to develop the ability to select the appropriate statistical techniques to biological datasets for specific research questions. These outcomes will be assessed by using exams/homework aimed to test conceptual understanding of statistical techniques and ideas as well as the use of statistical techniques on actual numerical problems.

**Required Textbooks and Other Course Materials:** Required textbook: Intuitive Biostatistics, 4<sup>th</sup> edition, Harvey Motulsky, Oxford University Press.

**Descriptions of major assignments and examinations:** See the grading section.

**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.

**Grading:** Grades will be based on **several homework assignments + paper discussion (45% of your grade), two exams (45% of your grade), and quizzes (10%)**. Some homework will be done by hand but for most assignments you will have to use the statistical programming language "R". The standard UTA scheme for assigning letter grades will be used.

**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/>).

**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.

**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/titleX](http://www.uta.edu/titleX).

**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.

## Course Schedule

<b>Week</b>	<b>Topic</b>
1 <sup>st</sup> : Jan 16–19	Introducing statistics
2 <sup>nd</sup> : Jan 22–26	Introducing confidence intervals / continuous variables
3 <sup>rd</sup> : Jan 29– Feb 2	Introducing confidence intervals / continuous variables
4 <sup>th</sup> : Feb 5–9	P-values and statistical significance
5 <sup>th</sup> : Feb 12–16	P-values and statistical significance
6 <sup>th</sup> : Feb 19–23	Challenges in statistics
7 <sup>th</sup> : Feb 26–Mar 2	Challenges in statistics
8 <sup>th</sup> : Mar 5–9	<b>Midterm Exam</b>
9 <sup>th</sup> : Mar 12–16	<b>Spring break!!!</b>
10 <sup>th</sup> : Mar 19–23	Statistical tests
11 <sup>th</sup> : Mar 26–30	Statistical tests
12 <sup>th</sup> : Apr 2–6	Fitting models to data
13 <sup>th</sup> : Apr 9–13	The rest of statistics
14 <sup>th</sup> : Apr 16–20	The rest of statistics
15 <sup>th</sup> : Apr 23–27	Multivariate statistical analysis
16 <sup>th</sup> : Apr 30–May 5	Putting it all together
<b>May 7 (Monday)</b>	<b>FINAL EXAM 5:30 – 8:00 pm</b>

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