The University of Texas at Austin

BIO318M - Biostatistics

SPRING 2012

Lectures:	**Labs: ACA 1.126**
TTh 9.30 – 11.00 AM (48735-50) BUR 216	F 9.00 – 11.00* AM (48735) F 11.00 – 1.00* PM (48740) F 1.00 – 3.00* PM (48745) F 3.00 – 5.00* PM (48750)
TTh 12.30 – 2.00 PM (48755-70) CPE 2.206	M 9.00 – 11.00* AM (48755) M 11.00 – 1.00* PM (48760) M 1.00 – 3.00* PM (48765) M 3.00 – 5.00* PM (48770)
TTh 3.30 – 5.00 PM (48795-10) WEL 2.312	W 9.00 – 11.00* PM (48795) W 11.00 – 1.00* PM (48800) W 1.00 – 3.00* PM (48805) W 3.00 – 5.00* PM (48810)

*** FIRST LAB HOUR REQUIRED**,
Second hour (ASSIGNMENT & EXAM REVIEW) attendance is STRONGLY recommended
- During long semesters, if you cannot attend your registered second hour, feel free to attend any other second hour!

Instructor:
Dr. James Bryant
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Phone: 232-6491
Email: jtbryant@austin.utexas.edu
Web: www.bio.utexas.edu/faculty/bryant
Office Hours: Wednesdays 9.00 AM – 12.00 PM.
Please email me 4 days & time ranges **based upon my teaching schedule on Bb** and which are convenient for you to meet. I can then select the earliest available time for us to meet.

Teaching Assistants:
T.B.A.

Grader:
T.B.A.

NOTE: CAREFULLY READ THE COMPLETE SYLLABUS

Course Summary:

This is a fast paced & high work load introductory/intermediate statistics course for both a general audience & biological science students; emphasizing principles of experimental design and the organization, presentation, analysis, and interpretation of data. Inferential statistical tests will be presented and their use emphasized through a wide array of examples.

The course emphasizes understanding of the material above memorization, by focusing on critical thinking, a systematic approach to problem solving, active learning, course work & group activities. In order to master the material & do well in the course ***attendance & active engagement are essential*** and are rewarded in the overall grading structure.

Course Objectives:

This course is designed to promote critical thinking & problem solving skills**.** Critical thinking is the mental process of actively and skillfully conceptualizing, analyzing, synthesizing and evaluating information to reach an appropriate conclusion or decision. These skills are highlighted within the course, as they are necessary for successful academic endeavors, and are essential within the work environment; especially for professions such as lawyers, physicians and scientists.

Following the course, students will be able to design experiments to test their own scientific questions, determine & conduct appropriate descriptive & inferential analyses of their data sets.

The course will show you how to learn efficiently on their own & how to review biological & general literature; with a mind to critical evaluation of the experimental design & results. You will acquire an appreciation for communities (samples and populations), positive & negative errors (imperfections within the world and experiments), risk assessment, decision making & how all of these skills can affect your pursuits in both the biological & personal arenas.

Course Content & Teaching Style:

This course is designed to permit you to become self sufficient thinker & also users of appropriate statistical methods. In order to master statistics, you should expect to employ new ways of thinking, critically view all information & employ systematic problem solving skills. Course success requires work & commitment on your part.

This is a 3 credit hour course & students must be willing and able to commit the time necessary for class preparation and assigned course work. UT recommends that students be able to devote 3 hours of study per week per credit hour, during a typical long semester. As BIO318M is a 3 credit hour course, 9 hours of study per week would be recommended.

This course carries a Quantitative Reasoning Flag, which is designed to help equip you with the skills necessary to utilize quantitative skills and make quantitative arguments within the professional world. A substantial proportion of your course grade will, therefore, come from your use of quantitative skills to analyze real world problem sets and data.

NOTE: CAREFULLY READ THE COMPLETE SYLLABUS

Students who are willing to invest the appropriate time and effort in the course and seek help as needed, typically excel on exams and overall within the course. Student's who do not meet the requirements for attendance, participation, course work, or seeking help as needed, typically do not pass the course.

Textbooks:

- Samuels, M.L. & J.A. Witmer, **Statistics for the Life Sciences**, 4th Edition (Pearson Education, Inc., New York, 2012) **REQUIRED**
- Huff, D., **How To Lie With Statistics**, (W.W. Norton, New York, 1993) **RECOMMENDED**
- Zar, J.H., **Biostatistical Analysis**, 4th Edition (Prentice Hall, 1999) **OPTIONAL REFERENCE**
- Sokal, R.R. & Rohlf, F.J., **Biometry**, 3rd Edition (Freeman, New York, 1995) **OPTIONAL REFERENCE**

Blackboard (Bb):

Announcements, course material, exam keys, grades and discussion boards are available on the BIO318M Blackboard site (http://courses.utexas.edu). **Students are expected to CHECK Bb ON A DAILY BASIS.**

Students are encouraged to post any questions or answers to other student's questions, to the discussion boards on Blackboard; to help everyone better understand the material. Students are also encouraged to post suggestions and feedback to improve the course for the benefit of everyone.

Emails:

Students are expected to **CHECK EMAILS ON A DAILY BASIS**.

Students who do not receive an initial email, through Bb, from their instructor within the first class week should immediately contact their instructor, regarding the problem.

Students are free to email their instructor with questions or to schedule an appointment.

IN ALL EMAILs:

1. Put "BIO318M" as the first word of the subject line, or your email will not be delivered due to spam filtering restrictions.

2. Make sure you include a description of the purpose of the email in the remaining subject line; e.g. "BIO318M meeting request".

3. Include your full name, course & section number at the end of your email.

Your instructor receives a huge volume of emails and if you do not include all pertinent information your email, your email will go unanswered.

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Requesting Appointments:

Your instructor meets a large number of students, so when requesting a meeting by email always provide **4 day and time ranges *based upon your instructors teaching schedule*** and which are convenient for you. Your instructors schedule is posted on Bb.

It is unlikely your instructor will be able to schedule meetings with less than two days notice and no meetings will be scheduled two days before or after an exam.

Individual student meetings are schedule for 30 minutes. However, if there are more than 3 students within a group meetings can be scheduled for 1 hour, upon request.

Abuse of Bb & Emails:

Do not send group emails, unless the emails have been approved by your instructor & are course related. Students who use Bb or UT facilities in an inappropriate fashion will be referred to Student Judicial Services.

Classroom Response System (CRS or CPS):

Attendance, class participation & data collection will be assessed using CRS handsets.

CRS clickers can be obtained through the **University Co-Op.** Students should ask for the **WHITE "iClicker" pads**, either of the two versions of iClicker pads may be used within the course.

Enrollment instructions for the pads will be made available on Blackboard and on the first class day. The instructions which came with the pads should be ignored!

The iClickers will be employed from the second class day and students are expected to have obtained and registered their units, through Bb, prior to the second day of class – or they may not receive be able to receive attendance or participation credit for the semester.

Please contact the ITS helpdesk for assistance with any problems with your clicker or registering your clicker through Bb.

NOTE:

- *Clickers are used to provide students with anonymous personal feedback during lectures. Correct CRS responses will not be scored & will never count toward your final grade.*

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Preparation for Lectures:

Lectures will be presented using the *Socratic Method*, in which students are randomly selected to answer questions.

- Questions are released before the lecture period in the form of pre-lecture notes, so that all students have the opportunity to prepare for any question they may be asked in class. Failing to answer or incorrectly answering will adversely affect your participation grade.
- Lectures are not a replacement for independent study and students are expected to have thoroughly read the text book prior to each class.
- During every lecture students are advised to have tables, formula sheets and scratch paper on their desks' in front of them.
- After lectures, students should thoroughly re-read the book & lecture notes, taking notes & drawing concept maps to help them master the material.

The material in this course is highly integrated and extensive review will help you to assemble the concepts into a productive integrated whole, in preparation for the comprehensive exams.

If after reading the material you do not understand the material or concepts, or you have questions, you are advised to seek **IMMEDIATE** assistance from your instructor.

The *Socratic Method* of learning is designed to help you become efficient, independent learners and will help you to learn within your future courses, during medical school, graduate school or within your professional careers.

Lab Sessions:

Lab sessions are designed to be a guided learning experience, in which you will interpret information on your own.

Although the material covered in the lab sessions will not feature directly on exams. The problem solving and interpretation skills highlighted within lab sessions will extensively figure within the course and on all exams.

Labs are scheduled for 1 hour, but the room and TAs are available for an additional hour after each lab. You are strongly encouraged to stay after the initial hour, if your schedule permits.

During the first hour students will discuss the interpreting the data sets presented. Students will formally write the answers to the lab exercises, along with that week's SLS assignment, in their own time.

Students will be **randomly** assigned into small groups, to promote discussion & problem solving. After initial discussion of problems within the small groups, the class will get together to review the material covered together. Please make sure you do not move onto the next problem until you fully understand the material as a group.

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The TAs are there to facilitate you through questioning data and forming your own questions to understand the problem sets. The TAs are not there to directly give you the answers to problems or questions.

During the second hour, students and TAs will thoroughly review returned assignments, review the exams and answer any questions.

Computer Software:

The statistical software package SPSS 16.0 will be used extensively by students both within the lab sessions & course.

SPSS is used to speed up statistical analyses, it is a relatively simple package to master and highlights one of the more common packages used by a variety of industries.

The SPSS software package is available for use on the PCs in ACA 1.126. Students may also purchase SPSS 16.0 "Grad Pack" in the University Co-Op (which has a 4 year license and is a great deal if you plan on pursuing academic careers).

The computer labs will be held in ACA 1.126 and printing to the local printers in this room is free. However, there is a user limit set on the number of pages printed; once this has been exceeded students will be charged per sheet printed. The quota has been set to cover the needs of this course only and will **NOT** support additional printing.

Your data files will only be stored for up to 24 hours in ACA 1.126 – after this time the data will be automatically deleted. Please make sure you make copies of your data to a flash drive, or webspace or email the files to yourself.

ACA 1.126 is available during the scheduled lab times and for independent study when classes are not scheduled. (Please refer to the posted schedule at http://www.biosci.utexas.edu/computer/labs/reservations).

Students should not use MS Excel for any work within this course. Excel is a spreadsheet, with some statistical routines added and does not support appropriate statistical data analysis. Any work submitted using Excel will receive zero credit.

Calculators:

Students may **ONLY** use either the Texas Instruments **TI-30XA** or **TI36X** calculator within the course or within exams. Both of the required calculators are available from general stores such as Walmart or Target, for about $10 - $15.

Students should ensure that they are fully conversant with how to calculate the sample mean and standard deviation using either of the permitted calculators.

The use of graphing calculators, calculators with extensive memory functions or cell phones are not permitted within the course or within exams. No similar model TI calculators with arrow keys or multiple memories are permitted within the course or exams.

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IF Account:

An IF account is required for use of the computers within the computer lab. To sign up for an IF account visit http://www.utexas.edu/its/account.

Office Hours & Study Groups:

Students are encouraged and are welcome to make an appointment with their instructor, through email.

Scheduled office hours will be arranged during the first week of class.

Your instructor will schedule routine weekly study groups to answer questions and review assignments and exams.

Grading Policies - OVERVIEW:

The grading structure for the course has been designed to help the majority of students master the subject and achieve good grades within the course. Student's performance is based on skill set mastery, outlined in the grading rubric, which will be provided at the beginning of the course & is also available on Bb.

Your course grade is determined by your willingness to engage within the course.

Students, who do not do well in the course, typically have not attended the lectures or labs, have not adequately completed assignments, have poor exam performance, have not sort assistance with problems or have non-academic matters which affect their performance.

Overall Course Grade BREAKDOWN:

Final course grades will be reported using a plus/minus grading scheme.

The contribution of course work to the final grade is as follows:

Assignments		**5%**
	(50% completion & 50% correct)	
Group Project		10%
Exam 1		**10%**
Exam 2		10%
Exam 3		**10%**
Exam 4	(FINAL EXAM)	40%
SPSS/lab Exam		**5%**
Attendance		5%
	(Lec 2/3, Lab 1/3)*	
Participation		**5%***

Final Course Grade Assignment:

The grading policy is designed to emphasize subject mastery and to allow students a true perspective of their performance on an absolute scale of achievement. Students will be provided with grade distributions for course work and the rough A/B/C letter grade boundaries will be highlighted for exams.

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Final course grade awards are final, *unless* there has been a documented grading error. Negotiation of letter grades will **not** be entered into. However, students are encouraged to direct any questions about the grading policy or errors in grading individual work, to their instructor **immediately**. Questions regarding grading should be ***discussed in person*** with your instructor, **at the time** that grades are distributed.

The overall course letter grade, is derived from the proportional contributions of; attendance, credit opportunities (if offered), assignment grades, group projects and exam grades. The final course letter grade will be assessed at the end of the course and the numerical letter boundaries will be determined each semester based upon skill acquisition highlighted in the grading rubric. On-going course grades are **not curved** and the rough A/B/C letter grade boundary will be highlighted – to allow students to determine their own performance within the course. If you have any questions about your course performance or grades – please schedule an appointment with your instructor immediately.

The approximate **mean percentage performance** of students who have previously taken this course and been awarded a final letter grade of A, B or C are shown:

	A	**B**	**C**
Assignments (% correctly answered)	**88%**	**83%**	**73%**
Group Project	78%	76%	73%
Exam 1	**87%**	**76%**	**70%**
Exam 2	88%	76%	73%
Exam 3	**75%**	**68%**	**63%**
Exam 4 (FINAL EXAM)	74%	65%	59%
Attendance/Participation	**98%**	**96%**	**94%**
Number of Absences (Mean)	0.9	1.5	2.7

NOTE:

- These figures are rough mean indicators of course work grades that contribute to the appropriate final letter grade.

- The instructor reserves the right to curve the course work score cut off boundaries, **up or down**, for letter grade determination; depending upon the specific rigor of exercises, according to the grading rubric.

  As students learn at different rates, there are two ways to achieve an A or B in the course.

  ONE: through consistent performance during the course, as outlined in the grading overview.

  ***TWO:**, By demonstrating subject mastery on the accumulative final exam.*

  - **ANY** student achieving a score of **75%** or higher on the **final exam** will be awarded an A in the course.
  - **ANY** student achieving a score of **65%** or higher on the **final exam** will be awarded a B in the course.

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- **ANY** student making less than **25%** on the **final exam** will be awarded an F in the course.

No student will be promoted to an A or B by their final performance, if they have more than 4 absences, or have an average assignment grade of 65% or less or have missed 1 or more midterm exams!

Attendance & Participation:

Attendance & participation account for 5% of the course grade, each.

Attendance and participation are heavily emphasized within this course, as these are **strongly associated** with exam performance and overall course performance.

The attendance policy is designed to help students balance their course loads and time demands, while appreciating the cost to performance by missing lectures and labs.

Students who obtain either an A or B grade within the course, typically have only missed 2 (or fewer) lectures and/or labs.

Students who have no absences at the end of the semester will be awarded 5%. for their attendance. Attendance credit will be awarded in lower increments as the number of absences increase.

Number of Absences	Attendance (Credit – up to 5%)
0	5%
1	4%
2	3%
3	2%
4	1%
5	0%

Attendance will be taken at the BEGINNING of each lecture using the iclickers only and at the beginning of each lab, by your TA. Please make sure your clicker is working & has fully charged batteries. Students who do not answer the attendance clicker question, and all subsequent clicker questions, will be counted at absent.

Students may record clicker responses on paper twice for attendance & participation credit, during the semester! Please write your clicker answers on a letter sized sheet of paper, along with your full name, course number, course time & DATE to your instructor at the end of class.

If you know that you are going to be late to a lecture or lab please make prior written arrangements with your instructor!

Lectures will be presented using the Socratic Method, in which students will be randomly selected to answer questions – which will be presented in pre-lecture notes ahead of time. Students have 3 opportunities to not answer questions when selected

or to answer questions incorrectly. After the 3rd opportunity students will lose participation extra credit for not being able to answer content questions.

Students absent from a class, or examination, for the observance of a religious holy day may complete the work missed within a reasonable time after the absence, provided prior written notice has been given. Notice must be given fourteen days prior to the class for which the student will be absent. Religious holy days which fall within the first two weeks of the semester, require notice on the first day of class. Notice must be personally delivered to the instructor, signed & dated by the instructor, or sent via certified mail return receipt requested. A student who fails to complete missed work within the time allowed will be subject to the normal academic penalties.

Credit for absences will only be given for documented religious holidays (see above) and documented events which are out of students control; for instance illness with a doctor's note. Please contact your instructor immediately if you have a non-academic issue which affects your attendance.

Students who have legitimate non-academic reasons for missing class are *strongly recommended to speak to their instructor and to the Dean's Office immediately,* to ensure that their course grade is not unduly affected. Students should also contact the Dean's Office immediately regarding any non-academic issue that affects their performance within this & all classes.

Written work:

- All course work; (except the SPSS assignment questions) should be handwritten legibly and should contain the students name, course name & date at the top of the work (See Bb instructions).
- SPSS output should be pasted into MS Word and the output data should be **extensively annotated** (see Bb instructions).
- Any work which does not contain the students name or date will not be graded for credit.
- Any work which is **illegible** will not be graded for credit.
- Assignments should be **stapled** neatly & any rough edges from spiral binders should be removed **prior to turning in,** or the work will receive zero credit.
- **NO LATE WORK WILL BE MARKED FOR CREDIT!**

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Assignments:

The assignment grade accounts for 5% of the course grade.

Assignments will be graded for completion & two random questions per exercise will be graded for correctness.

50% of the assignment grade will be awarded for completing the assignment questions and 50% of the assignment grade will be awarded for correctly answering the two random assignment questions which are graded per week.

Your assignment performance is the strongest indicator of course and exam performance, after attendance. You should use your performance performance on assignments as a guide for seeking assistance from their instructor.

Assignments are designed to take about 3 - 4 hours to complete and are designed to help you master the material.

Students who take longer than 3 - 4 hours to complete assignments may not be approaching the problems appropriately and should contact their instructor immediately for assistance. It is much more productive to seek help, than to keep putting excessive effort into something which you do not understand.

Assignments are only distributed at the beginning of each lab session. Completed assignments must be stapled (ahead of time), hand written and returned **at the beginning** of the following lab session. Assignments handed in late will **not** be marked for credit.

If you are not correctly answering over 80% of the graded assignment questions correctly you should speak to your instructor ***immediately***.

Students are encouraged to work together to discuss problem solving approaches within labs and on assignments. Students should not write up solutions to the problems together – assignments which look identical will be considered to have been copied & these students will be referred to judicial services!

Group Projects (LONG SEMESTERS ONLY):

The group project is an important learning tool & helps students to integrate statistical methods into a real world research project.

During the course, students will be randomly assigned to small groups for a semester long group project. In the project, students should identify a testable broad topic of interest. Groups should design methodologies to test their scientific questions of interest (5 questions of interest at least), should implement a small study, appropriately sample the population (about 100-200 cases), and report the data, statistical inferences and critically evaluate the study in an appropriately written scientific report.

The group project will account for 10% of each student's final course grade and will be assessed based upon the quality of their written reports. The apportionment of the overall group project grade to each group member will be determined by an anonymous vote by each group member, at the end of the project, and will be based upon the relative proportion of participation of all individual group members.

Exams:

All exams are cumulative, as all of the course material is required to correctly present and analyze data.

There will be four exams during the course, including the final. The first 3 exams **each** account for **only 10%** of the final course grade. The final exam accounts for 40% of the final course grade.

The 3 midterm exams provide feedback to the students, to highlight subject understanding and help students determine what areas of the material require attention. Please speak to your instructor immediately if your exam scores are lower than the b/c boundary. It is easier to handle subject difficulties earlier in the course, than later.

Exams will be administered outside of lecture & lab times*,* in order to provide students with sufficient time to carry out the tests. Students with conflicting University classes or examinations wishing to sit an alternative exam must 1) have responded to the emailed survey at the beginning of the semester and 2) submit a reminder to the instructor ***in writing at least two lectures*** prior to each scheduled exam. The request must site the course number, meeting time, instructor's name and reason for inability to attend the scheduled exam and additional times available to sit an alternative exam time. Students with an academic conflict may then take the exam at another scheduled time. Students who do not respond to the emailed survey at the beginning of the semester may not sit alternative exam sessions.

If it is not possible to schedule an alternative exam for an individual student, then the grade for exam 2 will replace the grades for missed exams 1 & 3 and exam grade 3 will replace missed exam 2 grades.

Rough A/B/C letter grade boundaries will be provided after each midterm exam. Students should *use their exam grades as a* ***learning tool*** *and a* guide for seeking assistance from their instructor.

Successive exams increase in rigor over the course; as the amount of material tested increases and as the material increases in complexity. The exams are written to have an average of about 60%. The difficulty and mean of the exams has been chosen to allow students the maximum opportunity to determine where they have made mistakes. Students who treat this opportunity positively typically show great improvement in performance during the semester and do exceptionally well in the course.

NOTE: CAREFULLY READ THE COMPLETE SYLLABUS

Return & Reviewing of Exams & Work:

Exams will not be returned to students.

Exams 1 – 3 will be reviewed with your TA in the second hour of the lab sessions or alternatively by appointment with your instructor.

Students who fail to return exams 1 – 3 after review at the end of the second hour of the lab sessions will be referred to Judicial Services & will receive a failing grade within the course.

Graded assignments will be returned to students to provide feedback. Students may set up an appointment with their TA or instructor to collect any outstanding assignments which may not be returned due to scheduling issues.

Advice for Being A Successful & Productive Student:

- Your initial grade in any course is 0%. YOU earn your own grade from that point.
- You can ONLY succeed through putting in the work to the material. “Only in the dictionary does SUCCESS come before WORK”
- Your instructors are there to help you
- Ensure you follow all instructions carefully. Instructions are there to simplify everyone’s lives. Not following instructions is one of the biggest reasons that students to perform to their full potential in most classes
- Have a positive attitude. The more positive you can remain the quicker you will rebound from the knocks that life comes up with. Unfortunately success only comes after failure. Successfully people are those who have kept trying.
- Always ask questions and address complaints immediately and directly following the policies. Mistakes happen and things break. Although no one likes to be the one to have to sort out problems it is always better to resolve problems early on, when they are relatively small, easy to remedy and people’s emotions have not been engaged.
- Read the syllabus (thoroughly) at the beginning of the semester and refer to the syllabus all the way through the semester. Syllabi are written to help you succeed and to know the expectations upon you in the course.
- Never leave things to the last minute. No one produces their best work when they leave things to the last minute. You will also deprive yourself of the opportunity of receiving assistance from your colleagues and instructor.
- Enjoy what you study. You cannot excel in a course or subject that you don’t like. If you don’t like the course or teaching style, select another offering of the course or choose another course to fulfill your degree plan requirements.
- Don’t WHINE – negative comments are very destructive and never help anyone; including yourself. It is hard for colleague, instructors and advisors to help students who are rude, mean spirited, or offensive.
- Make sure you only sign up for classes or a work load that you can complete. If you take too many or too demanding classes you will burn yourself out and will adversely affect your performance and GPA.
- Non-majors courses are no less demanding or time consuming than majors courses

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Dropping the Class:

Students are advised to Q drop the course if they

1) are unable to devote the necessary time to the course
2) are unable to dedicate the necessary effort to the course
3) are unwilling seek help from their instructor as they require it.
4) decide they don't like the material or style of instruction.

It is much better for students to Q drop courses they do not have the resources to excel in, than to earn a failing grade at the end of the semester.

Students may drop the course prior to the 4th class day without penalty. Students may self elect to drop the course as indicated by University policy. The instructor adheres to university policy on awarding Q/F drops!

Auditing the Class:

Students may not audit this course. Historically, students who have audited the class have either not completed the course or not done well in the course.

Classroom Distractions:

- Students are required to sit together at the front of the room in the middle of rows.
- Any late comers are asked to sit on the sides of the room closest to the door to minimize distraction.
- Cell phones should be turned off prior to class
- *Laptop computers are NOT permitted in class*.

Accommodations For Students With Disabilities:

Any student with a disability who requires academic accommodations should contact the Services for Students with Disabilities area of the Office of the Dean of Students at 471-6259 or 471-4641 (TTY) as soon as possible, so that the appropriate accommodations can be made.

Students with accommodations from the Services for Students with Disabilities Office must provide **written documentation** of the required accommodations within the first week of the course.

Students who require additional time on exams, which has been authorized in writing by the SSD, are responsible for coordinating the exam schedule with both the SSD & their instructor. Arrangements for exam schedules, for students requiring extra time, must be made by the student at least **7 days in advance** of the regularly scheduled exam & the **arrangements must be emailed to the instructor ahead of each & every exam.** Students who fail to successfully co-ordinate or arrange their exams through the SSD appropriately may be unable to sit the exam.

Non-Academic Issues:

Any students with personal non-academic issues which may affect your performance in the class are requested to speak to the Office of the Dean of Students for Natural Sciences at 471-4536 as soon as possible, so that the appropriate accommodations can be made.

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Academic Honesty:

- Students are expected to behave with integrity.
- Students are advised to completely understand and respect the definitions of cheating, plagiarism and collusion. If you have any questions regarding these practices please contact your instructor; as it is better to be safe than sorry.
    - Cheating involves the distribution of keys or copying other students works, for example within an exam.
    - Plagiarism involves the use and reporting of other individuals ideas and not accrediting those individuals accordingly.
    - Collusion involves the working together of students on projects, which are designed to be attempted by individual students.
- UT policy requires that all students who are identified as committing any of these acts should be reported to Student Judicial Services. Please ensure that you fully understand and respect the definitions of these unacceptable behaviors.
- Any student found distributing keys to exams or distributing past exam papers/questions will be referred to Judicial Services; with a recommendation of receiving an F in the course.
- Any student found distributing keys to current or past assignments or distributing past assignments/questions will be referred to Judicial Services; with a recommendation of receiving an F in the course.
- Any student found distributing keys to current or past extra credit exercises or distributing past extra credit questions will be referred to Judicial Services; with a recommendation of receiving an F in the course.
- Any student found to have copied from an exam (previous or current) will be referred to Judicial Services; with a recommendation of receiving a zero for their exam grade and a final course grade reduction.
- Any student found to have copied another student's assignment (previous or current) will be referred to Judicial Services; with a recommendation of receiving a zero for their assignment grade and a final course grade reduction.
- Any student found to have copied another student's extra-credit assignment (previous or current) will be referred to Judicial Services; with a recommendation of receiving a zero for their extra credit grade and a final course grade reduction.
- For information on the University of Texas Scholastic dishonesty policy, see the 2003-2004 General Information Catalog, Appendix C.

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References for Students:
I am happy to write references. However, I write letters of recommendation as a courtesy and I can only write letters as my work schedule permits (typically in batches every 3 – 6 months)! Make sure you follow **ALL** of the instructions & submit the **COMPLETED** package early. I will not write recommendation letters for anyone who doesn't follow **ALL** of the instructions!

It is important that you realize that you earned your course grade & create your own reference; through your performance while within the course. To write a strong reference, your engagement, performance and critical thinking ability **must stand out**. The more I am able to mention tangibles such as attendance, participation, course work grades, exam results, critical thinking and problem solving ability; the stronger the reference. Employers, graduate school entrance committees and medical schools; are only concerned if you have the dedication, team aptitude & capability to carry out the work.

If you would like a reference **(5 total per student absolute limit)** contact me as early as possible & provide either **SINGLE completed** hand delivered (drop under my door PAI 1.48C) or mailed package - containing ALL of the following:

- Your full name (as shown on the formal UT roster)
- Your email address
- The course/s you took
- The semester you took the course
- The title of the position you are applying for!
- A contact name for the position (if available)!
- The address of the establishment
- The deadline date for the reference
- All necessary forms or waivers
- Supporting information, which accounts for any weak academic performance within the course you took!
- Short group project summary (if you completed one in the course)
- **TYPED/STAMPED** addressed envelope
    - (**4 1/8" x 9 1/2" ONLY**, NO FedEx or other envelopes!)
- **DO NOT** provide unrequested materials – these only distract me from completing the reference/recommendation letters.

NOTE:
1) I will need **ALL** of the above information for **EACH & EVERY** reference request!
2) Provide me with the information with at least 1 – 3 months notice.
3) I only type references, as the online systems are problematic & complicated to work with.

NOTE: CAREFULLY READ THE COMPLETE SYLLABUS

Lecture Guide:

The times of delivery & emphasis of course content are tentative.

Exam time & dates will be finalized within the first week of classes.

Lecture/ Date		Chapters
1	Overview, What is statistics? Types of statistics	Ch. 1 & 2
2	Terminology & defining variables, samples Descriptive statistics – important charts & measures of center & spread	Ch. 1 & 2
3	Measures of spread, shapes of data, sampling & inference	Ch. 2
4	Random sampling, the 7 probability rules & conditional probability	Ch. 1 & 3
5	Random variables, the binomial & Poisson distributions	Ch. 3 & **Bb Supplement**
6	The Poisson, normal & THE sampling distribution	**Bb Supplement** & Ch. 4 & 5
2/6/12	**Group Project 1 – 1 Page Project Description (MS Word)**	**Not in summer**
7	Populations, samples, THE sampling distribution & central limit theorem	Ch. 5
8	Statistical inference, standard error, confidence intervals & the t-distribution	Ch. 6
9	Sample sizes for precision, confidence interval requirements & CIs of proportions	Ch. 6 & 9
2/17/12	**Group Project 2 – 1 Page Project Description (MS Word)**	**Not in summer**
10	Questioning two samples, confidence intervals of two means & Hypothesis testing	Ch. 7
11	Hypothesis testing, the t-test & statistical significance	Ch. 7
12	The t-test, errors, directional tests & statistical power	Ch. 7
2/23/12	**EXAM 1**	**6.00 – 8.00 PM**
13	Statistical Power, Non-parametric tests (Wilcoxon-Mann-Whitney)	Ch. 7
14	Observation & experimental design techniques (Blocking, blinding & controls)	Ch. 1 & 8
15	Paired samples & inferential analysis – Paired CI & t-tests	Ch. 8
16	Non-parametric paired tests – Sign test & Wilcoxon Sign Rank & random concurrent controls	Ch. 8
3/9/12	**Group Project 3 – Raw Data (SPSS SAV file)**	**Not in summer**
17	Random concurrent controls & Inferential analysis of categorical data - Chi-square goodness of fit	Ch. 8 & 9
18	Inferential analysis of categorical data - Contingency tables 2 x 2	Ch. 9 & 10
3/22/12	**EXAM 2**	**6.00 – 8.00 PM**

NOTE: CAREFULLY READ THE COMPLETE SYLLABUS

19	Inferential analysis of categorical data - Contingency tables r x k, McNemars Test & The Kolmogorov Smirnov Test	Ch. 10 & **Bb Supplement**
20	The Kolmogorov-Smirnov & The ANOVA model	**Bb Supplement** & Ch. 11
21	One-way Analysis of variance (ANOVA)	Ch. 11
22	Two-Way ANOVA scenarios & post hoc tests (multiple comparisons)	Ch. 11
4/6/12	**Group Project 4 – Draft Final Report (MS Word)**	**Not in summer**
23	Multiple comparisons (Newman-Kauls, Bonferoni, Dunn-Sidak)	Ch. 11 & **Bb Supplement**
24	Regression analysis	Ch. 12
25	Correlation analysis	Ch. 12
26	Analysis strategies & The BIG Picture	Ch. 13
4/19/12	**EXAM 3**	**6.00 – 8.00 PM**
27	Group project presentations I	**Not in summer**
28	Group project presentations II	**Not in summer**
4/27/12	**Group Project 5 – FINAL REPORT (MS Word)**	**Not in summer**
4/30/12 – 5/4/12	**SPSS Final Exam**	
5/10/12 **5/10/12** **5/09/12**	**FINAL (48735-50) THU 2.00 – 5.00 PM** **FINAL (48755-70) THU 9.00 – 12.00 AM** **FINAL (48795-10) WED 9.00 – 12.00 AM**	**Rooms TBA**

SPRING 2012

BIO318M GRADING RUBRIC

- You are graded based upon **SUBJECT MASTERY** and **SKILL SET** achievement.
- To help you understand the grading structure I have put together the following grading rubric.
- The assignments & midterm exams are designed to help you to put the material together
- The grading emphasis for the midterm exams is 10% (of your final course grade), allows these exams to be formative.
- The assignments & exams are designed to challenge you with **MATERIAL YOU HAVEN'T SEEN BEFORE.**
- **Exams are written to have a MEAN score of approximately 60 % and B/C boundary of approximately 60%.**
- **The EXAMS are <u>YOUR</u> most important tool to assist <u>YOU</u> in mastering the material & to identify areas that need <u>YOUR</u> attention.**

Letter Grade	Mastery Level	Subject Mastery	Predicted Effort
A	Outstanding	• Fully able to formulate & solve ALL open ended problems • Successfully explain why a specific analysis strategy is employed • Fully able to critically explain how to proceed with data analyses • Fully comprehends limits & requirements of ALL hypothesis tests • Complete understanding of the limits of statistical inference • Has a complete grasp of the skills from levels B & C	• Student seeks assistance as needed • Assignments completed to very high standard • All course work completed & handed in • All course materials are read
B	Good	• Able to formulate & solve most open ended problems • Partial ability to critically explain how to proceed with data analyses • Apply protocols independently and when directed • Correct & consistent use of formal/informal hypothesis • General understanding of the limits & requirements of each hypothesis test • Strong understanding of the limits of statistical inference • Has a strong grasp of the skills from level C.	• Student seeks assistance as needed • Assignments completed to a high standard • All assignments completed & handed in • All course materials are read
C	Competent	• Demonstrate correct application of protocols when directed • Demonstrate correct adherence to statistical rules & principles • Present written statistical work in an orderly & logically fashion • Formulae, workings & hypotheses consistently presented • General appropriate use of nulls & alternative hypothesis	• Student seeks assistance as needed • Assignments completed & handed in. • Course materials are read
D or less	Incomplete	• Unable to demonstrate correct application of protocols when directed • Failure to demonstrate adherence to statistical rules • Failure to clearly or logically write statistical tests • Failure to write concisely & propose null hypothesis • Formulae, workings & hypotheses not consistently presented • Failure to show consistent acquisition of subject mastery	• Failure to seek assistance with problems • Assignments incomplete or not turned in. • Subject material not reviewed • Excessive absences