STAT 401, Section 001
Experimental Methods

Class: M F 8:00 am – 8:50 am 201 Thomas Bldg
W 8:00 am – 8:50 am 214 Boucke Bldg

Instructor: Dr. Armine Bagyan
Office 424A Thomas Bldg
Office Hours R F 9:45 am – 10:45 am
Office Phone (814) 865-3193
Email aub171@psu.edu

TA: Jingyi Ye
Office 418 Thomas
Office Hours M 1:30 pm – 3:30 pm
Office Phone (814) 865-3230
Email jxy196@psu.edu

If you cannot make it to my or the TA’s office hours and you need to see us, send us an email to schedule another meeting time.

Course Prerequisites: MATH 111 (Techniques of Calculus II) or MATH 141 (Calculus with Analytic Geometry II)

Course Materials:

Recommended Reading: Applied Statistics and Probability for Engineers by Douglas C. Montgomery and George C. Runger

Calculator: scientific calculator. You may use a non-cell phone calculator. However, if using a scientific calculator you cannot use its built-in functions (e.g. mean of a list of data), graphing, or statistical modes.

PLEASE BRING YOUR CALCULATOR TO CLASS!

Course Objective:
In this course you will learn the basic concepts and ideas of statistics and probability. You will get training in the use of statistical methods and graphics for the analysis and presentation of data encountered in engineering and other disciplines. The topics include introduction to probability, random variables, discrete and continuous distributions, conditional probability and independence, expectation and variance, joint distributions, correlation, central limit theorem, confidence and prediction intervals (one- and two-sample), sample size determination, statistical tests (one- and two-sample), simple linear regression, and analysis of variance if time permits.

Class Information and Materials:
Class announcements and materials will be regularly posted on ANGEL, so it is recommended that you check the site frequently. Some announcements and reminders will be made in class. Attendance is highly recommended since the lecture notes posted on ANGEL will not be complete. You are responsible for all announcements and supplements that given in any class and email.

Homework:
For homework due dates see the course schedule on ANGEL. Homework will be graded based on completeness and accuracy. To obtain full credit for a problem show all work! All homework assignments must be stapled to avoid lost pages and mixing of different homework. Write/type homework problems in the order they are assigned to.
avoid grading errors. Also, write your name legibly. Collaboration on homework is encouraged, however you must write and submit your own solutions. Copying (even partial) is not allowed!

Typically graded homework will be returned to you in class or right after class. It is your responsibility to contact me about your graded homework in case you missed the class when it was returned. Homework solutions will be posted on ANGEL around the time the homework is returned to you.

Each homework assignment is to be turned in at the beginning of class on the due date. After that the assignment will be considered late, and can be accepted with an automatic 20% reduction in your score only if you submit it in my mailbox in 325 Thomas Bldg by 4:00 pm on the same day it is due. (Do NOT bring your assignments to my office or TA’s office or mailbox!) After 4:00 pm on the due date, your late assignment will not be accepted and a 0 grade will be assigned. Homework assignments will not be accepted after the day they are due unless you make other arrangements with me before the due date.

Two lowest homework grades will be dropped at the end of the semester.

**Lab Activities:**
We will use R to complete lab assignments. The lab assignments will be graded as homework. Due dates for lab assignments will be announced in the course schedule on ANGEL. Lab assignments will be collected at the beginning of class on the due dates. The late homework assignment policy described above applies to late lab assignments.

**Quizzes:**
Throughout the semester there will be several small (possibly unannounced) quizzes on recent material. These quizzes will also be attendance checks.

**Exams:**
There will be two closed-book midterm exams. The two midterms will be given in the evening on the dates specified in the course schedule on ANGEL. You are required to bring your PSU ID card to the each of the exams. One double-sided handwritten letter-sized (8.5x11 inch) sheet of notes is allowed for each of the midterms. All the other sources of information (e.g. textbook, lecture notes, computer, phone, classmate, etc.) are not allowed during the midterms.

The final exam will be comprehensive with larger weight for the later topics. You are required to bring your PSU ID card. You will be allowed to bring two double-sided handwritten letter-sized (8.5x11 inch) sheets of notes to the final exam. All the other sources of information are not allowed during the final exam. According to the UP Spring 2016 schedule (http://registrar.psu.edu/academic_calendar/spring16.cfm) the final exam will take place during the week of May 2, 2016. The exact time and place will be announced later.

**Grading Appeals:**
From the day that any graded material is returned to you, you have one week to bring any errors in grading to my attention. After that no grade adjustments will be made.

**Evaluation:**

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<tr>
<th></th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework &amp; Labs</td>
<td>25%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exams (2)</td>
<td>40% (each 20%)</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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**Grading Scale:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>A</th>
<th>A –</th>
<th>B +</th>
<th>B</th>
<th>B –</th>
<th>C +</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>93 – 100</td>
<td>90 – 92.9</td>
<td>87 – 89.9</td>
<td>83 – 86.9</td>
<td>80 – 82.9</td>
<td>77 – 79.9</td>
<td>70 – 76.9</td>
<td>60 – 69.9</td>
<td>0 – 59.9</td>
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The break points above are tentative, and may be adjusted if I find it necessary based on the final course scores. In addition, I reserve the right to adjust final grades based on overall effort throughout the course.

**Makeup Policy:**

No makeup exams/quizzes will be given except for the University approved reasons. If due to a University approved reason you must miss an exam, you should talk to me as early as possible and provide me with an explanation in writing at least a week before the scheduled exam. Upon my approval a makeup exam/quiz will be scheduled. Without pre-notification and a valid reason you will receive a zero grade for the exam/quiz. If due to a University approved reason you miss a quiz, the makeup quiz has to be scheduled with me before the next class period. For all makeup quizzes, the attendance points will not be awarded, regardless of the reason to miss the quiz.

Considerations for early final examinations will be allowed to students with direct conflicts due to other required university activities. Directors of those programs must provide a valid letter requesting that the student be excused from the exam at least one week before the date of the exam.

If you are ill on a day that an assignment is due make sure you let me know via email that day before the class begins to make an alternative arrangement.

**University Sanctioned Reasons for Makeup:**

There are the following four University sanctioned reasons for a student to miss class.

– *An official University activity* – you must give me **before missing any exams or class activity** an official University excuse letter (does not include weddings, graduations, homecomings, family reunions, job interviews, or vacations).

– *Serious Illness* – requiring physician's care **at the time of your exam** (this does not include situations when appointments for physical, dental, or other such examinations are made for the time of the class, having a hangover, or being in bad mood).

– *Serious negative personal or family problem* – If you need to be off-campus for an emergency reason, either you or a friend **must notify the Student Life Office** in the Boucke Building, who will then notify me and the rest of your instructors that you have left the campus on an emergency. Otherwise you cannot make up your missed activity. Reasons include attending sick, injured family or close friends, attending funerals (does not include baby-sitting, family celebrations, attending weddings or showers, going on family vacations, or parties).

– **Attending a religious holiday service** – listed by the University.

In each of these situations you need to present valid documentation (such as a letter from your adviser, coach, health services, the Student Life Office).

**Academic Integrity:**

All Penn State and Eberly College of Science policies regarding academic integrity apply to this course. See [http://www.science.psu.edu/academic/Integrity/index.html](http://www.science.psu.edu/academic/Integrity/index.html) for details.

You are expected to act in an open, honest, and responsible manner.

Following the university policy, dishonesty of any kind will not be tolerated in this course. Dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating information, facilitating acts of academic dishonesty by others,
having unauthorized access and/or possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students found to be dishonest will receive academic sanctions and will be reported to the University's Judicial Affairs office for possible further disciplinary sanction.

**Cheating is unacceptable.** If the TA or I suspect you of cheating, you will receive a zero grade on the homework, lab, quiz or exam.

**Classroom Policy:**
All foods and drink (except bottled water) are not allowed in the classrooms. For more information see [http://guru.psu.edu/policies/AD62.html](http://guru.psu.edu/policies/AD62.html).

Please turn off all cell phones and put away all electronic devices (phones, tablets, laptops, etc.) and materials that are not directly related to the course. It is important that non-essential conversations are minimized. If you must leave early, please let me know at the beginning of class and sit near an exit to minimize classroom disturbance.

In case of a student’s misbehavior and/or engagement in any activity that is not directly related to the class and learning in the class, I reserve the right to ask that student to leave the classroom. Consequences may follow.

**Office for Disability Services Statement:**
Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services, ODS located in room 116 Boucke Building at 814-863-1807(V/TTY). For further information regarding ODS, please visit their web site at [www.equity.psu.edu/ods/](http://www.equity.psu.edu/ods/). Instructors should be notified as early in the semester as possible regarding the need for reasonable academic adjustments. Since many students have disabilities not readily noticeable, this announcement or statement encourages students to identify their needs early in the semester so timely adaptations can be made.

**Code of Mutual Respect and Cooperation and the Penn State Values:**
“The Eberly College of Science Code of Mutual Respect and Cooperation” [www.science.psu.edu/climate/Code-of-Mutual-Respect-final.pdf](http://www.science.psu.edu/climate/Code-of-Mutual-Respect-final.pdf) embodies the values that we hope our faculty, staff, and students possess and will endorse to make The Eberly College of Science a place where every individual feels respected and valued, as well as challenged and rewarded.”


The Eberly College of Science is committed to the academic success of students enrolled in the College's courses and undergraduate programs. When in need of help, students can utilize various College- and University-wide resources for learning assistance. See [http://science.psu.edu/advising/success/](http://science.psu.edu/advising/success/).