MAT167 Syllabus

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Department of Mathematics
Pima Community College

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Contents

1 MAT167 Syllabus

1.1 Course Information

Course information

    Course MAT 167: Introduction to Statistics
    Section 22684
    Location West Campus: Santa Rita A102
    Time Tuesday and Thursday: 9:10 – 10:25 am
    Website http://www.tanbakuchi.com/Courses/MAT167/
        (cAsE sensitive)
        Mirror (if main site is down): http://u.arizona.edu/~kuchi/
    Textbook <u>Elementary Statistics using the TI-83/84 plus calculator</u> by
        Mario F. Triola, 2nd edition.

Instructor information

    Instructor Anthony Tanbakuchi
    Office hours After class or by appointment
        Don't wait until office hours, ask me by email!
    Phone Office:(520) 626-4500, Fax: (520) 626-3893
    Email **mat167@tanbakuchi.com**
        <u>Email is the quickest and easiest way to contact me.</u>

Course description and objectives An applied introduction to statistics
and its underlying foundations in probability. Includes sampling, data
display, measures of central tendency, variability, and position; random
variables, probability, probability distributions; sampling distributions,
assessing normality, confidence intervals, hypothesis testing, ANOVA,
and regression. Use of the statistics software R is taught throughout
the course.

Prerequisites Within the last three years: MAT 144 or 151 with a C or better
or required score on the Mathematics assessment test. This is a university
level class. We have a <u>full</u> load of challenging material to cover and you
will have to work and study diligently to succeed.

Reading Before attempting the homework you need to read the associated
sections of the book. You are responsible for reading the sections listed
on the course calendar.

Home work A key component of this course is the homework. Homework as-
signments are posted on the course website. **Homework is always due
on the Tuesday following the date it is assigned.** Questions about
homework will be discussed in class. Late homework will be penalized.
No late homework will be accepted during the final week of class or final
exam week. **Homework must be neat and organized to receive
full credit.** Messy work leads to mistakes and I want you to develop
good habits.

Lecture notes It is your responsibility to take notes during class. If you miss
a class talk to a fellow student to get caught up. For many lectures,
outline notes will be posted as PDFs on the course website. If you wish
to use them it is your responsibility to print them. Do not print notes
on the classroom printer. Posted outline notes are not a replacement for
attending class. They do not contain the problems that we work out in
class.

Quizzes Quizzes will frequently be given at the beginning of class. They are
typically short and test whether you understood the homework, read the
book, and absorbed key concepts from the recent lectures. No makeup
quizzes are given. You will do well on the quizzes if you quickly review
the past two lectures before class, read the book, and completed and
understood the homework.

Exams There will be two midterm tests and a final exam. No makeup exams
will be given. The final exam is cumulative; this is your opportunity to
prove that you have mastered the material even if you struggled with it
on a previous test. If you would like your final exam returned to you
please bring a self addressed stamped envelope (with 2 first class stamps
on it) and turn it in with the final. I will mail your graded exam back to
you.

Computers & calculators It is not reasonable to analyze real data sets by
hand. I will teach you the underlying mathematics, how to manually do
the calculations, and how to analyze real data sets using "R" a high quality
open source statistical software package that runs on all major computer

platforms. It is freely downloadable at: http://www.r-project.org (see the course website for installation info). You will need to download and install it on a computer that you can access when working on your homework. You are expected to use "R" when appropriate. You do not need a TI-83/84 for this class.

Attendance Your success in this class is dependent on your attendance. Attendance is not optional. If you are going to miss class notify me by email in advance. If you accumulate 3 or more absences it is likely that you will fail the course. Plan to attend all lectures and if for some reason you miss a class then talk to your fellow classmates to ensure you return to class prepared.

Academic integrity and classroom conduct CHEATING IN ANY FORM IS NOT TOLERATED! Any form of cheating will instantly result in a grade of F for the course, a report of the incident to the department chairman, and more. . . I expect a you to conduct yourself professionally in class and uphold the highest level of academic integrity. Every individual in the class has a right to feel safe and be treated respectfully. Individuals disrupting the class or disrespecting others will be asked to leave.

Computer room policies To ensure the computers are not damaged, absolutely no food or drinks in the classroom. Even water is not permitted on the desks. Do not install any applications on the computers or change any settings unless instructed by faculty. Work must be saved on a USB flash-drive, data saved on disk will be deleted after class and in the event of a power failure.

Computer use during class You are welcome to try out examples during the lecture. Please don't do your homework during the lecture. Use of computers for email, web browsing, or other non-course related matters during class will result in a 0 for that week's quiz score. You must use the computers provided in the classroom, use of personal computers is not permitted during class.

1.2   Grading

Your final grade in the class is composed of the following components.

Quizzes 15% I will drop your lowest. No makeup quizzes are given.

Homework 15% "Random" sampling may be used for grading homework.

Midterm 40% No makeup tests are given. However, if your final exam score is higher than your lowest midterm test score I will replace the low score with your final exam score. (The reverse does NOT apply, your final exam score cannot be replaced.)

Final Exam 30% The final exam is cumulative, mark your calendar now to make sure you won't have a scheduling conflict. You must take the final exam at the scheduled time.

The following equation is used to calculate your final course average grade:

Course Ave = (Quiz Ave)·0.15+(HW Ave)·0.15+(Midterm Ave)·0.40+(Final Ave)·0.30

Final letter grades are awarded as follows:

A 90-100%

B 80-89.5%

C 70-79.5%

D 60-69.5%

F below 60%

Special grades Incomplete and late withdrawals are not generally given in this course. You can withdraw yourself until the withdrawal deadline. If you are having problems in the class come talk to me when the problem arises, not during the last weeks of class.

If you are concerned about your grade, please come talk to me. I will be happy to help you to determine what you can do to improve your class standing if you are willing to exert the effort.

1.3   Getting help

If you are stuck and need help with course material:

1. Read the book.
2. Check the course website for resources.
3. Ask a peer (studying with others after you have attempted the work yourself can be very helpful).

   Name _____ Email/phone _____

   Name _____ Email/phone _____

4. Send me an email at mat167@tanbakuchi.com. Start your homework early so you have time to ask questions. If you send me an email after 5 p.m. I won't likely answer the question until mid morning on the next business day.
5. Use the free tutoring help available at our institution.

1.4 Class calendar

Below is the tentative class calendar. An up to date version is on the course webpage. Check the webpage for homework assignments and changes.

1. Tue, Jan 20
   FOUNDATIONS
   Introductory Material. (Sections 1.1-1.4)
2. Thur, Jan 22
   Introduction to R.
3. Tue, Jan 27
   DESCRIPTIVE STATISTICS
   Summarizing & graphing data. (Sections 2.1-2.4)
4. Thur, Jan 29
   Summation Notation.
5. Tue, Feb 3
   Measures of center. (Sections 3.1-3.2)
6. Thur, Feb 5
   Measures of variation. (Sections 3.3)
7. Tue, Feb 10
   Relative standing and exploratory data analysis. (Sections 3.4-3.5)
8. Thur, Feb 12
   Descriptive Statistics: Case Study.
   PROBABILITY
   Probability I: Addition rule. (Sections 4.1-4.3)
9. Tue, Feb 17
   Probability II: Multiplication rule. (Sections 4.4-4.5)
10. Thur, Feb 19
    Random variables (Sections 5.1-5.2)
11. Tue, Feb 24
    MIDTERM I (Chapters 1-4)
12. Thur, Feb 26
    Rodeo Holiday (No Classes)
13. Tue, Mar 3
    Counting & Binomial distribution. (Sections 4.7, 5.3-5.4)
14. Thur, Mar 5
    Intro to the normal distribution. (Sections 6.1-6.2)
15. Tue, Mar 10
    Normal distribution cont. (Section 6.3)
16. Thur, Mar 12
    INFERENTIAL STATISTICS
    Sampling distributions, estimators, and the Central limit theorem (CLT). (Section 6.4-6.5)
17. Tue, Mar 17 & Thur, Mar 19
    Spring Break (No class)
18. Tue, Mar 24

Normal as approx. to the binomial and assessing normality. (Sections 6.6-6.7)

19. Thur, Mar 26
    Estimating a population proportion (Sections 7.1-7.2)
20. Tue, Mar 31
    Estimating a population mean. (Sections 7.3-7.4)
21. Thur, April 2
    HYPOTHESIS TESTING
    Intro to hypothesis testing (Sections 8.1-8.2)
22. Tue, April 7
    Testing a claim about a proportion (Section 8.3)
23. Thur, April 9
    Testing a claim about a mean (Section 8.4-8.5)
24. Tue, April 14
    Understanding tests and estimates
25. Thur, April 16
    MIDTERM II (Chapters 5-8 and 4.7)
26. Tue, April 21
    Inferences about two proportions (Sections 9.1-9.2)
27. Thur, April 23
    Inferences about two means & matched pairs (Section 9.3-9.4)
28. Tue, April 28
    MODELING AND TESTING RELATIONSHIPS
    Correlation (Section 10.1-10.2)
29. Thur, April 30
    Regression (Section 10.3)
    Variation and prediction intervals, multiple regression (Section 10.4-10.5)
30. Tue, May 5
    Contingency tables (Section 11.3)
31. Thur, May 7
    ANOVA I (Section 12.1)
32. Tue, May 12
    ANOVA II (Section 12.2)
33. Thur, May 14
    Review / Questions
34. Tue, May 19
    FINAL EXAM Chapters 1-12 (2 hours)

1.5   Math Department Guidelines

PIMA COMMUNITY COLLEGE
West Campus
MATH DEPARTMENT GUIDELINES
Spring 2009

As a college student enrolled in an academic course, you are expected to adhere to the standards of behavior outlined in the Student Code of Conduct (SCC) and the Scholastic Ethics Code. In particular, you are expected to cooperate with instructors in the performance of their duties and to refrain from obstructing other students in the pursuit of their education. Additionally:

1.   All students taking credit math courses at Pima Community College will need to meet the prerequisite(s) before registering. Prerequisites can be met by: within the last 3 years, either completing the prior Math course with a grade of C or better, or by assessing into the course. If you feel your placement score is inappropriate, you should review your math skills and knowledge, then retake the math assessment.

2.   You must be officially enrolled to attend class. If you have excessive absences or are routinely tardy, you could be withdrawn from your math class. It is the student's own responsibility to officially withdraw from the course prior to the session deadline: **First 5-week session (Feb. 17), first 8-week session (Feb. 25), second 5-week session (Mar.27), Traditional 16-week session (Apr. 9), second 8-week session (Apr. 29), third 5-week session (May 5). PLEASE READ YOUR INSTRUCTOR'S SYLLABUS.**

3.   Incomplete grades are rarely awarded and only under exceptional circumstances to students who are currently passing with a grade of "C" or better. This Grade is intended for students who have an emergency after the withdrawal date and have completed at least 75% of the course work. Documentation of the emergency is required.

4.   Cheating is grounds for dismissal from class and an "F" grade (refer to Scholastic Ethics Code).

5.   Knowledge of the prerequisite material is the responsibility of the student. (Little or no review of the prerequisite material will be done during class time.)

6.   Turn off cell phones, pagers, beepers, etc. before entering the classroom. If there is disruptive behavior the student may be withdrawn (refer to SCC/Syllabus). This includes, but is not limited to: leaving and reentering the room repeatedly, and text messaging.

7.   In a class where the homework is collected, it must be turned in when requested by the instructor. Under no circumstances will it be accepted late.

8.   Pima County Community College District strives to comply with the provisions of Title III of the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. Students with disabilities requiring special accommodations, including materials in an alternative format, are strongly encouraged to contact the Disabled Students Resources Office and the instructor so that appropriate verification and identification of reasonable accommodation may be made in a timely manner. (Accommodations cannot be made without verification of need.)

    Anthony Tanbakuchi   Mary Kay Gilliland
Mathematics Instructor   *DivisionDean,Science,Technology,Engineering,&Math*

    Roger Werbylo
Mathematics Department Chair

1.6   Student contract

Acknowledgment of Course Policies & Practices
1. I have received, read, and understand all of the syllabus policies and requirements.
2. I will check my email and the course website in a timely manner.
3. I give permission for my instructor to email any grades and materials associated with my student record for the duration of the course.
4. I understand that academic integrity is taken extremely seriously in this course and I am aware that any form of unethical conduct such as cheating or aiding cheating will result in an instant F in the course, a report of the incident to the mathematics department chair, and more.
5. I will email the instructor if I will be late or unable to attend class. Emails after the missed class will be frowned upon. Matters of attendance will not be discussed during official class time.
6. I will silence all electronic devices and <u>not</u> use the internet or message during class. If my cell phone, beeper, or any other alarm / device is heard during class I understand that I will be asked to leave. (If extraordinary circumstances require otherwise, I will inform the instructor before class.)
7. I will raise my hand, and speak when called upon.
8. In the classroom I will conduct myself in a respectful manner towards the instructor and fellow students such that no one's safety, ability to learn, or ability to participate is jeopardized. Moreover, I will affirm the importance and value of each individual in the class.
9. I acknowledge that the instructor is responsible for the class as a whole, and will defer to his requests regarding conversation and comment length.
10. I am aware that developing a complete grasp of statistics requires the use of technology. I will make the required arrangements to have a computer available to do the homework (computers are available on campus).
11. Since this is a university level course, I recognize that I need to dedicate between 8 to 16 hours of study time per week depending on my mathematical ability.
12. I will not be a negative, hostile, dead, or toxic energy drain. I will be a positive, energetic addition to this class.

> I sign this agreement to indicate that I agree with and will comply with the above statements.
>
> Your Name (print) ——————————————
>
> Signature ——————————————
>
> Date ——————————————
>
> Student ID ——————————————