



Frank Phillips College
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1. General Course Information

- 1.1. Course Number: Math 2442
- 1.2. Course Title: Introductory Statistics
- 1.3. SCH [Semester Credit Hours]: 4 CEU [Continuing Education Units] 4.8
NB: CLASS CAN NOT BE TAKEN FOR BOTH ACADEMIC AND CEU CREDIT
- 1.4. **Pre-requisites:** High-school algebra class or consent of instructor
- 1.5. **Co-requisites:** none
- 1.6. **Course Description:** This course is a study of the methods for the collection and tabulation of data, presentation of data in graphical formats such as bar and pie charts, sampling, calculation of common measures of central tendency and variability, types of variable data, correlation/regression, and common statistical fallacies, misunderstandings, and misapplications.
- 1.7. **Semester/year** Fall 2004 (Aug. – Dec.)

2. Instructor:

- 2.1. **Name:** Dr. F. George McDuffee¹
- 2.2. **Office:** Library Building Room L10 or CAI-104A on the Borger Campus
- 2.3. **Phone:** (w) 806.274.5311 X791 (L10) (h) 806.274.2113
- 2.4. **Office Hours:** 9AM/4PM M-F however call as I am frequently out of the office or try CAI-104A
- 2.5. **Email:** gmcduffee@fpc.cc.tx.us

3. Objective of this class: At the conclusion of this class, the successful completer will be able to:

- 3.1. Clearly differentiate between “Items of Fact” and “Articles of Faith,” using the “Logical Positivist” criteria², and explain why methodologies developed for “Items of fact” do not apply to “Articles of faith.”
- 3.2. Correctly identify the variable types of items within datasets as continuous, interval, ordinal, or categorical, and some applicable and non-applicable statistical techniques
- 3.3. Create a frequency table for a data set and draw a histogram.
- 3.4. Generate plots of datasets using Excel in a variety of formats.
- 3.5. Explain the significance of the mean, median, mode, range, variance, standard deviation, skewness and kurtosis of a dataset.
- 3.6. Manually and using Excel, compute the mean, median, mode, range, variance, standard deviation, skewness and kurtosis of a dataset.
- 3.7. Explain common statistical errors and misconceptions, e.g. why almost exactly ½ of any population will be below average no matter what is measured or how they are "treated."
- 3.8. Compute the probability of a compound event where the probabilities of the predicated events and composition of the event [and/or] are known.
- 3.9. Compute the number of permutations and combinations of n things taken r at a time.
- 3.10. Determine the probabilities associated with the binomial and normal distributions.
- 3.11. Test a hypothesis about a mean or variance both within and between/among continuous and interval datasets using the "null hypothesis" construction, for both large (z-test) and small (t-test) datasets.
- 3.12. Use chi-square testing to evaluate hypothesis about categorical data.

¹ AS Coffeyville Junior College 1960, BS [Applied Mathematics and Statistics] Southern Illinois University at Edwardsville, 1969, MS [Manufacturing Technology] Pittsburg State University 1993, EdS [Industrial Education] Pittsburg State University 1995, EdD [Occupational and Adult Education] Oklahoma State University 1999. With some overlap, 30 years manufacturing, 15 years consulting [technology transfer] and 10 years teaching.

² http://www.fact-index.com/l/lo/logical_positivism.html

- 3.13. Calculate linear correlation coefficients and regression equations [linear] between two appropriate variables, and plot the results using Excel.
- 3.14. Perform simple process capability studies using supplied data, create x-bar/R charts, chart data and detect in- and out-of- control conditions.

4. **Textbooks and Other Required Materials**

- 4.1. There are two **REQUIRED** texts:
 - 4.1.1. Spiegel, Murray R. *Schaum's Outline of Statistics* ISBN 0-0706-0281-6
 - 4.1.2. Runsey, Deborah. *Statistics For Dummies* ISBN 0-7645-5423-9
- 4.2. **OPTIONAL** texts you **MAY** find helpful include:
 - 4.2.1. Harvey, Greg. *Excel for Dummies* ISBN 1-5688-4050-0 (check to make sure which version of Excel you are using and get appropriate edition)
 - 4.2.2. Frye, Curtis. *Statistical Analysis with Excel for Dummies* ISBN 0-7645-7594-5
 - 4.2.3. Jaisingh, Lloyd R. and Rozakis, Laurie. *Statistics for the Utterly Confused* ISBN 0-0713-5005-5
- 4.3. **Book-bag, pillowcase or gunny sack to contain the following items:**
 - 4.3.1. Required texts and optional reference materials (see above)
 - 4.3.2. (3 or more) 3.5 1.44 megabyte floppy disks w/case or 2.5 megabyte ZIP disk w/case [see note on saving work] **These disks should be identified with your name, and should be in case.**
 - 4.3.3. Manual writing instrument such as pencil or ball point pen w/ spare (blue or black)
 - 4.3.4. 8.5 X 11 spiral bound notebook
 - 4.3.5. File folder for class hand outs
 - 4.3.6. Box of small paper clips [suggest placing in small "Baggie" as box will tend to spill in book bag.]
 - 4.3.7. 1 or more hi-liters

following items are optional but are very helpful for most students:

 - 4.3.8. pack of small multicolor "Post-It" notes.
 - 4.3.9. RED ball-point pen or pencil

5. **Classroom Policy and Instructor Expectations**

- 5.1. **→ Students will bring their book-bag with required contents including texts to all class meetings including tests. ←**
- 5.2. The students and instructor will show mutual respect at all times. *Please see the S.C.A.N.S. URL³ for additional discussion on this point.*
- 5.3. Behavior inconsistent with a safe and student-friendly learning environment for all students is not acceptable. *Please see the S.C.A.N.S. URL for additional discussion on this point*
- 5.4. Habits of neatness and safety are common workplace requirements. They are therefore required in this class. *Please see the S.C.A.N.S. URL for additional discussion on this point*
- 5.5. **Honesty is expected of all students.** Cheating and plagiarism are violations of honesty. Cheating occurs whenever one uses deceitful means, for example crib notes or copying assignments. Plagiarism is presenting the language and ideas of another as ones own work such as coping papers, themes, abstracts, sections of books, magazine articles, etc.

6. **Additional/Supplemental References**

- 6.1. See the Black Board web-site for class.
- 6.2. The instructor will provide additional handouts during class

7. **Methods of Evaluation & Schedule**

- 7.1. TBA -- The students ability to apply the presented statistical techniques to "real world" problems will be stressed

8. **Attendance Policy**

- 8.1. While attendance in many college classes is optional, ***attendance in life and at work is not***, therefore **all participants are expected to attend all sessions.** *Please see the S.C.A.N.S. URL for additional discussion*

³ Secretary's Commission on Achieving Necessary Skills (SCANS) <http://wdr.doleta.gov/SCANS/whatwork/whatwork.html>

on this point

- 8.2. I do not waste the class's or my time by presenting unimportant or non-essential information, therefore every class is important.
- 8.3. Much of the material is cumulative, that is to understand material presented in class two it is essential that you attended and understand the material presented in class one.
- 8.4. Participation is an important part of life, and class participation is a significant element in student evaluation. If you do not attend, you can't participate. *Please see the S.C.A.N.S. URL for additional discussion on this point.*
- 8.5. It is assumed that you are participating in this class to obtain skills and knowledge. It is obvious that if you do not attend, you cannot obtain these skills and knowledge.
- 8.6. FPC has excellent relations and high credibility with the area employers. A major factor in this is that our graduates have traditionally exhibited high "on-the-job" performance consistent with the skills and knowledge described in the course syllabi. The only way to maintain these relationships and credibility is to insure that every student is presented with the opportunity to obtain these skills and knowledge, and verification of the acquisition of these skills and knowledge, which obviously requires class attendance.
- 8.7. One of the most valuable and enjoyable aspects of adult education is the sharing of knowledge and experiences among the participants. If you do not attend, you cannot contribute your unique experiences and observations. Thus, your absences affect not only your learning opportunities but also the learning opportunities of all the other participants, which includes the instructor.

9. **Frank Phillips College [FPC] General Policies:**

- 9.1. **Assessment of Student Academic Achievement** - *Student learning is central to all that we do at the College.* Faculty assess student learning in a variety of ways, including in-course assessments, portfolios, certification examinations, employer surveys, transfer studies, and many others. The College measures its effectiveness through the results of our assessment of student learning and uses those results to improve student learning. **This two-way feedback is critical to our ongoing efforts to improve and expand our instructional efforts.**
- 9.2. **Students with Disabilities** - It is FPC's policy to provide reasonable accommodations to students with disabilities. Our goal is to help students succeed in this course. If you have a physical, mental, or learning disability and you need a reasonable accommodation to help you achieve success, please contact the Title IV Director (LIB 19 phone EXT 753). To best provide the accommodation you need, make this request as soon as possible, since **accommodations cannot be made to change a grade you have received for course work already completed.**
- 9.3. **Tutoring Services** - Tutoring services are available for most courses. These services are provided free of charge. Tutoring is provided by professional and student tutors. Tutor request cards are located at Student Services. For information, please call EXT 753.
- 9.4. **Course Withdrawal** - *If for any reason you cannot complete this or any other course, you must officially withdraw from the class.* Even if you never attend class, if you are officially enrolled in a course, you will receive a grade for the course unless you complete and submit a drop form with appropriate signatures to the registrar. If you have not completed all of the work, that grade can only be an F. Drop forms are available in the division office, in the counseling office, or from the registrar. After midterm, you must have the instructor's permission to withdraw from a class; therefore, his or her signature must be on the form before you submit it to the registrar. For the last date to withdraw without the signature of the instructor, check the quarterly schedule. ***If you do decide to withdraw from a class and have any kind of financial aid, you should consult with the financial aid office prior to the***

*withdrawal to determine what, if any, effect it will have on your status*⁴.

- 9.5. **Incomplete Grade** - If you have been progressing satisfactorily in a course, but for reasons beyond your control (such as a death in family, personal illness, etc.) you cannot complete all of the requirements for the course, you can request an incomplete grade (I) from the instructor. If the instructor agrees, you will work out a mutually agreeable completion schedule. The instructor will complete a grade change form once the course work is completed. If the grade change is not submitted by the Friday of the fifth week of the following term (fall for both spring and summer), the grade will automatically change to an F.
- 9.6. **Academic Dishonesty** - Using the ideas, expressions, writings, etc., of another person and representing them as your own is one form of academic dishonesty and can result in severe penalties, including failure on a project or in a course. Plagiarism includes not only word-for-word copying *but also the use of the general ideas of another without giving appropriate credit to the source.*
- 9.7. **General Conduct:** Students are responsible for knowing the Law and Order [General Conduct and Behavior] Regulations in the college catalog.
- 9.8. **Children in Classes:** Children are not allowed in classes without the *prior* approval of the instructor. If permission is granted to bring a child into a class, it is the parent's responsibility to see that the child in no way disturbs other students or the class in general. Even after permission is granted, the instructor retains the right to ask a parent and child to leave a class if any kind of disruption takes place. Individuals who bring children to the college for any reason are expected to supervise them at all times.

10. Course Specific Notes:

- 10.1. **Do not attempt to work directly from your floppy or zip disk.** There is an “undocumented feature” [bug] in many programs that will scramble the file directory on the entire disk at random intervals. There is no known way to recover this data. Always transfer your saved files on your floppy to your directory on the fixed media on the machine, work on these files, and when you are finished copy the completed files back to your removable media. *The instructor no longer accepts the excuse “the computer ate my disk.”*
- 10.2. **Do not assume that any file you leave on the machine will be there when you return.** Someone may have erased or changed your files, the machine may be occupied when you want to work on your project, the machine or drive may have been replaced, or someone may erase, copy or modify your files.
- 10.3. While this is not a distance learning or on-line course, extensive use is made of “Black-Board” to minimize copying costs and to allow students to submit their work without the need for the instructor to handle a large number of disks. Black-Board also promotes student interaction and collaboration outside of class.

⁴ For example, a change from enrollment for 12 or more semester credit hours [SCH] to less than 12 SCH is a change from full-time to part-time student classification which may affect scholarships, athletic eligibility, student loan category and draft status.