

INTRODUCTORY STATISTICS

City College of San Francisco
Spring 2010
Economics 5, Section 4
Web page: fog.ccsf.edu/dorr

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Class Meetings

Tuesday and Thursday: 11:10 AM- 1:30 PM – Arts Building 187

Office Hours

Monday and Wednesday 12:00 – 1:00 PM & alternative times by appointment

Students are encouraged to come to office hours with questions regarding statistics, the course or economics generally. Students may arrange in class or by phone or email for a specific appointment, or may simply come in without an appointment during these office hours. Of course those with appointments will be accommodated first.

If anyone needs course or testing accommodations because of a disability, if anyone has emergency medical information to share with the instructor, or if anyone needs special arrangements in case the building must be evacuated, please make an appointment to see the instructor as soon as possible. Students seeking disability related accommodations are encouraged to register with Disabled Students Programs and Services located in Room 323 of the Rosenberg Library with phone number (415) 452-5481.

Text (Available in the campus bookstore)

Required: Anderson, David R., Sweeney, Dennis J., and Williams, Thomas, A., Essentials of Statistics for Business and Economics, 5th Edition, Mason, Ohio: South-Western College Publishing, 2009.

Course Description

This course will provide an introduction to basic concepts and methods of statistical analysis. The content of the course will include: the organization of data and descriptive statistics; introductory probability theory and probability distributions; sampling distributions; estimation; hypothesis testing; and linear regression. Please note that completion of Mathematics 860 (formerly 802A) or 92 (formerly 2) or 2nd year high school algebra (or its equivalent, basically intermediate algebra) with a grade of "C" or higher is a prerequisite for this course, and that you should be prepared to verify that you meet this prerequisite.

Course Requirements and Grading

Your course grade will be based upon an average of your performance on four examinations, regular homework assignments, in-class exercises, class participation and a final exam. Your average performance on homework assignments, in-class exercises and class participation (including attendance, maintenance of a course notebook and performance on any quizzes) will be given a weight equal to one regular examination. The final examination will have a weight equal to two regular examinations. Your semester grade will be based on the average of these seven component scores (four regular examinations, one average homework, exercise and class participation score, and two identical final examination scores). There will be no regular make-up exams scheduled, and it is important that you inform the instructor in advance of any exam that you know in advance you must miss.

Please note that all students will be required to take the final examination and that the final examination will take place on Tuesday, May 25, 10:30AM-12:30PM. Make sure to mark this date and time on your calendar and note that it will not be possible to take the final exam before this date. Semester grades will be available on Wednesday, June 9, on webSTARS.

This course may be taken on a Pass/No Pass (formerly Credit/No Credit) basis, but you must select this option on-line through webSTARS or complete a "Petition for Pass/No Pass", available at the Office of Admissions, by February 22. Under this option, satisfactory (C) or better performance in the course is required for a Pass (formerly Credit) grade.

Students are expected to attend class meetings and to read the assigned material prior to each class. Students will be responsible for the material covered in class meetings, as well as in the required readings. Each student is also expected to bring the text and a calculator to class meetings.

Please be informed that it is the policy of the Department of Social Sciences that a student who misses twice the number of classes regularly scheduled during a week may be dropped for excessive absences. Since this class meets five times a week, the policy means that a student who misses ten (10) classes during the semester may be dropped from the course for excessive absences. Also, please note that excessive unexcused tardiness or early exit from class meetings is considered equivalent to absence.

Participation

Learning is an active process. For most students, class participation greatly increases their understanding and enjoyment of the material. While the format of this course is primarily lecture, I strongly encourage active participation in class. As an incentive, grades may be increased by up to 5% based on participation.

Group participation outside of class is also a very useful. I strongly encourage you to get to know your fellow students and to participate in study groups outside of class. However, all assignments handed in must be written by you as an individual.

Problem sets and exercises will be assigned to help you prepare for the exams. These assignments will be graded, and will be worth 10% of your grade. **To receive full credit, all assignments must be turned in on time. All homework assignments must be done neatly and stapled. Assignments are due at the start of class, so have them out and ready to turn in. (Please see the "Problem Sets" handout for more details.)**

Learning any topic, but especially any topic using mathematics is a lot like learning any sport. The key to improvement is practice. The more you practice, the more comfortable you become and the better you get. The problem sets allow you to practice. They are for you, not for me.

Course Schedule and List of Reading Assignments

This is not a rigid schedule and may be revised based upon our progress through the various topics. Additional handouts and material will be provided during the semester. The sections listed to be read for a particular class date should be read prior to the class meeting. The specific problems to be completed for a Problem Set will be given in class the day before the assignment is due, and the assigned Problem Set is due at the beginning of the class meeting at which it is scheduled. The reading assignments listed are from the text (Anderson, David R., Sweeney, Dennis J., and Williams, Thomas, A., Essentials of Statistics for Business and Economics, 5th Edition).

I. Introduction and Descriptive Statistics

- Jan. 19 (Tues.) Introductions, Sections 1.1, 1.2 & 1.3
- Jan. 21 (Thurs.) Sections 1.4, 1.5 & 1.6
- Jan. 26 (Tues.) Problem Set 1.1,2,3,4,5&6 Due, Section 2.1 & 2.2
- Jan. 28 (Thurs.) Problem Set 2.1&2 Due, Sections 2.3 & 2.4 and Appendix C
- Feb. 2 (Tues.) Problem Set 2.3&4 Due, Section 3.1 & 3.2
- Feb. 4 (Thurs.) Problem Set 3.1&2 Due, Sections 3.3, 3.4 & 3.6
- Feb. 9 (Tues.) Problem Set 3.3,4&6 Due, Pre-Exam Review
- Feb. 11 (Thurs.) Exam #1, Appendices 2.2 & 3.2

II. Concepts of Probability and Discrete Probability Distributions

- Feb. 16 (Tues.) Section 4.1, 4.2, 4.3
- Feb. 18 (Thurs.) Problem Set 4.1, 4.2 & 4.3 Due, Review Exam # 1 & Sections 4.4 & 4.5
- Feb. 23 (Tues.) Problem Set 4.4 Due and Sections 4.5, 5.1, 5.2 & 5.3
- Feb. 25 (Thurs.) Problem Set 4.5, 5.1,2&3 Due and Section 5.4 & 5.6
- Mar. 2 (Tues.) Problem Set 5.4&6 Due, Pre-exam review
- Mar. 4 (Thurs.) Exam #2, Appendix 5.2

III. Continuous Probability Distributions, Sampling Distributions and Sampling Methods

- Mar. 9 (Tues.) Sections 6.1, 6.2 & 6.3
- Mar. 11 (Thurs.) Problem Set 6.1, 6.2 & 6.3 Due, Review Exam #2 and Sections 7.1, 7.2, 7.3
- Mar. 16 (Tues.) Problem Set 7.1,2&3 Due and Section 7.4
- Mar. 18 (Thurs.) Sections 7.5
- Mar. 23 (Tues.) Problem Set 7.5 Due and Section 7.6
- Mar. 25 (Thurs.) Problem Set 7.6 due, Section 7.7, Pre-Exam Review and Notebooks due
- Mar. 30 (Tues.) Spring Recess (no class meeting)
- Apr. 1 (Thurs.) Spring Recess (no class meeting)
- Apr. 6 (Tues.) Exam #3 and Appendices 6.2 & 7.2

IV. Estimation and Hypothesis Testing

- Apr. 8 (Thurs.) Sections 8.1& 8.2
- Apr. 13 (Tues.) Problem sets 8.1 & 8.2 due, Sections 8.3 & 8.4
- Apr. 15 (Thurs.) Problem sets 8.3 & 8.4 due, Sections 9.1, 9.2 & 9.2
- Apr. 20 (Tues.) Problem Set 9.1, 9.2 & 9.3 Due and Sections 9.4 & 9.5
- Apr. 22 (Thurs.) Problem Set 9.5 Due, Pre-exam Review
- Apr. 27 (Tues.) Exam #4, Appendices 8.2 & 9.2

V. Further Estimation, Further Hypothesis Testing and Regression Analysis

- Apr. 29 (Thurs.) Section 10.1 and Section 11.1
- May 4 (Tues.) Problem Set 10.1 & 11.1 Due, Review Exam #4 and Sections 11.3 & 12.1
- May 6 (Thurs.) Problem Set 11.3 Due and Sections 12.2, 12.3 and 12.4
- May 11 (Tues.) Problem Set 12.2 & 12.3 Due, and Sections 12.5 & 12.6
- May 13 (Thurs.) Problem Set 12. 5 & 12.6 Due and Appendix 12.2
- May 18 (Tues.) Section 12.8, Final Examination Review

May 25 Tuesday Final Exam 10:30AM-12:30PM

Classroom procedures

INTRODUCTION

This course is designed to teach you the basic concepts used in statistical analysis. While some of you may be taking this course because it is a requirement, I assume that the reason you are at CCSF is because you are hoping to prepare yourself for better employment in the future. Professional level jobs require a certain set of skills and behaviors. Various class activities and assignments will encourage analytical and critical thinking, communicating with people from diverse backgrounds, team work, and time management. So a second goal of this course is to encourage you to develop the skills and behaviors necessary for success in college, the workplace and life. **All of the policies described below are designed to help achieve this outcome.**

ATTENDANCE:

- 1) I strongly encourage regular class attendance. You will be responsible for all material that is covered in class and in the readings. Lectures will include a lot of information not included in the readings. If you miss very many class sessions, it will be impossible for you to achieve a good grade in this class.
- 2) College rules require that I take attendance, but regular attendance alone is not sufficient to receive a passing grade in the course. Under College policy, students who miss more than a total of two weeks of classes without a written excuse may be dropped from the class for excessive absences.
- 3) Excessive absences can result in a reduction in your course grade. Arriving late and/or leaving early on a regular basis can also reduce your grade in the course. Attendance counts for 5 percent of your grade, and **each unexcused absence will lower the attendance grade by 0.3 points.** (See attendance handout for details.)
- 4) Attendance will be checked by passing around a roll sheet during class. Signing another student's name to the roll sheet is a form of cheating and makes both students subject to disciplinary action.
- 5) **If you come in late**, that days handouts will be at the side of the room. **Do not come to the front of the room for handouts or the attendance sign-up sheet.**
- 6) If you miss a class, it is your responsibility to pick up copies of any handouts and get assignments and class notes from another student or from me in my office. I will bring handouts and assignments to class only once.
- 7) If your job or a personal problem is affecting your attendance, please call or make an appointment to discuss it with me, and I'll do my best to help work it out.

OTHER CLASSROOM PROCEDURES

- 1) The classroom is a place for shared learning and growth. Everyone has valuable contributions to make and we need a comfortable atmosphere of mutual respect to work together. As the instructor, I must step in when someone's behavior disrupts or disturbs other students or me.
- 2) **Only one person should be speaking at any time.** Since this is a large class, extraneous talking makes it difficult for other students to hear. If you engage in this behavior, you will receive one verbal warning. If the behavior continues, you will be moved to a different seat in the classroom. If the behavior continues beyond that, you will be warned in writing and **your grade will be reduced by one full grade point.** Any subsequent disruptions will result in your removal from the class and a grade of F for the course.

- 3) **Students wandering into or out of the classroom while the class is in session is extremely disruptive and inconsiderate of other students.** Make your telephone calls and bathroom visits before or after class. If you have an emergency need to receive a call or a medical problem, let me know at the start of class. **To prevent classroom disruptions, please plan to stay in the classroom throughout the entire class period. Please note that excessive unexcused tardiness, wandering in and out of the classroom and early exit from class meetings is considered equivalent to an absence.**
- 4) All cell phones, beepers, and other electronic devices should be turned off before entering the classroom.

SKILLS NEEDED FOR ECONOMICS

- 1) Economic knowledge includes both abstract ideas and real-world information. Economists explain their theories with verbal descriptions, numerical data, equations, and graphs, which require a variety of skills. This section outlines the basic skills needed to succeed in Economics 1. *If you have further questions about your preparation for this course, please talk to me individually.*
- 2) **English/ESL Skills:** The economics faculty recommends that students in Economics 1 have *completed* intermediate composition -- **ESL 150** or **English 94** -- *before* taking this class. Students need a good working English vocabulary and enough reading and writing skills so they can understand everyday English used in lectures and readings, participate in group and class discussions, and write understandable paragraphs.
Please don't let concern about an accent keep you quiet -- the majority of City College students come from homes where another language besides English is used, and we are all practicing our communication skills. I will try to speak slowly and clearly, and define unusual words. And whatever your background, please ask questions about any unfamiliar terms or concepts.
But: Students who are not yet comfortable speaking in English or find it difficult to follow everyday speech, read a newspaper, or write in English are at a definite disadvantage. *If this is you, I urge you to postpone this class.* Please develop these skills first and give yourself a chance to do well in this class in a future semester.
- 3) **Math and Graphing Skills:** Economists often present their theories using mathematical formulas and graphs, so students in Economics 5 need to be able to read, interpret, and work with fractions, decimals, percentages, a simple two-variable equation, and graphs showing how variables are related. As is discussed in Exercise 1, the prerequisite for this course is two semesters of basic algebra. If you do not meet this prerequisite, it will be almost impossible for you to pass this course.

SOCIAL SCIENCE DEPARTMENT EXCESSIVE ABSENCE POLICY

Please be informed that it is the policy of the Department of Social Sciences that a student who misses twice the number of classes regularly scheduled during a week may be dropped for excessive absences.

If a class meets five times a week (Monday, Tuesday, Wednesday, Thursday and Friday), the policy means that a student who misses ten (10) classes may be dropped from the course for excessive absences.

Also, please note that excessive unexcused tardiness, wandering in and out of the classroom and early exit from class meetings is considered equivalent to absence.

Class Attendance Procedures

In addition to the above department policy, in this course attendance will be used in the computation of the class participation portion of your grade and unexcused absences will lower this portion of your grade. If you know in advance that you will not be able to attend a class meeting or that you will need to leave a class meeting early, please let the instructor know. If you are not able to attend a class and have not given advance notice, please contact the instructor as soon as possible about the dates of absence so that you may receive any handouts or assignments that you might have missed.

When you return to class following an absence, if you wish the absence to be excused, please write your name, section number, and date(s) of absence in the upper right-hand corner on a piece of 8 ½ x 11 sheet of paper, and indicate the reason(s) why you believe that the absence should be excused, attaching any supporting documentation.

In order to make the procedure of collecting attendance information less time consuming and obtrusive to the class meeting, an attendance sheet may be passed around at the beginning of the class period. If this is done, it is important that you make sure to sign the attendance sheet when it comes to you, as it is your responsibility to personally sign your own official signature to the roll sheet to indicate your attendance. Failure to do so may result in an absence being recorded for you. (Please note: Your own official signature is required. Simple initialing will not be sufficient.)

If you come to class after the roll sheet has been passed around, please place your name, section number and the date in the upper right-hand corner of an 8 ½ x 11 sheet of paper and indicate the reason for your tardiness. Unless an acceptable written reason is provided to warrant late arrival, you will be given only partial attendance credit for coming to class late.

Again, please make sure that you take care of this bit of administrative procedure, as the attendance sheets will be part of the basis of attendance information and important for the class participation portion of your grade. **Please do not come in at the middle or end of the semester requesting a change of the attendance record because "I forgot to sign the attendance sheet."**

Also, please note that signing another student's name on the attendance sheet or having someone else sign your name on the attendance sheet are considered forms of dishonest conduct or cheating, and may result in withdrawal from the course.

Thank you for your attention to this necessary administrative detail.

DISHONESTY & STUDENT CONDUCT
[Part of syllabus.]

I take the problems of cheating and plagiarism in my classes very seriously. Please read the following statement carefully.

The standard sanction for academic dishonesty on an exam in this course will be the grade of "permanent F."

Academic dishonesty on assignments other than exams can lead to a sanction ranging from a zero grade on the assignment to a reduction of one full grade point on the final course grade, a written warning being placed in the student's City College file, and possibly other sanctions.

Signing another student's name on the attendance sheet or having someone sign your name on the attendance sheet is also a form of dishonest conduct which will result in a reduction in a course grade.

Class assignments are designed to allow students to develop and demonstrate their knowledge and skills. Dishonesty damages the learning environment and is an insult to other students' effort. It is also **prohibited** under the City College Rules of Student Conduct. City College of San Francisco and the Department of Social Sciences take such matters seriously. Repeated violations may result in suspension from the College. I encourage you to read these rules at: www.ccsf.edu/Offices/Student_Advocacy_Rights_and_Responsibilities/rules.htm

Cheating: To discourage cheating, students may be asked to rearrange their seats for exams. Students who appear to be looking at others' exams, seeking to exchange information, or otherwise cheating will have their seats changed immediately and must sit up front for all remaining quizzes and exams. Cell phones may not be turned on or used as calculators during exams. All caps must have brims turned to the back during exams.

Unless otherwise notified, looking at any other student's test during an examination will be considered evidence of cheating.

Plagiarism: I encourage you to study with other students and discuss any class assignments – but please make sure you write your own final answer. Written assignments are a way for you to show your understanding of basic economic concepts by putting them in your own words. **Plagiarism** means presenting someone else's words or ideas as if they were your own and is a form of cheating.

To write acceptable answers to assignments, don't copy word-for-word from the source you're using – this is plagiarism. Instead, summarize the main points or basic ideas of the material you are discussing in your own (different) words and phrasing, and always give credit to the source. If you are not sure whether your work would be considered plagiarism, please come discuss it with me.

- See the article "Plagiarism: What It Is and How to Avoid It" at:
<http://www.indiana.edu/~wts/pamphlets/plagiarism.pdf>.
- To cite sources correctly see "Evaluating and Citing Sources" at:
<http://www.ccsf.edu/Resources/homeLR.shtml>

For the vast majority of students problems of cheating or plagiarism will never be an issue and it is hoped that none of the students in this course will jeopardize their education and future employment opportunities by engaging in such conduct.

I urge students that feel that they are having problems with the course to make use of all college resources to insure success in this course, including meetings with the instructor, tutoring, and the Learning Assistance Center.

CCSF DISHONESTY & STUDENT CONDUCT STATEMENT

Please note that according to the Rules of Student Conduct specified in the *City College of San Francisco Catalog*, students are prohibited from conduct involving "[d]ishonesty, such as cheating or plagiarism, knowingly furnishing false information to the District, or forgery, alteration or misuse of district documents, records, or identification." The Catalog further states that "[d]isciplinary sanctions for the above offenses shall include, but are not limited to, warning, verbal and/or written reprimand, probation, ineligibility to participate in extra-curricular activities, . . ., suspension from classes by the Chancellor (or designee) for up to the remainder of the school term or from all classes and activities of the District for one or more terms and expulsion."

In addition please be informed that on May 4, 1983 the Executive Council of the Academic Senate passed the following motion:

MOVED, Seconded, PASSED that the Grading Policies Committee be asked to propose a policy on assigning a permanent F grade for students guilty of cheating on examinations or for plagiarism.

Cheating on assignments and exams can take many forms. While you are generally encouraged to study together and to talk about assignments and class topics, and some exercises and assignments may require that you work collectively, when the assignment or examination involves the recording of your individual answer make sure that the answer and the words and analysis used are your own. Plagiarism involves "pass[ing] off as one's own the ideas or words of an other" (*The Merriam-Webster Dictionary*, 1974) and all quotes contained in written assignments should be indicated by quotation marks or other appropriate notation.

Unless otherwise notified, looking at any other student's test during an examination will be considered evidence of cheating.

Also remember that signing another student's name on the attendance sheet or having someone else sign your name on the attendance sheet is considered a form of dishonest conduct or cheating.

City College of San Francisco and the Department of Social Sciences take such matters seriously and the penalties may involve receipt of a semester grade of F or suspension from the College.

For the vast majority of students problems of cheating or plagiarism will never be an issue and it is hoped that none of the students in this course will jeopardize their education by engaging in such conduct.

COURSE NOTEBOOK

Each student is required to maintain a course notebook in order to assist the student in organizing the material covered in the course and to assist in the assignment of the midterm and semester grades. In order to assist you in organizing the notebook, and to allow for efficient and fair review of notebooks, the following format should be followed:

1. The notebook should be kept in some form of "three-ring" binder allowing for insertion and securing of additional material as the semester progresses, and allowing for someone to easily flip through the pages.
2. The first page of the notebook should be a title page containing the student's name, the course title, the department name and course number, the section number, and the current semester and year.
3. Following the title page, the notebook should be divided into six separate sections, using some form of tab or divider system. Following are the six sections that should appear in the order listed:
 - (1) Class Handouts (This section should include the class syllabus, as well as all other procedural handouts distributed in class. This material should appear in the order, which the material was distributed in class.)
 - (2) Class Notes (The notes should be placed in chronological order.)
 - (3) Completed Problem Sets - This section should follow these guidelines
 - a. Each Problem Set should appear on a separate page or pages.
 - b. Each page containing answers should have a heading in the upper right-hand corner as indicated in "4." below.
 - c. The problems within a specific problem set, and the problem sets themselves, should appear in numerical order
 - d. "See notes" will not be an accepted answer format!
 - (4) In-Class Exercises and Quizzes (These should appear in the order in which they occurred in the course.)
 - (5) Excel Assignments (These should appear in the order in which they occurred in the course.)
 - (6) Completed Examinations (These should appear in the order in which they occurred in the course.)
4. All pages of problem set answers or Excel assignments should have in the upper right-hand corner of the page the following information in the format indicated:

Name (i.e. "Jane Student")
Course, Section No. (i.e. "Econ.5, Sec. 9")
Assignment Title (i.e. "Problem Set 1.1,2,3,4,5&6")
Date (i.e. "January 15, 2009")

Please note the above requirement. You may not receive credit for any pages not meeting this requirement.

5. All pages of class notes and handouts should have the date in the upper right-hand corner of each page.
6. Grading of the notebook will be based upon the completeness and organization of the notebook (according to the above guidelines), the timely presentation of the notebook, and the general orderly constitution of the notebook. The notebook will be collected for review at the time of the first exam. The notebooks will then be collected at a later date to be announced.

PROBLEM SET POLICY

Sets of problems relevant to the class readings and class discussions will be regularly assigned throughout the semester. Each student is required to complete the assigned problem sets prior to the class meeting. These problem sets may be collected for review and grading at the beginning of class meetings and/or students may be called upon to present their answers to the class at class meetings (-- and be graded on this presentation). All problem sets should be placed in the appropriate section of the class notebook for review when the notebooks are collected. As indicated on the course syllabus, your performance on the problem sets will be a part of your grade for the course. In order to allow for efficient and fair review of problem sets and notebooks, **the following instructions should be followed:**

7. **Each problem set should appear on a separate page or pages, with the answers placed in numerical order, and written in one's own hand** (i.e. not photocopied, etc.).
2. **All pages** of problem set answers should have, in the upper right-hand corner of the page, the following information **in the format indicated:**
 - Name (i.e. "Jane Student")
 - Course, Section No. (i.e. "Econ. 5, Sec.9")
 - Assignment Title (i.e. "Problem Set 1.1,2,3,4,5&6")
 - Date (i.e. "January 15, 2008")
3. The notation "**See notes**" is **not an acceptable answer** or part of an answer for problem sets, or for exercises.
4. **Problem sets, as well as exercises assigned overnight, are due at the beginning of class.** If you come into class after the assignment has been collected and wish to receive credit for the assignment, please write your name, your section number, and the date in the upper right-hand corner of an 8 ½ x 11 sheet of paper, and indicate the reason(s) why the assignment is being submitted late, attaching any supporting documentation. Submit this page, including any supporting documentation, with the assignment. **Please note that assignments that are not initially turned in when the assignments are collected will not be considered for credit, without an acceptable note and justification for the late submission.**
5. Note: Generally, answers to any problems containing the designation "SELF TEST" and to even numbered problems in Anderson, Sweeney, and Williams's Essentials of Statistics for Business and Economics, 4th Edition, can be found at the back of the text in Appendix D. Although not generally assigned as part of the class problem sets, you are encouraged to do the even exercises if you wish added examples or experience with regard to a particular topic. In addition, Mohammad Ahmadi's Workbook for Essentials of Statistics for Business and Economics, 4th Edition, which is available in the campus bookstore, contains further discussions of the text material and additional examples and exercises.
8. **Format for answering particular questions later in the course:**
 - (1) **Given:** When appropriate, succinctly state any initial information given in the problem.
 - (2) **Find:** When appropriate, state explicitly, and as precisely as possible, the question being asked.
 - (3) **Conditions/Assumptions:** When appropriate, clearly state any assumptions that you make and/or any conditions that you are required to verify in order to apply a theorem or use a particular formula.
 - (4) **Formula(s):** State the general formula(s) that you are using.
 - (5) **Computations:** If you wish partial credit to be considered, list some of the necessary calculations that you carry out when it is appropriate.
 - (6) **Answer:** State clearly the final answer, including units of measure when it is appropriate.