

MATH 221, Term 1005

MATH 221-Statistics For Decision Making

DeVry Institute of Technology, Term 1005

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ASC/office hours: Tues. (9:00-9:50A.M.);Wed. (10:00-10:50A.M.)

(by appointment)

Course Description: This course provides tools used for statistical analysis and decision making in business. The course includes both descriptive statistics and inferential concepts used to draw conclusions about a population. Research techniques, such as sampling and experiment design, are included for both single and multiple sample groups.

Prerequisite: MATH 178 or College Algebra.

Required Text and Material: Elementary Statistics, by Ron Larson and Betsy Farber, third edition, Prentice-Hall, Inc., 2006. Hand calculator is needed in class (ex. TI-83 for Non-EET students and TI-89 for EET students.)

Course Objectives:

1. Given a business situation word problem and/or case study, use an appropriate sampling method to determine a sample size.
2. Given a word problem or case study, and an accompanying data set which addresses a business situation (such as daily demand or monthly sales), calculate numerical summaries including measures of central tendency (such as mean, median, and measures of variation including range and standard deviation).
3. Given a word problem or case study, and an accompanying data set which addresses a business situation (such as daily demand or monthly sales), develop graphical presentations of the data (including histograms and stem and leaf displays).

4. Given a business situation word problem or case study (such as expected monetary value), utilize basic probability concepts to determine a course of action.
5. Given a business situation word problem or case study (such as defective items or waiting lines), use discrete probability concepts to determine a course of action.
6. Given a business situation word problem or case study (such as one dealing with processing time or quantity of fill), use the normal probability distribution to determine a course of action.
7. Given a business situation where a confidence interval is necessary, develop a confidence interval and use it to determine a course of action.
8. Given a business situation requiring a hypothesis test, determine the appropriate test method and use it to determine a course of action.
9. Given a business situation where linear regression is necessary, use regression model to determine a course of action.
10. Given a business situation word problem or case study and an accompanying data set, determine a best-fit regression model for nonlinear and/or multiple independent variables, and assess the validity and utility of the model.
11. Given a business situation word problem or case study requiring a comparison/contrast of mean production times of three or more suppliers, create the source table, calculate the F statistics, determine the p values, and analyze the results.

Attendance: Attendance will be taken every session. Be sure to bring your student ID for attendance scan at the door. If a student is absent, he/she is responsible for all missed work and for obtaining any supplemental material given out during the lecture. If a student is absent for three or more consecutive sessions, he/she should see the Attendance Counselor. See the catalog for DeVry's attendance policy. Students may be dismissed from the class (at the discretion of the professor) for too many absences. DeVry's attendance policy allows a professor to withdraw a student from a course when a student has been absent for 30% (or more) of the class hours of the course. If a student is withdrawn from a course, he/she must appeal to the professor of that course to be reinstated. If not reinstated, this can affect a student's eligibility for financial aid and will result in a "W" grade for the course.

Extra Help: Any student who requires additional help is encouraged to make use of any of these three avenues: 1. my office hours or appointment with me. 2. during the break period of scheduled class time. 3. scheduling a tutoring appointment through Academic Support Center or Faculty Assistant Office.

Classroom Etiquette: Students should not hold conversations with classmates whenever the professor is lecturing or whenever another student is asking questions during lecture. Students should refrain from passing notes or participating in other disruptive behavior. Students' undivided attention in class and an atmosphere of mutual respect are necessary for the professor to conduct the class. Students should enter or leave class in the beginning, during break, or at the end of the class period. The professor reserves the right to lower a student's grade or to request a student to leave if the student engages in disrespectful conduct. Any student dismissed in this manner may not be readmitted into the class until he/she has spoken with the Dean of Students, their Program Dean, and the professor of the course.

Other Policies: Students are expected to maintain a record of their own grades. Students should keep all the returned class works, tests, etc. Any question about the final grade for any course must be resolved before the end of the second week of the following term after the grade was received. *All class works,, tests, quizzes, or other supporting documents should be retained through the resolution time and no change of the grade will be made without proper supporting documents.* Every one enrolled in or is associated with this course is expected to conduct himself or herself

in a manner respectful of the rights of other students, professors, and/or staff persons. This expectation includes the matter of cheating on assignments and/or falsification of grades. Please refer to the student handbook for the academic integrity policy for the Institute's regulations regarding any disciplinary actions that may be taken.

Diversity Statement: In accordance with DeVry Institute's Mission Statement, we are a diverse college community of life long learners committed to promoting the acceptance and respect of individual differences that are inherent in our college. Through standards of conduct and diversity training we seek an environment that will insure the success, well being, and safety of our entire DeVry community. Therefore, it is our position to empower every one at DeVry to be responsible for each other and to actively uphold the standards of conduct as defined in the student and employee handbooks. We support fair, equal and nondiscriminatory treatment as a responsibility of all members of our DeVry community. Students, faculty, staff and all other members of the DeVry community are expected to respect diversity which includes but is not limited to age, disability, gender, marital status, national origin, race, religion, and sexual orientation.

Students engaging in discriminatory behavior will be subject to the consequences established in the Student's Code of Conduct in the Student Handbook. Student Grievances involving charges of discrimination and sexual harassment should be taken to the Student Services Office.

Any faculty, staff or other members of the DeVry community engaging in the discriminatory behavior will be subject to the consequences established in the DeVry Employee Handbook (Separation:Gross Misconduct). Faculty, staff and other members of the DeVry community with grievances involving charges of

discrimination and sexual harassment should take them to the Human Resources Department or directly to the President's Office.

Grading Contract:

<u>Grading Composition</u>	<u>Grading Policy</u>
Tests-----25%	90-100-----A
Final Exam-----25%	80- 89-----B
Quiz-----25%	70- 79-----C
Class Work-----25%	60- 69-----D
	<60-----F

*The date of each test will be announced at least one week in advance. No make-up test should be given unless under dire circumstances, and it is possible only if the professor is notified of such circumstances before the test. Any make-up test should take place within two days of the original test time. The lowest test score of the term will be dropped.

*Final exam will be comprehensive and will cover the entire course material.

*Short, unannounced quizzes will be given frequently. Quizzes cannot be made up. If a quiz is missed, a grade of zero will be assigned. The lowest quiz score will be dropped at the end of the term.

*Class works are good preparations for tests and quizzes and may be completed by individual or group effort. Due date of each set of class work will be in the upper right hand corner of the first page of each class work. There is a 2 point deduction for each day of delay in turning in the class work. The lowest class work score may be dropped by the end of the term.

*Home works will be assigned but will not be collected.

*Extra credit opportunity will be found on the web page (specific information may be obtained from Professor Nunamaker) and through jeopardy.

*All class/lab work including oral presentations will be graded on both technical content and communication competency.

DeVry Institute of Technology

DuPage Campus

MATH 221-Statistics For Decision Making

(4 credit hour, Term 1005)

Professor Susan Sun Nunamaker

ACADEMIC CALENDAR

October 31, 2005-Classes begin. Proficiency exam applications available in room 228.

November 2 & 3, 2005-Preapproved proficiency exams (by appointment only).

November 4, 2005-Last day to add classes/labs (except Session B) for Term 1005 .

November 11, 2005-Last day to drop/delete regular classes/labs for Term 1005.

Last day for students to request a review of any Term 0705 grades.

November 21, 2005-Last day for faculty to change a Term 0705 final grade.

November 24 & 25, 2005-No classes-Building closed-Thanksgiving Holiday.

December 19, 2004-January 2, 2005-No classes-Winter Break

January 3, 2006-Classes resume.

January 11, 2006-First term day students are required to meet with an Academic Advisor before registering for Spring 2006 term.

January 12, 2006-Continuing student proficiency exam & FA applications (for 0206 Term) are available in room 228.

January 16, 2006-No classes-Building closed-Martin Luther King Day.

January 17, 2006-No classes-University Day-Building closed except to accelerated classes.

January 18, 2006-Last day for continuing students to register for proficiency exams for Term 0206..

January 24, 25, 26, 2006-Preapproved proficiency exams for continuing students.

January 27, 2006-Last day to withdraw from classes/labs w/a "W"(except for session B).

January 28, 2006-Preapproved proficiency testing for continuing students by appointment only.

January 31, 2006-All continuing students must register for Spring 2006 classes.

February 17, 2006-All library material to be returned to the library.

February 20, 21, 22, 2006-Final Exam Week.

Tentative Progress For MATH 221, Term 1005
(Elementary Statistics, by Ron Larson & Betsy Farber)

Professor Susan Sun Nunamaker

<u>Week</u>	<u>Date</u>	<u>Coverage</u>
1	October 31-November 4	Intro, 1.1, 1.2
2	November 7-November 11	1.3, 2.1, 2.2, 2.3
3	November 14-November 18	2.4, 2.5, 3.1, 3.2
4	November 21-November 25	3.3, 3.4, review, Jeopardy
5	November 28-December 2	Test 1 , 4.1, 4.2
6	December 5-December 9	4.2, 4.3, 5.1
7	December 12-December 16	5.2, 5.3, 5.4, 5.5
WINTER BREAK: December 19, 2005-January 2, 2006		
8	January 3-January 6	6.1, 6.2, 6.3
9	January 9-January 13	6.4, review Jeopardy, Test 2
10	January 16-January 20	MLK Day, University Day, 7.1, 7.2
11	January 23-January 27	7.3, 7.4, 7.5
12	January 30-February 3	8.1, 8.2, 8.3, 8.4
13	February 6-February 10	9.1, 9.2, 9.3, 9.4, review, Jeopardy
14	February 13-February 17	Test 3 , 10.1, 10.3, Final Exam Review
15	February 20-February 22	Final Exam Week

*Jeopardy: Game for extra credit opportunities

Chapter 1: Introduction to Statistics

Chapter 6: Confidence Intervals

Chapter 2: Descriptive Statistics

Chapter 7: Hypothesis Testing with One Sample

Chapter 3: Probability

Chapter 8: Hypothesis Testing with Two Samples

Chapter 4: Discrete Probability Distributions Chapter 9: Correlation and Regression

Chapter 5: Normal Probability Distributions Chapter 10: Chi-Square Tests and F-Distribution

MATH 221 Home Work Assignments, Term 1005

Professor Susan Sun Nunamaker

*1.1: p. 6, #1, 4, 5, 7, 8, 10, 17, 19, 22.

*1.2: p. 13, #2, 3, 4, 6, 10, 11, 12, 13, 14, 15, 17, 19, 20.

*1.3: p. 21, #1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 17, 19.

*2.1: p.43, #2, 3, 4, 7, 8, 9, 11, 13, 15, 17, 21, 25, 31.

*2.2: p. 56, #1, 2, 3, 4, 5, 6, 12, 13, 15, 17, 20, 21, 23, 25, 27.

*2.3: p. 67, #1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 19, 23, 27, 29, 30, 31, 33, 35, 37, 41, 46.

*2.4: p. 84, #1, 3, 5, 8, 10, 16, 17, 19, 21, 22, 26, 27, 32, 37.

*2.5: p. 100, #2, 4, 5, 8, 11, 13, 17, 23.

*3.1: p. 125, #1, 11, 13, 16, 17, 20, 22, 25, 27, 30.

*3.2: p. 134, #1, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15.

*3.3: p. 145, #3, 4, 7, 9, 12, 14, 15, 17.

*3.4: p. 157, #2, 3, 5, 6, 10, 12, 13, 21, 23, 29.

*4.1: p. 179, #1, 2, 3, 4, 5, 6, 9, 11, 13, 15, 17, 19, 21, 25, 27, 29.

*4.2: p. 193, #1, 3, 5, 7, 9, 13.

*4.3: p. 202, #1, 3, 4, 5, 7, 9, 11.

*5.1: p.224, #2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 20, 21, 26.

*5.2: p. 232, #2, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29.

*5.3: p. 242, Odd problems from #1-39.

*5.4: p. 254, Odd problems from #1-31.

*5.5: p. 265, Odd problems #1-35.

*6.1: p. 287, Odd problems #1-47.

*6.2: p. 300, Odd problems #1-25.

*6.3: p. 308, Odd problems #1-27.

*6.4: p. 316, Odd problems # 1-13.

*7.1: p. 343, Odd problems #1, 41.

*7.2: p. 357, Odd problems #1-35.

*7.3: p. 370, Odd problems #1-31.

*7.4: p. 378, Odd problems #1-15.

*7.5: p. 386, Odd problems #1-17.

*8.1: p. 409, Odd problems #1-7.

*8.2: p. 420, Odd problems #1-15.

*8.3: p. 431, Odd problems #1-19.

*8.4: p. 441, Odd problems #1-11.

*9.1: p. 469, Odd problems #1-27.

*9.2: p. 478, Odd problems #1-21.

*9.3: p. 490, Odd problems #1-15.

*9.4: p. 497, Odd problems #1-5.

*10.1: p. 516, #1, 5, 7, 9,

*10.2: p. 527, #1, 3, 5, 7.

*10.3: p. 539, #2, 3, 5, 7, 9, 11, 13.

*10.4: p. 549, #2, 3, 5, 7.