

Maryland in Europe Graduate Programs  
Bowie State University

**Management Statistics**  
**MGMT 584**

9 June – 31 July 2003

RAF Mildenhall

Monday/Wednesday: 18:00- 21:00

**Instructor:** TBA  
**Mailing Address:** TBA  
**Email Address:** TBA  
**Consultation:** TBA

**Course Description:** *Prerequisites: The equivalent of College Algebra or PUAD502.*  
Provides the knowledge necessary to interpret published research results and to permit elementary research in business and public administration. Content includes: descriptive statistics, probability, estimation, hypothesis testing, ANOVA, sampling, correlation, linear regression and multiple regression.

**Course Goals/Objectives:**

**Goals:** Upon completion of the course, participants should have an understanding of:

1. Research methods as used in management settings
2. Quantitative research approaches
3. The of previous research and related literature
4. The process of hypothesis formulation and testing
5. Descriptive and inferential statistics
6. Data requirements for statistical procedures
7. Ethical considerations and constraints
8. The role of information technology in quantitative research and statistical analysis

**Objectives:** At the conclusion of this course the student will be able to:

1. Determine when quantitative approaches are necessary and appropriate
2. Design a quantitative research project
3. Collect, organize, analyze, and interpret quantitative data
4. Interpret quantitative research conducted by other researchers
5. Produce and interpret descriptive statistics
6. Apply various inferential statistical tests
7. Develop sampling and data collection techniques
8. Use descriptive statistics to report findings
9. Define ethical and legal constraints on research
10. Present research findings in written and graphic or oral formats

**Required Texts:** NOTE: Some texts are used in multiple classes

Anderson, D.R., Sweeney, D.J. & Williams, T.A. (1998). *Statistics for Business & Economics*, 7th Edition. New York: South-Western College Publishing.

**Recommended Journals:**

The *Journal of Public Administration Research and Theory* is a high quality, peer-review journal. Full text articles from 1991-2000 are available, free of charge, at <http://bush.tamu.edu/research/cpg/pa-archive/functionpage.htm>

**Grading Information:** Grades for this course will be assigned as follows:

A	91% +	C	70 – 80%
B	81 – 90%	F	Below 70% F(a) or regular non-attendance F(n)

Grades of Incomplete or Withdrawal are governed by Maryland in Europe policies. Please refer to UMUC Maryland in Europe Graduate Catalog, available in your local Education Center or online at [http://www.ed.umuc.edu/visit/pubs/catalog/grad\\_02-03.pdf](http://www.ed.umuc.edu/visit/pubs/catalog/grad_02-03.pdf), for further details.

**Course Requirements**

Examinations (2 @ 20 % each)	40%
Homework assignments	20%
Term Project	40%

**Description:** This is not a replication of the undergraduate quantitative methods course. Rather, it is designed to help managers and administrators learn ways to use quantitative research methods and statistical analysis tools to 1) reduce risk and uncertainty in decision making, 2) make population inferences with sample data, and 3) enhance administrative performance.

A key goal for the course is to help students become proficient with the use the statistical functions included in readily available software programs. Microsoft® Excel now contains most of the inferential statistical tests used by today’s organizational managers and administrators; everyone should be aware of these tools and know how and when to use them. While we will examine and discuss some scientific statistical notation and formulae in preparing to use these tools, students will be evaluated only on their skill development, not their ability to memorize formulas.

A comprehensive, scientific statistical textbook is required. Lecture topics and concepts follow most of this text, but not all. Lecture material will come from other practically oriented works, such as *Practical Research, Statistics for Those Who (Think They) Hate*

*Statistics*, and *Learning Statistics with Excel*. Students are not required to purchase these additional texts. However, Leedy and Ormrod's *Practical Research*, available in paperback, does provide a decent set of guidelines for conducting a survey research project. Additional lecture material will come from the instructor's book, *Research Methods for Public Administration* (2002).

A second goal for this course is to eliminate the stress and fear that too many students bring to the study of statistics. It bears repeating at this juncture that this is not a course in statistics for scientists or mathematicians. It is practical and applied in nature. It was developed to help management and information technology students learn how they can apply statistics as another management communication tool. Students will learn by solving problems.

## EVALUATIONS

Evaluations are built around examinations, homework assignments, and classroom problem solving. Examinations will consist of statistics applications problems, and will include computer-assisted problem solving using available statistical software. Examinations will cover only the material covered in class. Homework will be assigned from the text.

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## TOPIC OUTLINE AND READING SCHEDULE

<u>DAY</u>	<u>DATE</u>	<u>TOPIC</u>	<u>READING</u>
M	Jun 9	Introduction to quantitative research and analysis of quantitative data; the nature of quantitative data. Introduction to statistical procedures.	Syllabus Chapter 1
W	Jun 11	Introduction to Survey Research: Qualitative research methods; when and where to collect primary data for statistical analysis.	Chapter 21
M	Jun 16	Introduction to descriptive statistics: Tabular and Graphical Methods	Chapter 2
W	Jun 18	Descriptive statistics: Numerical Methods	Chapter 3
M	Jun 23	Introduction to Probability Probability serves as one of the primary foundation Stones of inferential statistics.	Chapter 4
W.	Jun 25	Sampling and Sampling Distributions This brief introduction to sampling introduces both probability and nonprobability sampling methods.	Chapter 7

M	Jun 30	Introduction to Hypothesis Testing: Hypothesis testing; Type I and Type II errors; 1-tailed hypothesis tests about a population mean This important chapter introduces students to the fundamental concepts behind all hypothesis testing— the probability of making a Type I (or a Type II) error.	Chapter 9
W	Jul 2	Statistical Inference about <i>means</i> and <i>proportions</i> with two populations; applying the t-test. The t-test is used to test hypotheses about the means of one or two samples. Two-sample t-tests are used in all types of social science applications. Three different models are available in Excel.	Chapter 10
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M	July 7	Mid-Term Examination	
W	Jul 9	Introduction to Chi-Square: Tests for Goodness of Fit and for Independence. The Chi-Square statistic has been included in a great many different tests. It is most appropriate for small samples and/or with nominal-level data.	Chapter 12
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M	Jul 14	Analysis of Variance and Experimental Design One-factor and two-factor ANOVA models are Introduced and applied. The design of random experiments, which call for ANOVA procedures for data analysis, are also discussed.	Chapter 13
W	Jul 16	Introduction to Simple Linear Regression: Linear regression is an extremely powerful and much used procedure in many administrative and managerial applications. It is a simple process to calculate and can be used in many ways. The idea of multiple regression—patterned on the same base—is also discussed.	Chapter 14
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M	Jul 21	Introduction to Multiple Regression Analysis	Chapter 15
W	Jul 23	Introduction to nonparametric statistics; differences and correlation tests for nominal and ordinal data; an extension of material introduced in the chapter on Chi-Square.	Chapter 19
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M	Jul 28	Introduction to Forecasting Methods	Chapter 18
W	Jul 30	Final Examination	

**Academic Policies:** Please refer to the UMUC Maryland in Europe Graduate Catalog, available online at [http://www.ed.umuc.edu/visit/pubs/catalog/grad\\_02-03.pdf](http://www.ed.umuc.edu/visit/pubs/catalog/grad_02-03.pdf) or from your local Education Center, for information on the following:

Academic Integrity  
Course Load  
Exception to Policy  
Grade Appeal Process  
Make-up Examinations  
Nondiscrimination  
Students with Disabilities

### ***Code of Civility***

To promote a positive, collegial atmosphere among students, faculty, and staff, Maryland in Europe has developed the following Code of Civility:

#### **Respect**

Treat all students, faculty, and staff with respect and in a professional and courteous manner at all times and in all communications, whether in person or in written communication (including e-mail).

#### **Kindness**

Refrain from using profanities, insults, or other disparaging remarks.

#### **Truth**

Endeavor to cite only the truth and not knowingly misrepresent, mischaracterize, or misquote information received from others.

#### **Responsibility**

Take responsibility for our own actions instead of blaming others.

#### **Cooperation**

Work together with other students, faculty, and staff in a spirit of cooperation toward our common goals of seeking and providing quality education.

#### **Privacy**

Strive to uphold the right to privacy and not talk about others.

#### **Nondiscrimination**

Respect the differences in people and their ideas and opinions and reject bigotry.