

URBAN DATA ANALYSIS II -- SYLLABUS

COURSE OBJECTIVES

Decision making for planning, policy, and management often uses *quantitative reasoning*, which entails collection, analysis and interpretation of *quantitative* data. UST404 provides a basic tool kit for *quantitative reasoning*. It introduces students to principles and techniques of urban data analysis and provides the foundation for the study of applications in specific urban planning and policy fields.

This course presents the logic of quantitative analysis, the selection and use of urban data in univariate statistics procedures, and the presentation of analysis outcomes. Students will learn to:

- recognize questions that lend themselves to quantitative analysis;
- identify the means to test the hypotheses (logic, procedure, data);
- carry out statistical analyses and understand the meaning of results;
- present the results;
- apply the new knowledge to a research project.

COURSE METHOD

The course consists of:

- ☑ web notes on statistical procedures and applications;
- ☑ web discussions of homework solutions;
- ☑ exercises;
- ☑ email and web discussions of questions and results;

- ⇒ Students are expected to: attend all classes; participate actively in internet/email discussions, asking clarifying questions.
- ⇒ Homework sets should be handed in **ON TIME**. Since homeworks serve the goal of sharpening communication skills that complement the analytic ones, pay attention to completeness, clarity and aspect. **Grading is based on soundness of the analytical thinking, effectiveness of interpretation, and communication** of results. Results with no interpretation/conclusion will not be considered.
- ⇒ Read text assignments and identify topics that need clarification in class. Feel free to raise questions (even if you suspect you are the only one who does not know the answer) to ensure that you thoroughly understand and are able to apply discussed procedures in contexts outside the classroom.

Visit the syllabus on the WEB¹ at
<http://urban.csuohio.edu/~sanda/syl/stat404web.htm>
The class site is **WebCT**: <http://webct.csuohio.edu>

¹ Note that the syllabus distributed in class is the most current for content and dates.

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TEXTS

Mario Triola (1988). *Elementary Statistics*. 8th edition, Addison-Wesley.

- ☑ <http://www.triolastats.com/> (about text) & <http://www.triolastats.com/datasets.html> (data downloads)
- ☑ *Exploring Data*, Education Queensland: <http://curriculum.ged.qld.gov.au/kla/eda/> (on the WEB)
- ☑ David Lane, *HyperStat Online*, <http://www.ruf.rice.edu/~lane/hyperstat/contents.html> (on the WEB)

ADDITIONAL READINGS²

Andranovich G., Riposa G., 1993. *Doing Urban Research*. Sage.

Babbie, E & Halley, F. (1998). *Adventures in Social Research: Data Analysis Using SPSS for W95*, Pine Forge Press

Bingham R. D., Ethridge M. eds. (1982). *Reaching Decisions in Public Policy and Administration*. Longman.

Clemen R. T. (1991). *Making Hard Decisions: An Introduction to Decision Analysis*. Boston: PWS Kent Publishing Company.

Creswell J., 1994. *Research Design: qualitative and quantitative approaches*. Sage.

Finsterbusch K., Bender Motz A. (1980). *Social Research for Policy Decisions*. Belmont: Wadsworth.

Freedman D., Pisani R., and Purves R. (1991), *Statistics*, 2nd edition, W.W. Norton and Company

Goldenberg S. (1992). *Thinking Methodologically*. Harper Collins Publishers.

Gonick L. and Smith W. (1993), *The Cartoon Guide to Statistics*, HarperPerennial, New York

Hoover K. R. (1992). *The Elements of Social Scientific Thinking*. NY: St. Martin.

Inbar M. (1979). *Routine Decision Making: The Future of Bureaucracy*. Sage.

Knoke, David & George W. Bohrnstedt, 1994. *Statistics for Social Data Analysis*. Itasca, Illinois: F. E. Peacock Publishers, Inc.

Kanji G. (1993). *100 Statistical Tests*. Sage.

Matlack W. F. (1994). *Statistics for Public Managers*. F. E. Peacock Publishers, Inc.

Meier K. J., Brudney J. L. (1993). *Applied Statistics for Public Administration, 3d Edition*. Belmont: Wadsworth Publishing Company.

Moore D., McCabe G. (1993), *Introduction to the Practice of Statistics*, 2nd edition, W.H. Freeman & Co.

Nachmias D. (1980). *The Practice of Policy Evaluation*. New York: St. Martin's Press.

Rea L., Parker R. (1992). *Designing and conducting survey research: A comprehensive guide*. San Francisco: Jossey-Bass.

R. Mark Sirkin (1995). *Statistics for the Social Sciences*. Sage.

Herman W. Smith (1991). *Strategies of Social Research*. Holt, Rinehart and Winston.

Vogt W. P. (1993). *Dictionary of statistics and methodology, a nontechnical guide for the social sciences*. Sage.

Wonnacott, TH & Wonnacott, RJ (1990). *Introductory Statistics*, 5th edition, Wiley.

ADDITIONAL INTERNET SITES:

- ☑ S. Kaufman's Research Tools links, <http://urban.csuohio.edu/~sanda/gis.htm>
- ☑ Robin Lock's Data Surfing on the World Wide Web, <http://it.stlawu.edu/~rlock/datasurf.html#textbook>
- ☑ UCLA Statistics, Case studies <http://www.stat.ucla.edu/cases/> and Data sets <http://www.stat.ucla.edu/data/>
- ☑ DASL, Data & Story Library, illustrating use of basic statistical techniques <http://lib.stat.cmu.edu/DASL/DataArchive.html>
- ☑ The CHANCE Database <http://www.dartmouth.edu/~chance/>
- ☑ Stat 101 Modules, West Virginia (up to Probability). <http://srs.cs.wvu.edu/SRS/Stat101/stat101fr.html>

² For course-related, interactive WEB sites, visit the syllabus on the WEB.

EVALUATION PROCEDURE

The final grade will be a composite of grades for:

- | | | |
|------------------------|------------------------------------|-----|
| · periodic assignments | (expected every W) | 20% |
| · participation | (class time and email discussions) | 20% |
| · midterm | (7/25/2001, class time) | 25% |
| · final | (8/2001, class time) | 35% |
- Late homeworks will **not** be considered for grading. Note the tight Summer Semester schedule.
 - The midterm and final exams will test accumulated knowledge as well as ability to respond to new problems. While focusing on the most recent lecture topics, exams rely on concepts covered earlier; in preparation, review earlier material and avoid falling behind in readings or homeworks.
 - Exam attendance is **required**. Makeups will be given only in emergencies cases (proof required; vacation arrangements are not included) and only with advance notice and arrangement.

OFFICE HOURS, LOCATION, PHONE

Office:	Urban Building, Room 220.
Classroom:	UR243
Office hours:	Instructor, before class and by appointment.
Office phone/fax:	216.687.2367/FAX: 216.687.9342
E-Mail:	sanda@urban.csuohio.edu
Homepage:	http://urban.csuohio.edu/~sanda/newsk.htm
Course web page:	http://urban.csuohio.edu/~sanda/syl/404web.htm
Course web site:	WebCT: http://webct.csuohio.edu

IMPORTANT CSU DATES

Classes (2 ^d 6 weeks) begin:	July 2, 2001
Last day to register	Second day of class
Last day to add	July 3, 2001
Independence Day (no class)	July 4, 2001
Last day to drop w. refund:	See p. 11, CSU Bulletin
Last day to drop with "w"	June 22, 2001
Last day of instruction:	August 10, 2001
Finals day:	August 10, 2001

UNIVERSITY POLICIES

- Students should refer to the CSU Bulletin for procedures regarding add/drop and withdrawal as well as S/U and incomplete grading.
- For class cancellations due to weather, call CSU information (687-2000) before class.
- Contact the instructor at the beginning of the Quarter if you need to make special arrangements for testing, etc.
- Academic misconduct: plagiarism or cheating will result in an "F" for the course.
- Grades cannot be changed after their issuance at the end of the Quarter.

SCHEDULE

(tentative, any changes will be announced in class)

<u>WEEK</u>	<u>READ/WEB:</u>	<u>SUBJECT</u>
1. (7/4)	Triola, Chapter 1.	<i>Introduction</i> --class organization, discussion of content Introduction to the computer lab (login, e-mail, WEB, Excel)
	Triola, Chapter 2, sections 2-1 to 2-4	<i>Describing, Exploring, Comparing Data</i>
2. (7/11)	Triola, Chapter 2, sections 2-5 to 2-7	<i>Describing, Exploring, Comparing Data (cont.)</i>
	Triola, Chapter 3, sections 3-1 to 3-2, Chapter 4, section 4-1	<i>Probability</i>
3. (7/18)	Triola, Chapter 5, sections 5-1 to 5-4	<i>Normal Probability Distributions</i>
	Triola, Chapter 6, sections 6-1 to 6-6	<i>Estimates & sample sizes</i>
4. (7/25)	MIDTERM (class time) on Chapters 1, 2, 3, 5.	
	Triola, Chapter 7, sections 7-1 to 7-6	<i>Hypothesis testing</i>
5. (8/1)	Triola, Chapter 9, sections 9-1 to 9-2	<i>Correlation</i>
	Triola, Chapter 10	<i>Goodness-of-Fit & Independence</i>
6. (8/9)	<i>Review</i>	
(8/10)	FINAL EXAM (class time) on Chapters 6, 7, 9.	

Go to the WEB:

- <http://urban.csuohio.edu/~sanda/computer/> for computer basics.

HOMEWORK FORMAT

- **Make it useful to you:** although answers are given at the end of the textbook, try to solve the problems on your own; the correct answer is useless if you do not know how to obtain it.
- **Make it easy to find:** label your products with your name, the homework number and date, and page numbers.
- **Make it easy to understand:** explain the logic. Include computations, in preparation for tests. Have printouts at the end; state and interpret results referring to them. **State conclusions** where appropriate--don't leave the reader guessing, especially when using SPSS (restate in words what you believe your results mean in terms of the question.)
- **Make it complete:** the (max) 2 points are given for effort & for tackling **all** questions, rather than for correct answers. State your findings, and where appropriate provide interpretations.

HOMEWORK SCHEDULE

(tentative -- changes expected and will be announced in class; if not taught in class, not required)

<u>DUE</u>	<u>FROM TRIOLA (STATE YOUR FINDINGS, AND WHERE APPROPRIATE PROVIDE INTERPRETATIONS.)</u>
2. (7/11)	p. 28: 2, 3, 4, 5; p. 40: 4, 5-8; p. 41: 14, 20; p.42: 23; p. 51: 7; p. 53: 21; p. 54: 30; p. 65: 3; p. 66: 9; p. 67: 13; p. 68: 21.
3. (7/18)	Section 2-5, p. 81: 1, 4, 8; p.82: 9, 10; p. 83: 27; p. 84: 31. Section 2-6, p. 91: 1; p. 92: 6, 9, 10; p. 93: 29, 31, 32. Review: p. 106: 7.
4. (7/25)	Section 5-2, p. 239: 9, 15, 16, 25, 28; p. 240: 35, 39, 43. Section 5-3: p. 246: 6, 13; p. 247: 17. p. 248: 23. Section 5.4: p. 253, 5, 10; p. 255, 22. Section 6.2: p. 309, 9, 10, 12. Section 6-3: p. 320, 9, 10; p. 321, 16; p. 322, 24; Section 6-5: p. 340, 27.
5. (8/1)	Section 7-2, p. 379: 9, 10, 17, 20; Section 7-3, p. 394: 4; p. 395, 6, 8, 10, 12; p. 396, 14. Section 7-4, p. 405: 2, 4; p. 406, 12, 23. Section 7-5, p. 414: 2, 4, 6; p. 415: 10, 12, 14; p. 416: 16.
6. (8/8)	Section 9-2: p. 520, 3, 4; p. 521: 6, 8, 10; p. 523, 17, 18, 20. Section 10-2: p. 585, 3, 4; p. 586, 6, 11; p. 587, 12. Section 10-3: p. 598, 1; p. 600, 8; p. 601, 10, 12; p. 602, 14, 16; p. 606, 4, 5.

SUGGESTED DISTANCE LEARNING STRATEGIES

Each week:

- Consult the web page and the WebCT site several times for postings.
- Read your e-mail to check for announcements or answers to questions others have posted.
- Read the assigned material in portions (not all in one day, not all at the end of the week).
- Write down questions.
- Consult the relevant web sites listed on the course web page.
- Solve the assigned problems in portions (not all in one day, not all at the end of the week). Do not spend time figuring out answers to questions you do not understand at all: troubleshoot instead (e-mail instructor **specific** questions, including clear reference to page and number of problem that gives you trouble).
- Review your questions: if they are still unanswered, e-mail instructor, trying to be as specific as possible.
- Prepare (and write down) questions, problems and suggestions to be brought up at the weekly face-to-face meetings.