

**RPUB/RPAD 504--Data, Models, and Decisions I**  
**Course Number: 6153 (PAD) / 6387 (PUB)**  
**Fall 2005**

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**Class meeting time and place; exam schedule**

Monday evenings, 5:45 PM to 8:50 PM in Draper 313B.

- Mid-term:** October 31, to begin at 5:50 PM, in Draper 313B. Ninety minutes.  
**Final:** December 19, to begin at 5:45 PM (per Univ. schedule) in TBA. Two hours.  
**Optional take-home final:** December 15 at 5:00 PM.  
**Note:** *Make-up exams will only be offered in the case of medical or family emergency or when mandated by University policy.*

**Catalogue description**

This course introduces computer-based tools for planning, policy analysis, and decision making. Topics include administrative and policy models in spreadsheets, making decisions with multiple criteria, forecasting and simulation, data base construction and information management, and an introduction to probability and decision trees.

**Assumed prerequisites**

This course assumes that you have basic familiarity with microcomputers and spreadsheet software such as Microsoft Excel and are familiar with college-level algebra. The first problem set is a hands-on diagnostic exercise designed to give you information on whether or not you meet the computing prerequisite. Worksheets for the lab sessions are available on the class web site if you want to download and complete them at your own pace. For students who scored below 480 on the math section of the GRE, a math refresher course is highly recommended. Please see me if you fall into this category.

## Purposes

Data, Models, and Decisions I is an introduction to computer-based tools for planning, policy analysis, and decision making. The course has three goals:

- To develop technical skills in the use of microcomputers, including especially electronic spreadsheets, databases, communications tools, and an introduction to the Web.
- To develop sophistication in the application of computer-based tools to the tasks of public administration, including planning, policy analysis, and decision making.
- To gain the skills and insights necessary to manage information resources in a public or not-for-profit agency including elements of database management and networked information transfer.

Within the master's programs in public administration and policy, the course is designed to provide the computer and quantitative skills necessary for PUB/PAD 505 Data, Models, and Decisions II and other courses, and to open up areas of study in information management and policy analysis at the 600-level.

## Required texts and material

1. Stokey and Zeckhauser, *A Primer for Policy Analysis*, W.W. Norton
2. Course web site: all problem sets, worksheets, and final exams are available at:

**<http://www.albany.edu/faculty/kretheme/PAD504/overview.html>**

## Recommended texts

You may wish to seek out a manual to help you with Excel and Access. I will show you some suggestions on the first day of class. You might look at:

- Duffy, Tim (1999) *Microsoft Access 2000*. Prentice Hall. ISBN: 0-201-45916-7
- Kaufeld, John. *Microsoft Access 2002 for Dummies*. John Wiley & Sons. ISBN: 0764508180.
- Prague, Cary N. and Michael R. Irwin. *Microsoft Access 2000 Bible*. Indianapolis, IN.: John Wiley & Sons. ISBN: 0764532863
- Walkenbach, John. *Microsoft Excel 2000 Bible*. New York, New York: Hungry Minds, Inc. ISBN: 0-7645-3259-6.

## Electronic reserve readings

All class readings except those in Stokey and Zeckhauser are available through the University at Albany's electronic reserve system. The electronic reserve system may be accessed from the course web page. Use the class password, pad504f05 (the password is case-sensitive).

## Recommended software

Microsoft Office Professional (Word, Excel, and Access; PowerPoint is also useful). The most recent versions — "2000" and "XP" — will be used in the laboratory and classroom. Earlier versions should also work for most class activities, though there are sometimes slight differences in commands and programming statements. Be sure to check what versions your workgroup members are using so that files may be exchanged electronically.

## Syllabus of topics

The attached syllabus of topics shows the timing of the major topics in the class along with anticipated assignments. There are eleven problem sets in the class as well as several readings and case studies that fit into this schedule. I have included my present best guesses of what you will need to prepare for each class. Since this course is always undergoing some “redesign”, I may be handing out assignment modifications each week as we go along. If there are significant changes, I will place an updated syllabus on the class website.

## Assignments

Weekly assignments are due at the next class. Assignments include readings in the required and optional texts plus problem sets and case studies. The assignments are a place to develop understandings and skills. **For the problem sets and worksheets, you are encouraged to work on assignments in small groups and to help each other acquire skills and understanding. However, you are required to turn in a write-up for each assignment that is completed individually.** You may not create a “group” answer and then make photocopies to turn in. Workgroups will be organized during the first class. The course teaching assistant will read the work you hand in, comment on it as time permits, and record the assignments that were handed in on time. However, problem sets will not be graded.

**Case studies and take-home exams are not to be completed as a group.** Typically, case studies will be graded by me. If you have any questions about whether group work is allowed, err on the side of caution: assume you should work alone.

## E-Mail communication

To reach me, use my personal e-mail address. To reach the course TA, use his personal e-mail address. A class LISTSERV is also available. To subscribe to this list, send an e-mail message to [LISTSERV@LISTSERV.ALBANY.EDU](mailto:LISTSERV@LISTSERV.ALBANY.EDU) with the line SUBSCRIBE PAD504-F05RG <FIRST NAME> <LAST NAME> in the body of the message and nothing in the subject (ex., SUBSCRIBE PAD504- F05RG Ramon Gil-Garcia). You will be asked to confirm your membership in the list by a return message. To send a message to *EVERYONE* who is subscribed, use the address [PAD504-F05RG@LISTSERV.ALBANY.EDU](mailto:PAD504-F05RG@LISTSERV.ALBANY.EDU). Please register for this list as soon as possible and check your e-mail regularly for class news and information. If the class must be cancelled on short notice, the announcement will be made through the LISTSERV. Also use this LISTSERV for sharing common concerns and issues. Please do not use it for discussions or announcements that are not related to the class.

## Laboratory Sessions

Regular lab sessions with the course TA have been scheduled for Monday evening between 4:00 and 5:30 PM where you can get help on the assignments. **Additional lab sessions will be planned during the first week of class.** Attendance at labs is optional, but they are the place where most computer hardware/software questions will be answered and where help on homework and concepts will be available. If one or several of the lab sessions become over crowded, we may have to return to the practice of having a specific assigned lab time (we will try to avoid this).

## Exams and Grading

Grades will be assigned on the A – E system. (For a discussion of this system and its relationship to GPA see [http://www.albany.edu/grad/requirements\\_general\\_admissions.html#graduate\\_grades](http://www.albany.edu/grad/requirements_general_admissions.html#graduate_grades).)

Grading is based on the following weights:

Midterm Exam	30%
Final Exam	35%
On Time Problem Sets	25%
Graded Cases	10%

I will also factor in class participation. Participation in lectures is at the student's discretion. I use participation as a "tie-breaker" if the grade falls at or near a "break-point" between levels. For instance, a person who has contributed regularly to class discussions and has a B+/A- average on the graded materials is more likely to receive an A- than a person who participate less regularly.

## Time commitment for this course

This is a four-credit graduate course. Hence you should plan on spending four hours per week in class and in the lab plus approximately eight hours per week doing the reading and preparing problem sets and cases. Students with strong prior background or experience in computing may spend less time than this. Students with little prior background may have to spend more time than this, especially in the first several weeks. If you discover that you are spending much more time than this on the course, please let me know so that we can discuss it.

## Plagiarism and cheating

Due to the intensive nature of this course, students are required to form study groups and to work together on assignments. Learn by interacting with one another — support and help one another. *However, each student should submit answers to the problem sets that are expressed in their own words. Submission of a "group" answer is not permitted; submission of group answers to satisfy an individual's problem set assignment constitutes academic misconduct. Some assignments such as in-class or take-home exams and memos are to reflect only individual effort. For these assignments you are expected to neither give nor receive assistance from anyone.*

***As a policy for this course, plagiarism or cheating will result in a failing grade for the whole course.***

In addition, I may pursue further disciplinary, including suspension and/or expulsion. For the purposes of this course, the following are taken as evidence of plagiarism or cheating:

- Material reproduced from another source without adequate citation.
- Identical answers being turned in by two or more students.
- A pattern of unusually similar answers being turned in by two or more students.
- Written answers or solutions that a student cannot logically explain verbally.
- Other evidence of collaboration between students on an in-class or take-home assignment that was intended to reflect individual effort.

Your work may be subject to computerized analysis to discover whether materials have been taken from on-line sources or to determine statistically whether answers are more similar than random chance would allow. Since this is such an important matter, if you have any questions about this course policy, you should ask me for any clarification that you may need.

## PAD 504 Data, Models, and Decisions I

### Detailed Listing of Assignments — Fall 2005

Date	Topic	Readings Due	Written Work Due <sup>1</sup>
August 29	Overview, expectations, and logistics. Software intro.; Intro to probability	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
September 5	NO CLASS – Labor Day		
September 12	Introduction to spreadsheets Probability (continued) Decision trees—Part I Uncle George's oil field	<ul style="list-style-type: none"> <li>Stokey &amp; Zeckhauser, Chaps 1-3 &amp; Chap. 12</li> <li>Moore and McCabe 4.1 and 4.4</li> </ul>	<ul style="list-style-type: none"> <li>Problem set: Probability, expected values and decision trees — Question #1</li> </ul>
September 19	Decision trees—Part II Uncle George's oil field (con't) Administrative models in spreadsheets Introduction to gov't info systems Writing a case memo	<ul style="list-style-type: none"> <li>Dawes et al: Government Services on the Web</li> </ul>	<ul style="list-style-type: none"> <li>Problem Set: Probability, expected values and decision trees — Questions #2-7</li> <li>Become familiar with the CTG web site</li> </ul>
September 26	Discussion of Black River Case memo Introduction to difference equations	<ul style="list-style-type: none"> <li>Stokey &amp; Zeckhauser, Chapter 4</li> </ul>	<ul style="list-style-type: none"> <li>Problem Set: Basic Spreadsheet Models, Questions #1-5</li> <li>Problem Set: Probability, expected values and decision trees — Questions #9-10</li> <li>Black River Case Memo</li> </ul>
October 3	NO CLASS – High Holidays		
October 10	Introduction to system dynamics Introduction to Vensim	<ul style="list-style-type: none"> <li>Stokey &amp; Zeckhauser, Chap 4 &amp; 6</li> <li>Senge, Chapters 4 &amp; 5</li> <li>Richardson</li> <li>Vensim manuals</li> <li>Rohrbaugh</li> <li>(Possibly case materials)</li> </ul>	<ul style="list-style-type: none"> <li>Problem Set: Administrative Models, Questions #1-5</li> <li>Problem Set : Difference equations, #1-2</li> </ul>
October 14 Draper 023	<b>Workshop: Intro to Vensim</b> (optional) <i>Must sign up to participate</i>	<ul style="list-style-type: none"> <li>Read the worksheet (online)</li> </ul>	<ul style="list-style-type: none"> <li>(Optional workshop)</li> </ul>
October 17	Linear systems, matrix notation, and Markov chains.	<ul style="list-style-type: none"> <li>Stokey &amp; Zeckhauser, Chap 7</li> <li>Roberts et al: Chapter 3</li> </ul>	<ul style="list-style-type: none"> <li>Problem Set: Intro to system dynamics, all questions</li> <li>Problem Set: Difference equations, #3-6</li> </ul>

<sup>1</sup> *Approximate only.* Not all of the exercises in each problem set will be assigned. Details concerning which exercises are due each week will be given in class the previous week.

Date	Topic	Readings Due	Written Work Due <sup>2</sup>
October 24	Discussion of Upstate County memo In-class review for the mid-term  Networks, the Internet, and public administration  Intro to databases & data modeling	<ul style="list-style-type: none"> <li>Andersen and Dawes, Chaps. 1 &amp; 2</li> <li>Elmasri and Navathe</li> <li>Huxhold</li> <li>Shuler</li> <li>Carleton</li> <li>Past exams (bring your questions)</li> </ul>	<ul style="list-style-type: none"> <li>Problem Set: Linear Dynamic Systems and Markov Chains, Questions #1-5, 7</li> <li>Case study: Writing a Decision Memo: Analyzing the Budget in Upstate County</li> </ul>
October 28 4 – 6:00 PM	<b>Optional Mid-term Review</b>	<i>All materials through October 24 lecture</i>	(Optional review)
October 31 5:50-7:20 PM	* <b>Mid-term Exam – 90 Minutes</b> * Introduction to databases & data modeling (continued) Rolodex for a party, Access example	<ul style="list-style-type: none"> <li>Elmasri and Navathe (if you haven't already)</li> <li>Huxhold (if you haven't already)</li> <li>Optional: <i>Access Bible</i>, chapters 5 and 9</li> </ul>	
November 4 Draper 023	<b>Workshop: Intro to Access</b> (optional) <i>Must sign up to participate</i>	<ul style="list-style-type: none"> <li>Read the worksheet (online)</li> </ul>	<ul style="list-style-type: none"> <li>(Optional workshop)</li> </ul>
November 7	Visiting lecture TBA Rolodex for a party, Access example (continued)	<ul style="list-style-type: none"> <li>Andersen and Dawes, Chaps. 3 &amp; 4</li> <li>Optional: <i>Access Bible</i>, chapters 5 and 9</li> </ul>	<ul style="list-style-type: none"> <li>Problem set: Single Table Databases, question #1-4</li> </ul>
November 14	Database normalization – intro Hardware store example Rolodex example (continued)	<ul style="list-style-type: none"> <li>Litwin</li> <li>Andersen</li> </ul>	<ul style="list-style-type: none"> <li>Problem set: Databases &amp; Introduction to Data Modeling, question #1-3</li> </ul>
November 18 Draper 023	<b>Workshop: Advanced Access</b> (optional) <i>Must sign up to participate</i>	<ul style="list-style-type: none"> <li>Read the worksheet (online)</li> </ul>	<ul style="list-style-type: none"> <li>(Optional workshop)</li> </ul>
November 21	Database normalization – continued Hardware store example (continued) WOODS case study	<ul style="list-style-type: none"> <li>WOODS case study</li> </ul>	<ul style="list-style-type: none"> <li>Problem set: Databases, Data Models, and Normalization, Questions #1 &amp; 2</li> </ul>
November 29	Decision analysis in spreadsheets: MAU models	<ul style="list-style-type: none"> <li>Andersen and Dawes, Forensic Mental Case</li> <li>Stokey &amp; Zeckhauser Chap. 8.</li> <li>Reagan-Cirincions, Schuman, and Richardson</li> <li>Barron and Barrett</li> </ul>	<ul style="list-style-type: none"> <li>Problem set: Databases, Data Models, and Normalization, Questions #3 &amp; 4</li> </ul>
December 5	Exploratory optimization-continued Using the Solver in Excel Class evaluation Formal models in administration & policy Course wrap-up In-class review for the final Take-home portion of final distributed	<ul style="list-style-type: none"> <li>Stokey &amp; Zeckhauser, Chap 11, 13, 15</li> </ul>	<ul style="list-style-type: none"> <li>Problem set: Decision Making with MAU Models, all questions</li> <li>Case study: Forensic Mental Health Case</li> </ul>

<sup>2</sup> **Approximate only.** Not all of the exercises in each problem set will be assigned. Details concerning which exercises are due each week will be given in class the previous week.

Date	Topic	Readings Due	Written Work Due <sup>3</sup>
December 15 5:00 PM	<b>Optional Take-Home Final Due</b>		
December 16 6:00 – 8:00 PM	<b>Optional Review for Final</b>	<ul style="list-style-type: none"> <li>• Everything</li> <li>• File of prior exams (on web site)</li> </ul>	<ul style="list-style-type: none"> <li>• Review of all problem sets</li> <li>• Review past final exams</li> <li>• Problem set: Exploratory Optimization/Linear Programming, questions #1-3; 5-6 (turn in at the review, by e-mail, or by fax)</li> </ul>
December 19 5:45 – 7:45 PM	<b>Final Exam</b>	<ul style="list-style-type: none"> <li>• Everything – but mostly since the mid-term</li> </ul>	

<sup>3</sup> *Approximate only.* Not all of the exercises in each problem set will be assigned. Details concerning which exercises are due each week will be given in class the previous week.