

PAD 204: COMPUTER MODELING FOR DECISION SUPPORT
Fall 2020 / Tue - Thu 9:00 – 10:20 am / Zoom

Instructor: Luis F. Luna-Reyes
Office: Milne 315
Contact: lluna-reyes@albany.edu or (518) 442-5297 (office)

Office Hours: Tuesday 12:00 - 1:30 pm, Zoom, or by appointment

COURSE DESCRIPTION

Making tough decisions — can computers help? Students will learn to use Internet technologies as well as techniques in computer modeling for critical thinking, policy analysis, and decision support. Topics include a review of quantitative methods for strategic analysis, tools for helping make tough decisions, and a survey of formal modeling techniques.

COURSE OBJECTIVES

This course aims to prepare students to take advantage of quantitative data to develop computer-based decision models to make evidence-based decisions in the public and nonprofit sectors.

Knowledge of decision analysts—Students will learn about decision making and the ways in which decision makers take advantage of models to support their thinking about problems. They will understand the role of computers in both the modeling and the decision-making progress, as a tool to leverage analytic capabilities.

Skills of decision analysts—Students will be able to use Excel to organize, manage, and analyze data for decision-making including: probability, probabilistic decision trees, making decisions with multiple criteria, difference equations, systems thinking and system dynamics.

Traits of decision analysts—Assignments and in-class activities will help students develop important traits necessary to making evidence-based decisions and informing policy debates: examining complex policy problems from multiple perspectives, presenting results from decision models to a variety of audiences, team work, creativity, curiosity, attention to detail, and becoming critical data consumers. Students will value the use of both intuition and analysis in the process of decision and policy making.

PREREQUISITES

PAD 140 Introduction to Public Policy.

REQUIRED/RECOMMENDED TEXTS AND SOFTWARE

Required Readings, Software, and Hardware

Readings:

The Blackboard website will contain readings for each week, which will be **required**. These will be available for download from the “Readings” folder. In some weeks, students will be **required** to watch Excel tutorial videos prior to class.

Software:

Students should have access to Microsoft Office 2016 or later versions, including Excel. Office 365 is available for free to all students with an active University at Albany account and will be used in the classroom. The Blackboard website contains a handout on how to download Office 365 for use on your personal computer. Earlier versions of Office should work for most exercises, although there are sometimes slight differences in commands and interfaces. If you are a Mac user, you are welcome to use your personal computer for homework assignments but you should use the PCs in the computer lab during class so that you can be familiar how to do the commands on the type of computer you will use for the in-class exams. We will not provide special support for Macs, so if you are downloading Office 365 on your Mac we encourage you to make an appointment with ITS for additional assistance.

Hardware:

You need a computer with Excel. I will show you how to get Excel in the first class. We will do extensive hands-on exercises in class.

Other Resources

If you need additional resources and tutorials to learn Excel or Access. Microsoft has a good set of introductory materials to Excel <https://support.microsoft.com/en-us/office/excel-for-windows-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb>, and Access <https://support.microsoft.com/en-us/office/access-video-training-a5ffb1ef-4cc4-4d79-a862-e2dda6ef38e6>

Course Learning Activities

This course is taught in a synchronous, online format. That means that we will meet twice a week via Zoom. Success in this class depends very much on your attendance and your work in the weekly assignments.

All modules are structured in the same way. You will find at the beginning of them a summary with objectives, readings and deadlines for discussions and assignments. You will find on each of them an area for readings, and a second one with class materials. We have a weekly assignment to keep ourselves engaged in practicing.

EXPECTATIONS

I will be prepared for class, return graded assignments in a timely fashion (typically in the following week), and make myself available for office hours. You are responsible for meeting all course requirements set forth in this document. I will notify you immediately of any syllabus modifications.

OVERVIEW OF COURSE SCHEDULE AND ASSIGNMENTS

Date	Class Topic	Deliverables, Due at Start of Class
<u>Week 1</u>	Introduction to Computer Modeling <i>Conceptual:</i> Decision making process and computer models <i>Skills:</i> Building simple models of problems	Assignment 1 – Sep 1st
<u>Weeks 2-3</u>	Excel Basics <i>Conceptual:</i> Spreadsheet model <i>Skills:</i> Enter data into Excel, using formulas in Excel, Modeling in Excel	Assignment 2- Sep 8
<u>Week 4</u>	Excel Charts <i>Conceptual:</i> Spreadsheet model <i>Skills:</i> Creating simple charts in Excel	Assignment 3- Sep 22
<u>Weeks 5-7</u>	Probability <i>Conceptual:</i> Definitions, probability rules <i>Skills:</i> Calculating probabilities, applications and problem solving	Assignment 4 – Sep 29 Assignment 5 – Oct 6
	Midterm Exam This take-home exam will cover all material from weeks 1-7. The exam will include some problems where you will need to manipulate data in Excel.	Oct 13
<u>Weeks 9-11</u>	Basic Decision Trees <i>Conceptual:</i> decision trees-- intuition, interpretation of findings, and their role in decision making <i>Skills:</i> building basic decision trees in Excel	Assignment 6 – Oct 27 Assignment 7 – Nov 3 Assignment 8 – Nov 10
<u>Week 11-13</u>	Multi-Attribute Utility Models <i>Conceptual:</i> multi-attribute utility decision models-- intuition, interpretation of findings, and their role in decision making <i>Skills:</i> building MAU models in Excel	Assignment 9 – April 17 Assignment 10 – April 24

Date	Class Topic	Deliverables, Due at Start of Class
<u>Week 14</u>	Class Wrap-Up and Review	---
To Be Announced	Final Project/Final Exam	---

READINGS

All of the reading assignments will be posted to the Blackboard website the week before the assignment is due.

CLASSROOM PROCEDURE

This is not a lecture-dominated class in which students listen passively. Rather, expect to be engaged in class discussion and active computer-based activities throughout class. Come to class having done the assigned readings and/or videos. We will clarify areas of confusion and build those skills in the classroom exercises, but we assume you have done the work beforehand. You will need to have Microsoft Excel installed in your computer, and we will practice many skills during the class. We will use Zoom for our classes as well as office hours.

LECTURE SLIDES

PowerPoint slides and other handouts will be posted to the Blackboard website before class. You are encouraged to print and bring them to class so you can write notes.

ASSIGNMENTS AND GRADING

Grading

10%	Participation
25%	Problem sets (note: the lowest grade will be dropped)
25%	Midterm exam
15%	Final exam
25%	Decision Problem Proposal

Your grade will be determined by a weighted average, using the weights described above. There is no extra credit, and I will not round up your overall score when assigning final grades. A grade of "A" reflects mastery of the material, with a strong and successful effort to think creatively about and go beyond the assigned material. A grade of "B" reflects a good, comprehensive awareness of the assigned material. A grade of "C" reflects knowledge of much of the material, but relatively weak preparation of a substantial share of it, and/or deficient preparation of written work. A grade of less than "C" reflects major gaps in knowledge or persistent lack of performance in the various aspects of the course.

A 94-100%	A- 90-93.9%	B+ 87-89.9%	B 83-86.9%	B- 80-82.9%
C+ 77-79.9%	C 73-76.9%	C- 70-72.9%	D 60-69.9%	E <60%

Participation

Participation is based on consistent, high-quality contributions to class discussions and in-class activities. You are graded on whether you are a civil and active contributor, and engaged in the hands-on exercises. You are not expected to always provide the “right” answer, but should be able to discuss and synthesize the course material and readings. Be prepared and generally enthusiastic about engaging in discussions and activities. Respond to other students’ points and challenge your classmates by offering suggestions that may be counter to the majority opinion. Offer ideas on alternative ways to solve problems. Be prepared for class by doing the readings in advance and being ready to discuss your answers to the problem sets. I value quality over content – students who provide occasional insightful comments will receive higher participation scores than vocal students whose comments have little substance.

Attendance is required. If you attend class 90% of the time, your maximum participation score (if you have excellent contributions to class discussions) is 90%. Being consistently late to class will reduce your participation score. However, if you attend all class sessions but have minimal participation, do not expect a high grade. Sitting quietly in class is worth an 80% (B-).

Assignments

There will be weekly assignments throughout the semester. Each assignment will allow you to practice the skills from the classroom on your own. Your lowest grade will be dropped in calculating your final grade.

Midterm and final exams

There will be two closed-book exams, each worth 25% of the grade. The exams will take place in the computer lab, and you will be expected to manipulate data in Excel or Access. The midterm will cover all material from weeks 1-6. The final exam is cumulative, although you can expect about 2/3 of the content to be from Parts II and III.

Decision Problem Proposal

As a capstone exercise, you will write a short proposal (no more than five typewritten double-spaced pages) describing how you would apply one or more of the methods described in class to a public policy issue from the news, or from your own (public policy related) work.

OTHER CLASS POLICIES

Attendance

Attendance is factored into the participation grade. If you will be absent from class, you are still responsible for submitting your assignments prior to the start of class. An absence will not be considered “excused” without supporting written documentation.

Late assignments

All late assignments will be docked 10 percentage points, or one full letter grade, for every 24 hours they are late (e.g. B+ will be reduced to C+). Assignments emailed after class are late. If you are late to class, your assignment will be considered late. If you are absent, you are responsible for ensuring that your assignments are submitted prior to the start of class. Computer crashes, printer failures, rush-hour traffic, work conflicts, heavy workloads in other courses, sleep deprivation, and planned conference travel are not acceptable excuses for late assignments. Plan ahead!

Excused absences

I will not grant extensions on assignments. However, I do appreciate that you may experience truly extenuating circumstances which would prevent attending class or preparing an assignment by the deadline. In these cases, speak with me as soon as possible, provide written documentation, and we will make alternate arrangements. Out of fairness to the rest of the class, I cannot adjust individual students' deadlines without supporting documentation.

Tardiness

Class starts at 9:00 am. Consistent tardiness will be reflected in your participation score.

Electronics

Please turn off all cell phones, instant messengers, and email. If you are environmentally conscious and prefer to take electronic notes and save the Blackboard readings to your laptop or tablet, then it is okay to bring those to class as long as you are using your electronic gadgets for course-related purposes.

Creature comforts

Although we are not meeting on a computer lab, I would not recommend you to Unfortunately you cannot bring food into the computer lab. Beverages are fine as long as they are in a covered container to prevent spills.

Citations and academic honesty

I take academic honesty very seriously. Cheating in any form will not be tolerated. This includes, but is not limited to, copying a homework assignment from another student, bringing outside materials into the exam without permission, and discussing the midterm exam or homework solutions with a student from the other section. You are required to be familiar with the university's academic honesty policies; ignorance is not an excuse. In all cases of cheating, a Violation of Academic Integrity Report will be submitted to the Dean of Graduate Studies to be placed in your university file, with copies provided to you, the department head, and the Dean. Additional penalties may include some combination of the following: revision and re-submission of the assignment, reduction of the grade or failure of the assignment, reduction of the course grade or failure of the course, filing of a case with the Office of Conflict Resolution and Civic Responsibility, or expulsion.

The standards are at the website below:

http://www.albany.edu/graduatebulletin/requirements_degree.htm#standards_integrity

Avoid plagiarism by properly acknowledging material and ideas taken from other sources. The University of Albany Library offers a useful tutorial on plagiarism and how to avoid it.

<http://library.albany.edu/usered/plagiarism/index.html>

If you cite a source (such as a class reading, lecture note, or outside sources), you must document it. Restate ideas in your own words or else use quotation marks around the relevant passages. In all instances, insert a footnote or endnote with the reference. I have no preference for how you format your references (e.g. APA style versus Chicago style), but select one standard style and be consistent. If you cite something from the PowerPoint slides, include the date and slide number. If you cite something from class discussion, include the date. See me in office hours for a tutorial on how to add references in Word.

Grading and appeals for grade change

If you are dissatisfied with your grade or think I made an error, you may make a written appeal describing why you think your grade should be changed. This appeal should be typed and be delivered to me (in person or by email) within 48 hours of receiving your assignment. Your grade may be lowered, increased, or remain the same. I will not consider a grade appeal that is delivered orally or after this deadline; you must submit your typed appeal within 48 hours.

Disability statement

Please see me if you have a disability documented by the Disability Resource Center (in the Department of Student Life) to request accommodations.

Incompletes

I will not grant an incomplete except in the case of truly extenuating circumstances with written documentation. Be forewarned that if we mutually agree on an incomplete grade, I will likely still require you to attend class. If you need to request an incomplete, speak with me as soon as possible.

Course feedback

I genuinely want to make this the best educational experience it can be for you and future students. I am receptive to and grateful for all suggestions about the course. If you are not comfortable providing me or the teaching assistant feedback in person, then you can put anonymous suggestions in my faculty mailbox on the first floor of Milne. At the start of the semester we will appoint a student ombudsman who you can contact confidentially with any course concerns.

Title IX Information

Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits discrimination on the basis of sex in federally funded education programs and activities.

The SUNY-wide Sexual Violence Prevention and Response Policies prohibit offenses defined as sexual harassment, sexual assault, intimate partner violence (dating or domestic violence), sexual exploitation, and stalking. The SUNY-wide Sexual Violence Prevention and Response Policies apply to the entire University at Albany community, including students, faculty, and staff of all gender identities. The University at Albany provides a variety of resources for support and advocacy to assist individuals who have experienced sexual offenses.

Confidential support and guidance can be found through the Counseling Center (518-442-5800, https://www.albany.edu/counseling_center/), the University Health Center (518-442-5454, https://www.albany.edu/health_center/), and the Interfaith Center (518-489-8573, <https://www.albany.edu/spirituality/onCampus.shtml>). Individuals at these locations will not report crimes to law enforcement or university officials without permission, except for in extreme circumstances, such as a health and/or safety emergency. Additionally, the Advocates at the University at Albany's Advocacy Center for Sexual Violence are available to assist students without sharing information that could identify them (518-442-CARE, <https://www.albany.edu/advocacycenter/>).

Sexual offenses can be reported non-confidentially to the Title IX Coordinator within The Office for Equity and Compliance (518-442-3800, <https://www.albany.edu/equity-compliance/>, Building 25, Room 117) and/or the University Police Department (518-442-3131, <http://police.albany.edu/>).

Please note, faculty members are considered "responsible employees" at the University at Albany, meaning that they are required to report all known relevant details about a complaint of sexual violence to the University's Title IX Coordinator, including names of anyone involved or present, date, time, and location.

In case of an emergency, please call 911.