To plan is to determine who should do what, when, where, and by how much in order to bring about some intended state of affairs. Planning is not so much concerned with the taking of a decision that leads to collective action (the subject of politics); rather, it has more to do with what a decision involves and concerns. Planning analysis supports planning behavior, which influences decision making.

Course Description
This course provides an introduction to methods for developing and evaluating (for the most part) quantitative information in support of the activity of planning. The methods considered are widely used by planning practitioners and policy analysts and embody modalities of thinking that often structure the ways that issues are framed for public discussions and policy decisions. CRP 5250 is a four-credit-hour course; hence, by Cornell University’s expectations, it is assumed that students will spend up to eight hours per week on readings and assignments or in attending recitation sessions outside of class. CRP 5250 is a core course required of all MRP students; it also fulfills a quantitative methods requirement of MPA students.

Course Objectives
Students who complete this course satisfactorily will accomplish the following course objectives:

1) obtain working knowledge of the methods considered and their strengths and limitations, and
2) become educated consumers of studies in which these methods are employed.

Students completing this course satisfactorily will also meet several broader learning objectives of the Graduate Field of City and Regional Planning and the Planning Accreditation Board. In addition to the course objectives stated above, which target planning skills in the areas of research, written and oral communication, planning process methods, and quantitative and qualitative methods (throughout the course), these broader learning objectives include becoming acquainted with the purpose and meaning of planning (addressed in week 1), as well as principles of sustainability and environmental quality (addressed in week 15) and social justice (addressed in week 4).¹

Course Prerequisites
The material in this course will be presented at a level that is predicated on the assumption that students have a good command of high school algebra and have successfully completed courses in introductory statistics and principles of economic analysis. Mathematical and statistical methods and pertinent economic principles will be reviewed, however, when introduced in discussion.

¹ Objective measures indicating degree of attainment of conceptual and practical knowledge in the targeted areas include satisfactory performance on in-class exams and case study assignments.
Course Organization and Work Requirements
Classes will be held in the lecture/discussion format twice a week. Non-compulsory recitation sessions will also be organized on a weekly basis, or as often as is needed. (The purpose of recitation sessions is to present additional examples of material covered in class and to offer instruction in implementing solutions to problems in Excel or other software packages.) In addition to attending class regularly, preparing conscientiously for class, and taking an active part in class discussions, students will be required to submit six short assignments. Those assignments that are not purely analytical exercises are expected to be submitted as word-processed memoranda. Such assignments will be graded on presentation as well as content. (The appropriate format of these memoranda is discussed in the appendix to this syllabus. Guidance on formatting of data and tables may be found in Tufte (1983).) All assignments are expected when due; assignments submitted late will be penalized. There will be both a mid-term exam and a final exam, each of which will be a closed-book and in-class exam.

Attendance Policy
Class will meet from 10:10 AM until 11:00 AM, with a ten-minute break, and then again from 11:10 until 12:05 PM. Attendance is required over the entire one hour and 55-minute meeting time. More than two unexcused absences will result in a grade reduction. More than four unexcused absences will result in an expulsion from the course.

Policy on Laptops and Cell Phones
Laptop and tablet computers may be used for note-taking and participating in exercises during class, although hand-written note-taking is strongly recommended for better absorption and retention of material and for easier recording of algebraic expressions. Laptops should not be used for reading or sending e-mail or engaging in other diversions. Cell phones should be turned off at all times during class. No texting during class is permitted.

Academic Integrity
Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. (See http://www.cornell.edu/UniversityFaculty/docs/main.html.) Any work submitted by a student in this course for academic credit must be the student’s own.

Grade Determination
Work requirements for the course will be weighted as follows:

- Preparation, and participation: 10%
- Homework assignments: 40%
- Mid-term exam: 25%
- Final exam: 25%

Keys to Success
The single most important key to success in this course is regular and punctual attendance at classes. As is the case for most methods courses, you can probably absorb most of the essential material by regularly attending class and taking accurate notes and reviewing them before each subsequent class. Most students enrolled in this class are professional master’s degree students. There is nothing more ‘professional’ than showing up for an appointment (in this case, a lecture) on time and well prepared. It will also prove useful to students in this course to work in teams on assignments. Over their careers, most professionals working in design, planning, engineering, or public policy arenas will have to communicate with peers from other professions. Working with fellow students on assignments will give you an opportunity to hone your collaborative skills as you engage the course material.
**Topic Sequence**

The following is intended to provide an indication of the sequence of topics covered. Depending on the evolution of the course, there may be changes in the number of topics covered or the order in which they are presented.

1. Planning Analysis and the Logic of Plans
2. Decision Analysis
3. Queuing and Simulation Models
4. Demographic Forecasting and Analysis
5. Spatial Interaction Modeling: Transportation and Land Use
6. Economic Forecasting and Related Impact Analyses
7. Linear Programming and Applications
8. Cost-Benefit Analysis
9. Assessing Sustainability
10. The Role of Planning and Policy Analysis in the Policy Cycle

**Texts**

The following required text has been ordered from the University bookstore.


Readings will be assigned from the following texts.


Copies of all assigned readings will be placed on reserve in the Fine Arts Library in Sibley Hall and made available on the course’s Blackboard site (where copyright law allows). Please note that course materials posted on Blackboard are intellectual property belonging to the author. Students are not permitted to buy or sell any course materials without the express permission of the instructor. Such unauthorized behavior constitutes academic misconduct.

**Reading Assignments by Topic and Expected Dates**

1. Planning Analysis and the Logic of Plans (January 27th & February 1st)

   Hopkins, Chapters 1—5.

2. Decision Analysis (February 3rd & 8th)

   Stokey and Zeckhauser, Chapter 12.

3. Queuing and Simulation Models (February 10th & 17th)

   Stokey and Zeckhauser, Chapters 5—6

[Please note that the February Break is February 13th – 16th]
4. Demographic Forecasting and Analysis (February 22\textsuperscript{nd} & 24\textsuperscript{th})
   Oppenheim, Chapter 2.
   Travis Hale, (no date), “The Theoretical Basics of Inequality Measures,” manuscript.
   Plane and Rogerson, Chapters 6 & 7.

5. Spatial Interaction Modeling: Transportation and Land Use (February 29\textsuperscript{th} – March 9\textsuperscript{th})
   Oppenheim, Chapter 4.

6. Economic Forecasting and Related Impact Analyses (March 14\textsuperscript{th} – 21\textsuperscript{st})
   Isard et al., Chapter 6.
   Miller and Blair, Chapters 1—3.
   McDonald and McMillen, Chapter 20.
   Philip McCann, “Technology, Information and the Geography of Global and Regional Trade,” Chapter 2 in Cooper et al.

MID-TERM EXAM: Wednesday, March 23\textsuperscript{rd}, 10:10 AM – 12:05 PM.

7. Linear Programming and Applications (March 28\textsuperscript{th} & 30\textsuperscript{th}, April 11\textsuperscript{th} & 13\textsuperscript{th}; Spring Break is April 1\textsuperscript{st} – April 10\textsuperscript{th})
   Wagner, Chapters 1—7, 13 & 14.
   Oppenheim, Chapter 5.
   Wiest and Levy, Chapters 4 & 5.
Revenue Per Capita in the Tax Jurisdictions of Montgomery County, Ohio.”

8. Cost-Benefit Analysis (April 18th – May 2nd)

Grant, Ireson, and Leavenworth, Chapters 1-7 (passim).
Sassone and Schaffer, Chapters 4 & 5.
Parfit, Appendix.

9. Assessing Sustainability (May 4th & May 9th)

Herendeen, Chapters 6 & 11.

10. The Role of Planning and Policy Analysis in the Policy Cycle (May 11th)

Stokey and Zeckhauser, Chapters 13 & 14
Nelson and Winter, Chapter 16.

FINAL EXAM: The date, time, and location of the final exam will be announced by the University on February 16th.
CRP 5250 Introduction to Methods of Planning Analysis

Guidelines for Writing Good Policy Memoranda

Policy memoranda are intended to provide clients, job supervisors, governmental organizations, or elected officials with information relevant to the making of thoughtful and defensible decisions. Such memoranda are most helpful if they follow a format that anticipates a standard logical sequence of questions that arise in most readers’ minds as they progress through the documents. Here are some serviceable guidelines.

Always begin a memorandum by stating whom the memorandum is addressed to, who is writing it (or responsible for submitting it), what it concerns, and the date. For instance,

To: Governor Andrew Cuomo
From: Sog E. Fields, Policy Analyst
Re: Wetlands Preservation Policy Evaluation
Date: January 21, 2016

Next, give the reader some context for what’s to come by using language such as the following:

“In response to your request of December 20th, I have prepared a study that addresses …”

“This memorandum is intended to provide an analysis of the problem outlined in your memorandum of December 20, 2015 …”

or

“Following up on our discussion [lunch meeting, telephone conversation] on last Tuesday concerning […..], I have prepared the following analysis for your review.”

After establishing what the memo concerns, briefly recapitulate the most important details of the problem. This part of the memo is very crucial because a clear problem statement may be lacking up to this point. Also, you may have to assemble a characterization of the problem from several different sources of information that may be at odds with each other. So a fair amount of judgment on your part is entailed at this stage.

Following the problem statement—and it may even be in the same paragraph—should come a brief discussion of what counts as a solution or what for purposes of analysis you are taking to count as a solution. In terms of this solution concept, you should then explain briefly to the reader what criteria will be used to evaluate alternative solutions or competing options.
Given a description of a problem and what counts as a solution, it is now appropriate to discuss what methodology you are adopting to analyze the problem and why it is appropriate (or the most appropriate among those that are available). Relevant considerations certainly include the time frame in which a response is sought, the information available, the cost of the analysis, and the possible fact that situations such as the one under consideration lend themselves readily to the methodology you have selected.

All of the above can usually be accomplished in a few tightly written paragraphs that enable you to proceed to the heart of the matter. Here you present your analysis. Be sure to state your working assumptions and define important terms, but put the really technical stuff in appendices to which the reader may be referred. It is often useful to sum up the major points of your analysis in charts or tables. (Formulas or symbols may be defined in keys.)

In the last section of your memo you should draw the conclusions or implications of your analysis and identify the limitations or extenuating circumstances that would invalidate your findings. You should without fail offer a recommendation to the reader (client, boss, etc.)—after all, this is probably why you were put on this problem in the first place. The decision-maker gets paid to take the heat of making a difficult decision; you get paid to cover his or her flank by offering timely advice with some perspective. Finally, you should inform the reader briefly about how the analysis might be taken further, were additional funds to become available—say, for research or data collection.

The above is intended to provide a general outline for a typical policy memorandum. In certain cases some of what has been suggested will be unnecessary or inappropriate and in other cases additional sections may be needed. As you get a feel for the requirements of the tasks with which you are charged, the changes that are appropriate will seem more and more obvious. In composing memoranda, several rules of thumb of good writing practice should still be observed. Use the active voice, except where tact dictates otherwise—e.g., “It has been suggested that the Secretary of State has overdrawn his discretionary account by two hundred percent.” Avoid overly technical terminology where possible and eschew jargon and slang—even if they dominate language used in the office. Finally, spelling and grammar count a lot towards your overall credibility. So use that spell-check feature on your word processor religiously and proofread carefully everything that has your name on it.