**City and Regional Planning 781 — Spatial Models in Urban Planning**

<table>
<thead>
<tr>
<th>Credit:</th>
<th>4 hours hours</th>
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<tbody>
<tr>
<td>Sequence No.:</td>
<td>04226-0</td>
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<tr>
<td>Meeting:</td>
<td>270 Brown Hall</td>
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<tr>
<td>Time:</td>
<td>Monday, Wednesday 12:30 – 2:30 p.m.</td>
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<td>Midterm Examination:</td>
<td>Wednesday, April 25, in class. Calculator required.</td>
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<tr>
<td>Final Examination:</td>
<td>Monday, June 4, 11:30 am; 274 Brown. Calculator required.</td>
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<td>Instructor’s Office:</td>
<td>289B Brown Hall</td>
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<tr>
<td>Office Hours:</td>
<td>Monday, Wednesday, 3:00 – 5:00 pm or by appointment</td>
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<tr>
<td>E-mail:</td>
<td><a href="mailto:viton.1@osu.edu">viton.1@osu.edu</a></td>
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**Grading Seniors:** If you are graduating this quarter, this course is open to you only if you are a graduate student in City and Regional Planning.

**Test-Out:** If you have had a good microeconomics course, you may be able to test out of 781. The test-out will be given on Wednesday, March 28 during class. Come to 274 Brown at 12:25pm; bring a calculator. This will be a closed-book examination. It will not cover spatial microeconomics; note that the Comprehensive Examination may well cover this topic, so even if you pass the test-out, you may want to get the notes from someone in the class.

**Email list:** I have set up an email list for the course; if you wish to be notified about materials availability, comments/corrections on problem sets you should send email in the next couple of days to viton.1@osu.edu asking to be added to the 781 mailing list.

**COURSE DESCRIPTION**

This course will introduce you to microeconomic approaches to urban planning problems. Throughout the course, the emphasis will be on developing your understanding of basic economic terms and reasoning; and on the application of these to problem-solving and policy analysis in urban planning.
EVALUATION

There will be a closed-book midterm examination given in class on Wednesday, April 25. Bring a calculator. This will count for 30% of your final grade. The remaining 70% of your grade will be based on a closed-book final examination at Monday, June 4, 11:30 am in 274 Brown (the regularly scheduled time). Again, bring a calculator.

Both the midterm and the final examinations will involve the solution to problems. To give you some idea of what you can expect, I’ll make copies of problems and answers available for purchase at Cop-Ez, in the next couple of days. I strongly advise you to attempt the problems on your own and then compare your answers with mine: it is extremely easy to convince yourself that you’ve completely understood everything in lectures, only to find when you’re confronted with a problem in an examination, that you really don’t see what to do with the lecture knowledge. Note that the distributed problems were meant to be solved over the course of a week: the examination problems will not be so involved.

COURSE STRUCTURE

In order to focus more on the applications of economic analysis to planning concerns I will devote a few intensive sessions to a review of the basic concepts, and then proceed to use those concepts to think about planning and public-sector problems. You are responsible for studying the basic material in a textbook. The problem sets and final exam will not be restricted to material covered in class. The intensive sessions are identified in the reading list as “Review” sections, and contain a check-list of the basic concepts with which you are expected to become familiar. You are strongly advised to begin working on this material before the reviews, which will go very quickly.

TEXTS

I have not ordered a text for the course. I am, however, making available for purchase at Cop-Ez selected chapters from Call and Holahan’s Microeconomics. The first two installments (Chs. 6 and 7, and Chs 8 and 9) will be available by Thursday. Remember that, as explained above, you are responsible for more than is covered in the lectures. I strongly recommend that you purchase either the Call and Holahan readings or some other microeconomics textbook. Call and Holahan is good; but the material is covered in any reasonable intermediate microeconomics text. Here are some examples, but there are many more: if you already own one of them and like it, then there’s no real reason to buy the reprinted material; if you have a text not listed here, and are uncertain as to whether it’s OK, bring it in and I’ll take a quick look.) Note there may be — and probably are — more recent editions of some of the books: these are just the editions I happened to have handy.

E. Mansfield, Microeconomics, W. W. Norton, 1970

W. Nicholson, Microeconomic Theory, Dryden Press, Hinsdale, IL, 1978


Schaum’s Outline book *Microeconomic Theory* (probably available in the bookstore) may also be useful: it’s much more problem-oriented than Call and Holahan. Note, however, that no microeconomics text covers the spatial extensions; for these you will need to rely on your own notes.

I shall place copies of the index to Call and Holahan on the filing cabinet outside my office: help yourselves. In general, you will usually be able to find extra copies of materials distributed in class there.

The following texts also cover the material, but are quite advanced in their treatment and they may be incomprehensible if you’re not up on math at least through second-year calculus.


Here are some books specifically devoted to urban and regional economics. They should be used in conjunction with a basic microeconomics text. First some basic books:


E. S. Mills, *Urban Economics*, Scott, Foresman, Glenview, IL, 1972


And here are some more advanced treatments (if you’re planning to do research in this area, I particularly recommend Fujita’s book):


**PhD STUDENTS — C&RP 881**

C&RP 781 is an introduction to microeconomic approaches to planning problems. It does not provide enough background for advanced research in any of the topics we shall discuss. There is a companion course, C&RP 881, which is designed as an add-on to this course, and which covers the formal (mathematical) foundations of the subject, with a view to making the research literature accessible to you. For purposes of the MCRP core, 881 counts as 781.

The first meeting of 881 will be on Thursday, 12:30–2:30 pm; but this time is changeable to accommodate the interests of the students. If you think you would like to take this course instead of 781, come to the first class session and we’ll see what can be worked out.

Doctoral students who plan to do research involving the microeconomics of planning are strongly advised to take 881 and/or at least the first course in the Economics 804–805–806 sequence, which is the first-year graduate sequence in microeconomics. Prerequisites for 881 are second-year calculus, and basic linear algebra.
COURSE OUTLINE

1 Introduction

Equilibrium of supply and demand; spatial price equilibrium; importance of transportation.

2 Review: Theory of Production and Cost

This section reviews the basic theory of production and cost. You are responsible for developing an thorough understanding of the basic concepts through a textbook and through the problem sets.

RECOMMENDED READING: Call and Holahan Chs 6.1 - 6.7, 6.10, 6.11, 7.1 - 7.12, 7.15.

CHECK-LIST OF IMPORTANT CONCEPTS IN PRODUCTION: technology (production function) isoquant input substitution marginal product returns to scale factor prices and iso-cost line cost-minimizing input demands cost curves: total cost, average cost, marginal cost fixed and variable costs; short-run and long-run costs and returns to scale.

3 Locational Choice of the Firm

We now apply the theory of cost to the determination of the firm’s location in space.

READING: Class notes

CHECK-LIST OF IMPORTANT CONCEPTS: Weber model Facility location problem

4 Review: The Competitive Firm

This section reviews the theory of output determination by the competitive firm. You are responsible for developing an thorough understanding of the basic concepts through a textbook and through the problem sets.

RECOMMENDED READING: Call and Holahan, Chs. 8.1 - 8.7, 8.11.

CHECK-LIST OF IMPORTANT CONCEPTS IN FIRM BEHAVIOR: price-taking behavior profit maximization marginal revenue function under competition supply function average revenue function determination of optimal output and price.

5 Location of Competitive Firms in Space

We extend the previous location discussion to consider the distribution of competitive firms over space.
6 Review: Monopoly

We now consider a second form of industrial organization. Again, you are responsible for developing an thorough understanding of the basic concepts through a textbook and through the problem sets.


CHECK-LIST OF IMPORTANT CONCEPTS IN FIRM BEHAVIOR: profit maximization marginal revenue function under monopoly determination of optimal output and price.

7 The Spatial Monopolist

A monopolist whose market extends over space has a choice of how to price output at different locations; and where to sell. Here we consider some basic results in the context of the monopolist facing linear demand.

READING: Class notes.

CHECK-LIST OF IMPORTANT CONCEPTS: Market extent mill pricing spatial price discrimination uniform delivered price

8 Review: Theory of Individual Behavior

This section reviews the theory of individual choice. You are responsible for developing an thorough understanding of the basic concepts through a textbook and through the problem sets.

RECOMMENDED READING: Call and Holahan, Chs. 3.1 - 3.5; 3.8, 4.2a, 4.2d.

CHECK-LIST OF IMPORTANT CONCEPTS IN CONSUMER THEORY: preferences utility function indifference curve price-taking behavior budget constraint marginal rate of substitution optimal choice demand function price and income elasticities shifted demand function and movement along a demand function normal, Giffen and inferior goods.

9 Elementary Theory of Urban Land Rents

Urban spatial structure; closed and open economies; transportation; bid-rent curves; 1-class and 2-class economies.

READING: Class notes.
10 Welfare Economics

Competitive equilibrium; Pareto Optimality; first and second theorems of welfare economics; connection with equity concerns.

READING: Class notes.

11 The Problem of Increasing Returns

Why certain technologies imply that we can’t rely on the market to produce the right amount of some goods; how to regulate a natural monopoly (Ramsey pricing).

READING: Class notes.

12 Market Failure: Joint Products and Externalities

Why the presence of externalities implies that the market can’t be relied on for optimality. Externalities in urban contexts; economic justification of zoning – sometimes; Coase theorem and legal rights.

READING: Call and Holahan, Chs 15.1 - 15.3, 15.6 - 15.7.

13 Market Failure: The Problem of Public Goods

Non-excludability and the problems it causes. Financing the provision of public goods.

READING: Call and Holahan Chs. 15.4 - 15.5.