

**ECON 321, Assignment 10:**  
**BP, Chapter 5: 5.1 and 5.2**  
**The Hotelling Model**

1. Read the Introduction and Section 5.1. Note the important terms in Section 5.1.
2. Read Section 5.2.1. This version of the Hotelling model is not used very often in economics, but much more often in other social sciences. For many non-economists, this *is* the Hotelling model.
3. Read Section 5.2.2. For most economists, this is the Hotelling model they use, and almost always with the further simplification that Firm 1 is located at location 0 and Firm 2 is located at location 1.

Use Mathematica to set up a simple Hotelling model with the firms at the endpoints and with  $c = 1$ . Work through setting up the utility functions, finding the indifferent consumer, finding demand, and finding the profits. Since the firms are anchored at  $l_1 = 0$  and  $l_2 = 1$ , this will all be much simpler than the book's discussion, and all the conditions will be met easily. In particular, you can just assume that demand for firm 1 is everyone to the left of the indifferent consumer, and demand for firm 2 is everyone to the right. Find the equilibrium prices and profits as functions of  $\tau$ .

4. Skim Section 5.2.3, this formulation is usually only used when analyzing the choices of firms to locate in places other than the endpoints.