

**ISyE 4111**  
**Advanced Supply Chain Logistics**  
**Fall 2010**

**Reading Assignment 2**

**Due Date: September 9, 2010**

Read the materials below in preparation for discussion in class. The questions are intended to guide your reading and thoughts, but are not the only aspects that will be discussed in class.

1. William J. Cook, *In Pursuit of the Salesman*, Chapter 3, 2009.
  - (a) Make sure that you are able to describe clearly each of the applications of the TSP mentioned in the chapter.
  - (b) Describe what happens if a destination is provided to a GPS device in the form of latitude and longitude.
  - (c) Formulate the problem related to the TSP that members of the Extra Miler Club and the Iron Butt Rally would like to solve. Assume that a set of candidate locations (cities or gas stations) are given. Clearly specify decision variables, objective, and constraints.
  - (d) Explain how the problem of finding the genome order leads to a TSP.
  - (e) Explain how the problem of aiming a telescope leads to a TSP.
  - (f) Explain how data can be clustered into  $k$  subsets by solving a TSP.
  - (g) Explain how the problem of drilling holes in a printed circuit board leads to a traveling salesman problem. Give the definition of the distance metric that is used, and explain why this metric is appropriate for the drilling problem.
  - (h) Describe how the problem of sequencing the production of several jobs on a single machine with sequence-dependent setups can be formulated as a TSP.