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# OPERATIONS RESEARCH AN INTRODUCTION

Hamdy A. Taha

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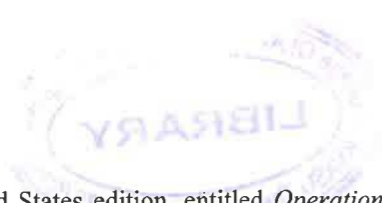
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## What Is Operations Research?

### 1 INTRODUCTION

The first formal activities of Operations Research (OR) were initiated in England during World War II, when a team of British scientists set out to make scientifically based decisions regarding the best utilization of war materiel. After the war, the ideas advanced in military operations were adapted to improve efficiency and productivity in the civilian sector.

This chapter introduces the basic terminology of OR, including mathematical modeling, feasible solutions, optimization, and iterative computations. It stresses that defining the problem correctly is the most important (and most difficult) phase of practicing OR. The chapter also emphasizes that, while mathematical modeling is a cornerstone of OR, unquantifiable factors (such as human behavior) must be accounted for in the final decision.

### 2 OPERATIONS RESEARCH MODELS

Imagine that you have a 5-week business commitment between Fayetteville (FYV) and Denver (DEN). You fly out of Fayetteville on Mondays and return on Wednesdays. A regular round-trip ticket costs \$400, but a 20% discount is granted if the round-trip dates span a weekend. A one-way ticket in either direction costs 75% of the regular price. How should you buy the tickets for the 5-week period?

The companion website for this chapter is [www.pearsonhighered.com/taha](http://www.pearsonhighered.com/taha).

From Chapter 1 of *Operations Research: An Introduction*, Ninth Edition, Hamdy A. Taha.  
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