

**Homework #4:**  
**Introduction to Wireless Communication**

Total Points 75

Reading Assignment: Chapters 1 and 2.

Assigned: **February 13, 2006**Due: **February 20, 2006****Problem 1: (25 points)** [Problem 3.9]**Problem 2: (25 points)**

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**Problem 3: (25 points)**

Consider a mobile system supporting 100 channels per cell. A call blocking probability of 1% is desired. Mobile users typically use their cell phones once per 10 minutes, on the average, their calls lasting an average of 10 minutes. Say the system is concentrated in an urban area with a density of 500 cell phones per km<sup>2</sup>. Calculate the required cell radius if a hexagonal topology is assumed. Repeat if the mobile users "stay on the line" for 4 minutes, on the average. What happens to the cell size if, in addition, they start using their phones more often?

**Problem 4: (25 points)**

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