

# Smart Wireless Networks

The background of the slide is a green chalkboard. In the lower-left quadrant, two pieces of pink chalk are lying on the surface. The chalkboard has several faint, white chalk drawings, including a large circle on the left, a curved line in the center, and a vertical line with a small hook at the bottom.

Hengameh Keshavarz

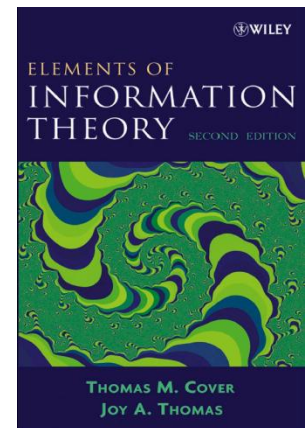
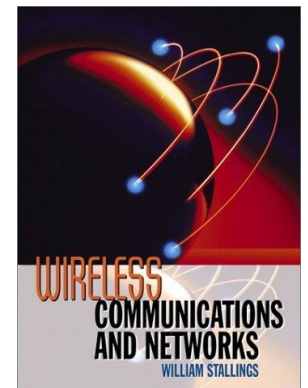
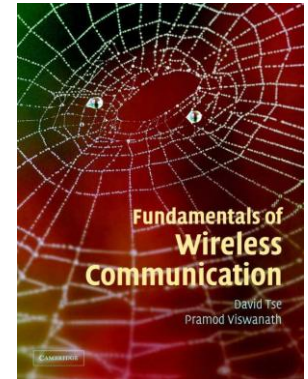
Department of Communications  
Engineering, USB

# Outline

- Chapter 1: Introduction to wireless communications
- Chapter 2: Wireless and mobile networks
- Chapter 3: Introduction to information theory
- Chapter 4: Channel models and capacity
- Chapter 5: Network information theory
- Chapter 6: Sensor networks
- Chapter 7: Cognitive networks

# References

- *Fundamentals of Wireless Communications*, David Tse and P. Viswanath, Cambridge University Press, 2005.
- *Wireless Communications and Networks*, by William Stallings, Prentice Hall, 2nd Edition, 2005.
- *Elements of Information Theory*, Thomas M. Cover and Joy A. Thomas, John Wiley & Sons, Inc., 2<sup>nd</sup> Edition, 2006.



# Course Evaluation

- Reading assignment (%20)  
Presenting a hot topic related to wireless networks
- Course project (%30)  
Generating simulation results of a paper published after 2010 and related to the reading assignment
- Final exam (%50)
- Extra grades for students making a new contribution in the course project

# Topics for Reading Assignments

- Graph theory
- Network coding
- Internet of Things (IoT)
- All-Optical wireless networks
- Nano-scale and molecular networking
- Quantum networking
- Wireless network cloud

