

# ITEC451: Network Design and Analysis – Spring 2010

MWF 2:00~2:50, Whitt Hall 124

**Instructor:** Dr. Hwajung Lee, 220 Davis Hall

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**Phone:** 540-831-6054

**Office Hours:** MWF 3– 4PM; Thr 11:30AM-1:30PM; and by appointment

The best way to contact me is by [e-mail](#). My office hours will be the best time to see me and I will also be happy to see you during times other than my office hours if I am there with my office door open.

## Required Texts:

Wayne L. Winston, "Operations Research: Applications and Algorithms, " 4<sup>th</sup> Edition, Duxbury Press, 2004.

## Reference:

- ☐ Raj Jain, "The Art of Computer System Performance Analysis," Wiley, 1991.
- ☐ Michael R. Garey and Davis S. Johnson, "Computers and Intractability: A Guide to the Theory of Incompleteness", 1979.
- ☐ Sheldon M. Ross, "Introduction to Probability Models, " 8th Edition, Academic Press, 2003.
- ☐ Noga Alon and Joel H. Spencer, "The Probabilistic Method, " 2nd Edition, John Wiley & Sons, 2000.
- ☐ Vijay Vazirani, "Approximation Algorithms," 2nd Edition, Academic Press, 2004.

## Grades:

Two in-class tests	60% = 30% each * 2 tests
Homework & Lab Project	20%
Term Paper/Presentation	20%
<b>Total</b>	<b>100%</b>
Perfect Attendance and Full Attention in Class (bonus)	<b>Bonus 3 %</b> of the average of your earned exam scores
Bonus quizzes	<b>Bonus 5 %</b>

NOTE 1: There will be bonus quizzes in this class.

- ☐ The dates for in class quizzes will not be announced.
- ☐ Quizzes will be graded on a 10 point scale.
- ☐ Missed quizzes cannot be made up.

NOTE 2: If you attend 100% of the classes and give me your **full attention** in class, I will add 3% of the average of your earned exam scores on top of yours.

NOTE 3: **If you absence more than 6 lectures, you will get an F of this class.** Late 3 times in lecture sessions is equivalent to 1 absence. If you late more than 15 minutes, it will be considered as an absence.

NOTE 4: **I will not accept late assignments.**

## Lab Project:

The class will be divided into teams of three people. Each team will be assigned to a pod in the Information technology Networking Lab (Davis 214). You should also submit an evaluation form on your team members with the lab project.

## Etiquette:

Please come to class on-time since class is disturbed by constant late arrivals. Turn off all cell phones, beepers, PDAs, etc. Talking or other disruptions in class can result in being asked to leave.

**Honor Code:**

By accepting admission to Radford University, each student makes a commitment to understand, support, and abide by the University Honor Code without compromise or exception. Violations of academic integrity will not be tolerated. This class will be conducted in strict observance of the Honor Code. Refer to your Student Handbook for details. In this class the student is expected to do all out of class programming assignments on their own, without help from other students. All violations will be reported. **All assignments are to be done independently unless I specifically say otherwise. The only exception to this is, of course, the lab project.**

**Special Assistance:**

Any student who needs special accommodations because of a disability should contact the instructor during the first week of classes to make arrangements. Please do not wait to see if you will need special accommodations for this class; let me know ASAP so that it does not become a major problem. It is the responsibility of any student with a disability who requests a reasonable accommodation to contact the Disability Resource Office (831-6350). Contact will then be made by that office through the student to the instructor of this class. The instructor will then be happy to work with the student so that a reasonable accommodation of any disability can be made.

**Topics will be covered (Tentative)**

The class calendar and related materials will be updated on the WebCT of this course.

- ☐ Common Mistakes in Performance Evaluation and How to Avoid the Mistakes
- ☐ Systematic Approach to Performance Evaluation
- ☐ An Introduction to Model-Building
- ☐ Review of Basic Linear Algebra
- ☐ Introduction to Linear Programming
- ☐ The Simplex Algorithm and Goal Programming
- ☐ Sensitivity Analysis: An Applied Approach
- ☐ Sensitivity Analysis and Duality
- ☐ Transportation, Assignment, and Transshipment Problems
- ☐ Network Models
- ☐ Integer Programming
- ☐ Advanced Topics in Linear Programming
- ☐ Nonlinear Programming
- ☐ Review of Calculus and Probability
- ☐ Decision Making under Uncertainty
- ☐ Game Theory
- ☐ Deterministic EQQ Inventory Models
- ☐ Probabilistic Inventory Models
- ☐ Markov Chains
- ☐ Deterministic Dynamic Programming
- ☐ Probabilistic Dynamic Programming
- ☐ Queuing Theory
- ☐ Simulation
- ☐ Simulation with Process Model
- ☐ Forecasting Models
- ☐ NP-Completeness