George Washington University  
Department of Computer Science  

CS223-10  
Graph Theory and Applications  
Spring 2006  

Instructor: Dr. Hyeong-Ah Choi  
Office Hours: Mon 12:45-2:00, Wed 3:00-5:00  
Office: Room T713, Academic Center  
Class Web: http://www.seas.gwu.edu/~hchoi/teachingSet.htm  
e-mail: choi@seas.gwu.edu  
phone: (202) 994-5916  
fax: (202) 994-4875  

Text: Introduction to Graph Theory by Douglas B. West  

Grading:  
Homework assignments  
30 %  
In-class closed book midterm exam  
35 %  
In-class closed book final exam  
35 %  

Make-up Exam No make-up exams will be given except for documented illness or personal emergency. The instructor must be notified PRIOR to the scheduled exam time in order for a make-up exam to be granted.  

Academic Integrity: The official George Washington University Code of Academic Integrity can be accessed online at http://www.cs.seas.gwu.edu/academics/integrity.html.
Course Outline (Tentative)

- Definitions and terminologies, bipartite graphs, Eulerian graphs, isomorphism, paths and connections, degrees, degree sequences.

- Trees, distances, Cayley’s formula.

- Matchings, covering, perfect matching, factors, Hall’s theorem, Tutte’s 1-factor theorem.

- Connectivities, cuts, Mengers’ theorem.

- Coloring, chromatic number, Brook’s theorem.

- Edge-coloring, edge chromatic number, Vizing’s theorem, Shannon’s theorem, line graphs, Hamiltonian graphs.

- Planar graphs, dual graphs, Euler’s formula, Kuratowski’s theorem, planarity testing, coloring of planar graphs.

- Dynamic graph theory

- Additional topics and applications will be discussed through homework problems.