

# CO 342 Introduction to Graph Theory

## Fall 2012

### Note

No printed material will be distributed in class. All information about the course will be posted on the LEARN course web page.

### Course Outline

Connectivity: edge and vertex connectivity,  $k$ -connectivity, Menger's theorem and related results, contraction and deletion, 2-connected and 3-connected graphs

Planar graphs: planar drawings, duality, Kuratowski's Theorem

Matchings: Hall's theorem, Tutte's theorem, matching algorithms, stable matching, edge colouring.

Vector spaces associated with graphs: cut space, flow space, bases

### Instructor

P.E. Haxell, MC6063, ext. 35595, office hours MW 3:00-4:00pm, e-mail pehaxell@math.uwaterloo.ca (if you send e-mail, please put CO342 in the subject line).

### Teaching Assistants

Contact information and office hours for the teaching assistants will be announced on the course web page.

### Course Notes

*Graph Theory: Course Notes for CO 342*, available from the math copy centre, MC2018. All assignments, tests and exams will be based on the material given in lectures, which may sometimes differ slightly from the material in the notes.

### Assignments

There will be five assignments, due at the BEGINNING of class on Sept. 28, Oct. 12, Oct. 26, Nov. 9 and Nov. 23. The assignments and solutions will be posted on the course web page. Assignments will be marked on clarity of presentation as well as accuracy. Poorly presented assignments may be returned unmarked. Late assignments will not be marked.

### Quizzes

There will be a brief quiz at the end of each class, testing a definition from the course.

### In-class Tests

There will be two in-class tests. Test 1 will be on Wednesday Oct. 17 and Test 2 on Wednesday Nov. 14.

### Final grade

Final exam 50%, In-class tests 25%, Quizzes 10%, Assignments 15%.

### Policy on INC Grades

No INC grade will be assigned to any student who has not achieved a passing grade in the course work (calculated on in-class tests, quizzes and assignments).

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## University Policies:

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

[Check [www.uwaterloo.ca/academicintegrity/](http://www.uwaterloo.ca/academicintegrity/) for more information.]

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

**Discipline:** A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>.

For typical penalties check Guidelines for the Assessment of Penalties,

<http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm>.

**Appeals:** A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>.

**Note for students with disabilities:** The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.