

COURSE OUTLINE

MATH 492/550 [A01; CNR 22072/22075] Structural Graph Theory

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General Course Information

Number of Units 1.5

Pre-requisites MATH 222; or permission of the department

Lectures, Office Hours, and Assistance

Lectures 1:00 - 2:20 pm Monday and Thursday in CLE A-316 [Lecture begins on January 7 and ends on April 5.]

Office Hours 10:00 - 11:00 am Monday and 1:00 - 2:00 pm Wednesday (DTB A549) [or by appointment (send email to book one)]

Course Material and Online Resources

Reference1 Algorithmic Graph Theory and Perfect Graphs, by Martin Charles Golumbic, Elsevier 2004;

Reference2 Introduction to Graph Theory, by Douglas West, Prentice Hall 2001;

Online Resource Information System on Graph Classes (<http://www.graphclasses.org>)

Course webpage Look at www.uvic.ca/science/math-statistics → Current Students → Undergraduate → Courses → 492; this page contains all the information about the course.

Syllabus

Basic computational problems, matchings, bigraphs, chordal graphs, split graphs, search algorithms, interval graphs and their variants, comparability graphs, modular decomposition, cographs, threshold tolerance graphs, perfect graphs, graph partitions and homomorphisms. Some topics may be added or omitted, as time permits.



Learning Objectives

In this course we will study a good collection of graph and digraph classes, focusing on their structural properties and the uses of these structural properties for the design of algorithms that solve the recognition and computational problems.

Term work

There will be five graded assignments throughout the term. All assignments will be handed in and out in class. Each student will need to complete a research project by the end of semester. The project is a survey of a class of graphs to be assigned to you. To complete the project, you will need to conduct a research by collecting and reading papers relevant to the class that is assigned to you, and writing up a short survey of the theorems and algorithms on the class of graphs; I will provide a detailed guideline for the research and write-up. In addition, each student will also need to give a 25-min presentation at the end of the semester reporting his/her collective studies and selected results of the class of graphs contained in the survey. There will be no midterm tests or final examination.

Evaluation and Grading

Your final percentage grade will be computed according to the following scheme.

Homework Assignments Bi-weekly	Project Second half of the term	Presentation End of the term
50%	45%	5%

Missing Work

Concessions are considered only in accordance with the section on Academic Concessions in the UVic Calendar in cases of illness, accident or family affliction. A note from a doctor or counsellor or varsity coach is required for any concession or late submission of an assignment. Under no circumstances will a student be granted deferred status if they have not completed the majority of course (reasonably successfully) or if they have been absent from class for a substantial portion of the time.

If you have any question or concern about your scores on assignments/tests, you need to bring it to my attention within seven calendar days of the date when the assignments/tests are returned to the class.

For homework assignments, collaboration with your classmates is encouraged but you must submit your own work (that is, all solutions must be written independently in your own words and reflecting your understanding).

Accessibility Students with diverse learning styles and needs are welcome in this course.

In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning (CAL) as soon as possible. The CAL staff are available by appointment



to assess specific needs, provide referrals and arrange appropriate accommodations <http://uvic.ca/cal>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Grading Percentage scores will be converted to letter grades according to the university-wide standard table (Undergraduate: <http://web.uvic.ca/calendar/undergrad/info/regulations/grading.html#>). (Graduate: <http://web.uvic.ca/calendar/grad/academic-regulations/grading.html#>).

Policies and Ethics

Attendance The university Calendar states ‘Students are expected to attend all classes in which they are enrolled.’ (see <http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/AcCo.html>). Our courses are conducted on that basis. If you miss an announcement (information concerning midterms, corrections to assignment, etc.) because you did not attend class, you must accept the consequences of not having learned of the change.

Guidelines on Religious Observances Where classes or examinations are scheduled on the holy days of a religion, students may notify their instructors, at least two weeks in advance, of their intention to observe the holy day(s) by absenting themselves from classes or examinations. Instructors will provide reasonable opportunities for such students to make up work or missed examinations.

Academic Integrity Academic integrity is intellectual honesty and responsibility for academic work that you submit individual or group work. It involves commitment to the values of honesty, trust, and responsibility. It is expected that students will respect these ethical values in all activities related to learning, teaching, research, and service. Therefore, plagiarism and other acts against academic integrity are serious academic offenses.

The responsibility of the institution

Instructors and academic units have the responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects.

The responsibility of the student

Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations or for referencing your sources, ask your instructor. Depending on the severity of the case, penalties include a warning, a failing grade, a record on the students transcript, or a suspension.

It is your responsibility to understand the Universitys policy on academic integrity: <http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcI.html>

