CO 750-1 Packing and Covering
Spring 2017

Basic information:

Location/time: MC 5479/ TTh 1:00PM-2:20PM
Instructor: Ahmad Abdi
Office: MC 5027
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Instructor office hours: Tuesday 2:30PM-3:30PM, or by appointment
Course webpage: http://www.math.uwaterloo.ca/~a3abdi/

Course notes (not required): There will be no course notes. At the end of each month, I will post my own notes. You may find Gerard Cornuejols's book "Combinatorial Optimization: Packing and Covering", available at http://integer.tepper.cmu.edu/webpub/notes.pdf, helpful; we will not be following this book though.

Prerequisites: Students are expected to be comfortable with the basics of linear programming, polyhedral theory and graph theory. If you have taken one of CO 250 or 352 or 255 or CM 340, and CO 342, then you should be fine. I am willing to sign override forms for strong individuals.

Objectives: Menger (1927) showed that the maximum number of disjoint st-paths is equal to the minimum cardinality of an st-cut. Dilworth (1950) proved that the minimum number of chains needed to cover a poset is equal to the maximum cardinality of an antichain. These classic results are what started the field of Packing and Covering. In this course, we will see many theorems of this form, and study the underlying geometric attributes that lead to such min-max and max-min results.

Grading scheme: 70% assignments (4 assignments), 30% paper/project and presentation.