

# APPLIED MATHEMATICS COLLOQUIUM

## Extremal Graph Theory and Its Applications

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**Abstract:**

In a typical extremal problem, one wants to determine the maximum cardinality of a discrete structure with certain prescribed properties. Probably the earliest such result was proved more than 100 years ago (1907) by Mantel, who computed the maximum number of edges in a triangle free graph on  $n$  vertices. This was generalized by Turan for all complete graphs and became a starting point of Extremal Graph Theory. In this talk, we survey several classical problems and results in this area and present some interesting applications of Extremal Graph Theory to other areas of mathematics. We also describe a recent surprising generalization of Turan's theorem which was motivated by a question in Computational Complexity.

**Monday September 19<sup>th</sup> 2011**

**4:30 PM**

**Building 2, Room 105**

*Refreshments are available in Building 2, Room 290  
(Math Common Room) between 3:30 – 4:30 PM*

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