

Prerequisite: Discrete Mathematics

Radon's Lemma, Helly's Theorem, Ham-Sandwich Theorem, Erdos-Szekeres Theorem, Convex Polytopes, Upper Bound Theorem, Gale Transform, Voronoi Diagrams, Davenport-Schinzel Sequences,  $k$ -Sets,  $k$ -Facets, Planarity,  $k$ -Quasi Planarity, Crossing Number, Caratheodory's Theorem, Using the Borsuk-Ulam Theorem, Introduction to Research Problems in Discrete Geometry.

***Text books / References:***

1. Jiri Matousek, Lectures on Discrete Geometry, Graduate Texts in Mathematics book series (GTM, volume 212), Springer-Verlag New York, 2002, ISBN: 978-1-4613-0039-7.
2. Jiri Matousek, Using the Borsuk–Ulam Theorem: Lectures on Topological Methods in Combinatorics and Geometry, Springer-Verlag, 2003, ISBN: 978-3-540-00362-5.