Reading Course on Discrete Geometry

"Lectures on Discrete Geometry" by Jiri Matousek.
Thursdays, 4pm to 5pm, Hurley 258

- Week 1 – Introduction and assignments.
- Week 2 – 1.2 : Convex hulls, Separation theorem, Farkas Lemma.
- Week 3 – 1.3 : Radon's Lemma, Helly's Theorem, Carathéodory's Theorem.
- Week 4 – 1.4 : Centerpoint theorem, Ham-sandwich theorem.
- Week 5 – 2.1 : Minkowski's Theorem, applications.
- Week 6 – 2.2 : Generalized Minkowski's Theorem; 2.3 : Two-Squares Theorem.
- Week 7 – 3.1 : Erdös-Szekeres Theorem.
- Week 8 – 4.1 : Point-line incidences, unit distances; 4.2 : Many point-line incidences, many unit distances.
- Week 9 – Fall Break.
- Week 10 – 4.3 : Proof of Szemeredi-Trotter Theorem.
- Week 11 – 8.1 : Fractional Helly Theorem.
- Week 12 – 10.1 : Transversals, packing numbers, fractional transversals.
- Week 13 – 10.2 : Epsilon nets, VC-dimension, shatter functions.
- Week 14 – Thanksgiving.
- Week 15 – 10.2 : Proof of the Epsilon-net theorem.
- Week 16 – 10.5 : (p,q)-Theorem.