

Mathematics 5529H Honors Combinatorics Autumn (even numbered years) 5 credits

Catalog Description:

Techniques of combinatorial mathematics; connections with geometry, algebra, analysis, and probability.

Prerequisite:

C or better in 4182H, or in both 2182H and 3345; or credit for 264H, or for both 263H and 345; or permission of department.

Text:

Vary, for example:

- <u>Discrete Mathematics</u>, by Lovasz, Pelican & Vestergombi, published by Springer, ISBN: 9780387955858
- <u>Proofs from the Book</u>, 4th edition, by Aigner, Ziegler & Hofmann, published by Springer, ISBN: 9783642008559
- <u>Combinatorics: Topics, Techniques, Algorithms</u>, by P. Cameron, published by Cambridge University Press, ISBN: 9780521338936

Topics List:

- 1. Counting principles.
- 2. Generating functions.
- 3. Combinatorial probability.
- 4. Finite fields and applications.
- 5. Theory of partitions.
- 6. Famous graphs.
- 7. Ramsey theory.
- 8. Permutation groups.