Spring 2018
Combinatorics

Instructor Fedor Bogomolov

Office:602 WWH(Courant Institute)

Phone:212- 998-3243 E-mail: bogomolo@cims.nyu.edu

Time and location:

Lectures: MW 3.30 p.m-4.45 p.m WWH 312

Office hours :Thursday 1-3 p.m and by appointment (e-mail)

Recitations :Friday 3.30-4.45 p.m

Instructor Louis Guigo

Course description:

Elements of graph theory :

Planar graphs, colouring problems, trees, searching algorithms, network flows.

Enumeration:

Arrangements, Generating functions, Recurrencies, Partitions.

Textbook: Alan Tucker " Applied Combinatorics" 6th Edition R. Brualdi "Combinatorics" 5th Edition. Notes for the course

Additional textbook : R.Brualdi "Introductory Combinatorics"

Homework : Assigned weekly (during the Wednesday class) and collected at the beginning of next Monday class (5-6 problems a week)

Exams There will be several Quizzes , Midterm, Prefinal and Final exams.

Prefinal exam will be given about two weeks before the Final.

The exact days of Exams and Quizzes are to be determined. Grading policy: Homeworks, Quizzes,Midterm and Final exam will all count (the better grade between Final and Prefinal exams will be counted) Calendar

1. Week 1 Graph

2. Week 2 Planar Graphs, graph colouring

3. Week 3 Hamiltonian circuits and Euler cycles

4. Week 4 Trees, searching algorithms and Salesmen problem

5. Week 5 Network flows and Matching problems

6. Week 6 Arrangment and Selection

7. Week 7 Binomial identities and

8. Week 8 Generating functions

9. Week 9 Partitions, Recurrence relation models

10. Week 10 Linear recurrency

11. Week 11 Inclusion-exclusion formulas, Rook polynomials

12. Week 12 Polya formula

13. Review of the course