

MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

SUPERVISOR'S INFO

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PROJECT ID: PS2520-01

TITLE

Models of Random Network.

BRIEF DESCRIPTION OF PROJECT

Networks of any kind (social, road, electrical, etc) are omnipresent around us and have always fascinated scientists with their complex and unexpected behaviour (six-degrees of separation, gridlock bottlenecks, robustness of the electrical grid, etc). As mathematicians, a common approach in studying real-life networks is to create a random counterpart and compare some key properties between the two models. Over the years, several models of random graphs have been invented, each with their own advantages and drawbacks.

The aim of this project is to study some of the most common random models of graphs along with their basic properties (degree, connectivity, monotonicity, etc).

EXPECTATION/S

To be able to properly define and prove fundamental properties of at least one network model.

PREREQUISITE/S (at level 3000 or below, with at most one course at level 3000)

MA3233 Combinatorics and Graphs II - MA2116/ST2131 Probability

READING REFERENCE/S

Random Graphs and Complex Networks. Volume One, by Remco van der Hofstad.
<https://rhofstad.win.tue.nl/NotesRGCN.pdf>