

## MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

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### SUPERVISOR'S INFO

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### PROJECT ID: PS2320-03

### TITLE

Hypergeometric functions and basic hypergeometric functions: an introduction

### BRIEF DESCRIPTION OF PROJECT

Many functions like the sine, cosine and exponential functions are special cases of hypergeometric functions. Basic hypergeometric functions are  $q$ -extensions of hypergeometric functions. In this project, we will study both hypergeometric functions and basic hypergeometric functions. Students will encounter identities which are generalizations of identities (for example, the binomial theorem) which they are familiar with.

### EXPECTATION/S

Each student is expected to choose a topic related to either hypergeometric series or basic hypergeometric series.

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

MA3211 Complex Analysis

### READING REFERENCE/S

1. Basic Hypergeometric Series, second edition, Cambridge Univ. Press, (2004) by G. Gasper and M. Rahman.
2. Special functions, vol. 71 of Encyclopedia of Mathematics and its applications, Cambridge Univ. Press. (1999), by G.E. Andrews, R. Askey and R. Roy.