Title: MATH 662:602 Symmetric Function Theory

Prerequisistes: N/A

Course Description: This course will be a broad introduction to the algebraic and combinatorial aspects of symmetric function theory.
We will study the algebra of symmetric functions (bases, plethysm), with a particular focus on Schur symmetric functions (RSK, Jacobi-Trudi, Young tableaux).

We will study connections to the characters of GL(n,C). (No prior exposure to representation theory will be assumed.) Depending on the interests of the students,
we may discuss connections to algebraic geometry, specifically to Schubert calculus of the Grassmannian. The primary reference for this course will be Stanley's Enumerative Combinatorics II (importantly, the fresh new edition out this month with 159 additional exercises on symmetric functions).

Average time dedicated per week (estimate): Roughly 2 hours/week to be enough to digest the basics and continue to follow the course and 10 hours/week to be about enough to do all of the recommended exercises.