Lecturer: Kağan Kurşungöz  
e-mail: kursungoz@sabanciuniv.edu  
Office: FENS 2010  
Office Hours: just find me.

Class Hours:  
M 15:40 - 16:30, FENS L 027  
T 12:40 - 14:30, FENS L 035.  
Zoom links to lectures are announced on SUCourse.

Textbooks:  
primary: Bruce E. Sagan, “The Symmetric Group”, Springer,  
secondary: William Fulton, “Young Tableaux”, LMS.

Learning outcomes: Upon completion of the course, student should be able to

1 - Construct irreducible, hence all, representations of abelian groups and the symmetric group over the complex numbers.  
2 - Calculate the character table for all abelian groups and the symmetric group.  
3 - Apply some important combinatorial algorithms such as RSK Viennot’s construction, jeu-de-taquin on permutations or pairs of Young tableaux.

Topics: I will assume familiarity with undergraduate algebra.  
(as time allows: )  
1 - Matrix representations, G-modules.  
2 - Complete reducibility and Maschke’s theorem,  
3 - Group characters,  
4 - Restricted and induced representations,  
5 - Basics of Young tableaux,  
6 - Representations of the symmetric group,  
7 - RSK, Viennot’s construction, jeu-de-taquin,  
8 - Basics of symmetric functions.

Grading: Your grade exclusively depends on the homework assignments.  
Active participation in class will be expected and assessed, in the form of answering questions; or better, asking questions.  
I may request one-on-one meetings to talk about your assignments, as well.

Homeworks: These will be assigned question by question in the lectures. They are due before the following Monday’s class, to be uploaded onSUCourse+. Late assignments may be accepted with a penalty, or may not be accepted at all.  
Once again, the students are responsible to follow the assignments and announcements both in class, and on SUCourse+.

Academic Integrity: All university policies on academic integrity apply to our course (more information on https://www.sabanciuniv.edu/en/academic-integrity-statement), and they will be enforced.