Fall 2014 Problem 1: Let G_1, G_2 be finite index subgroups of a group G. Show that the intersection $G_1 \cap G_2$ also has finite index in G.

2008 Problem 1: Show that every finitely generated group contains only finitely many subgrouups of index n.

Fall 2004 Problem 2: Show that no infinite simple group has proper subgroups of finite index.

Fall 2018 Problem 1: Show that a free group of rank ≥ 2 is not nilpotent.

Fall 2016 Problem 1: Let F_n be the free group on n generators with $n \geq 2$. Prove that the center $Z(F)$ of F is trivial.

Fall 2015 Problem 5: Show that two free groups are isomorphic if and only if they have equal ranks.

Fall 2004 Problem 3 and two other exams: Show that there are no non-trivial homomorphisms from $\mathbb{Q}$ to a finitely generated Abelian group.

Winter 2004 Problem 11: Show that $\mathbb{Q}$ is not a nontrivial direct sum.

Winter 2005 Problem 3: Show that $\mathbb{Q}$ contains no proper subgroups of finite index.