

Lecture #14: Introduction to the Polynomial Hierarchy

What Will Happen During the Lecture

Remember... You Had Homework!

Students were asked to work through the following set of lecture notes before this lecture.

- Lecture Notes — “Introduction to the Polynomial Hierarchy”.

Virtually all of this material will be new to most, or all, students in this course.

Activities During the Lecture Presentation

Another decision problem that is similar to a decision problem that we have already considered, whose “language of Yes-instances” does not seem to be in either \mathcal{NP} or $\text{co-}\mathcal{NP}$, will be considered — and its language of Yes-instances will be placed within the Polynomial Hierarchy.

A proof of one of the claims from the lecture notes — namely, that $\Pi_i\mathcal{P} = \text{co-}\Sigma_i\mathcal{P}$ for every positive integer i — will be discussed.