Lecture #11: The Cook-Levin Theorem
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 — "The Cook-Levin Theorem".

The presentation of an $\mathcal{NP}$-complete language, here, will almost certainly be new. Most of the rest might be review, but students might not remember it well (if, at all).

Activities During the Lecture Presentation

The meaning, and significance, of "The Cook-Levin Theorem" will be discussed, and an overview of its proof will be presented.

Several other decision problems, that are closely related to the Boolean Formula Satisfiability problem, will be introduced, and languages associated with these (that are all subsets of L_F, so that they are also subsets of $\Sigma^\star_\mathsf{UTM}$) will be introduced. The complexities of these languages will be discussed, so that students are prepared to complete additional practice problems concerning $\mathcal{NP}$-completeness.