

## DIMACS Tutorial on Fine-Grained Complexity Call for Applications

**About the Tutorial:** Fine-grained complexity seeks to better-understand the complexity of problems in P. The central idea is to investigate relationships between different problems using fine-grained reductions, that not only preserve the worst-case running time but also the dependence on various parameters, such as input size, dimensionality, and sparsity. Such reductions enable more precise comparison of the relative difficulty of different problems, even when they have similar worst-case running times. This tutorial will cover key concepts in fine-grained complexity. It will be taught at a beginning graduate school level and be based on courses on fine-grained complexity currently offered at only a few top universities.

**When:** July 15-19, 2024

**Where:** Rutgers University, New Brunswick, NJ

**Lecturers:** Amir Abboud, Weizmann Institute of Science  
Nick Fischer, Weizmann Institute of Science

**Who should apply:** The tutorial is primarily for graduate students working on topics in and around theoretical computer science (TCS) who are not already familiar with fine-grained complexity. Students who do not have access to an expert in fine-grained complexity at their institution and students working in other areas of TCS (i.e. not fine-grained complexity) who want to incorporate the fine-grained lens into their research will be prioritized for admission and support. We especially encourage diverse and inclusive participation and will give special consideration to applications from students belonging to underrepresented groups in computer science.

**Prerequisites:** No prior knowledge of fine-grained complexity is assumed or needed, but we will assume comfort with mathematical proofs, algorithmic concepts, and NP-completeness. As such, a background in algorithms and in complexity theory at a beginning graduate-school level is desirable.

**Support for travel & lodging:** We plan to be able to offer limited support to those who need it to attend. The application includes questions on needs for support.

**How to apply:** The application and more details about the program are available on the [Tutorial's webpage](#). (The QR code will take you there.)

**Due date:** Apply before **March 25, 2024** for full consideration. Please be aware that you will need to arrange for a letter of recommendation to complete your application.

