

Background Knowledge and Preparation

1. Mathematics preparation

You will need to have a basic understanding and application of both calculus and algebra for the program. If you have not taken maths for some time or are anxious about your knowledge and capability in mathematics, you should take the free online MOOC from Stanford University titled [How to Learn Math: For Students](#). This MOOC, taught by a Stanford professor, aims to give you insights on how to approach and learn math effectively. The total running time of this MOOC's video content is 90 minutes. In addition to watching those videos, you should do the interspersed exercises and quizzes.

If you want to learn some more about general mathematical methods, you can take a look at the interactive online course called [Better Explained: "Developing Your Intuition for Math"](#). This series of articles aims to provide you with the intuition to approach mathematical content and complements the above Stanford MOOC nicely. The first six sections of this series are the most relevant to the HKUST-Minerva Scholars Program. After reading each section, you should test yourself by attempting to outline the article you've just read—without looking at it.

If you want to check or brush up your knowledge and understanding of algebra or calculus, then visit either or both of [OpenStax College Algebra](#) and [Better Explained: Guide to Calculus](#).

2. Computer programming preparation

You will need to have a basic knowledge and problem solving skill for programming in Python. If you are unfamiliar with this computer language and the way computer scientists think through such programming problems, we recommend that you complete the first ten units of the online, interactive edition of [How to Think Like a Computer Scientist](#)

Enquiries

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