

“More Fun with Prime Numbers”

Take a deep dive into Prime Numbers - one of the most mysterious and important subjects in mathematics!

2 3 5 7 11
13 17 19 23 29
31 37 41 43 47
53 59 61 67 71
73 79 83 89 97



April 2, 2020 – March 4, 2021

Length: **Self-paced (5 weeks)**

Instructor: **Tetsushi Ito, Ph.D.**

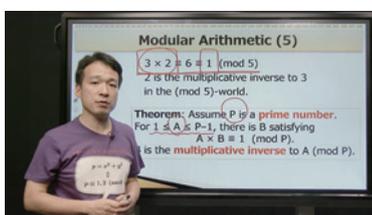
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2, 3, 5, 7, 11, 13, 17, 19, 23, 29 are all prime numbers and they hold special significance. Mathematicians from ancient times to the 21st century have been working on prime numbers, as they're one of the most mysterious and important subjects in mathematics.

In this course, I will present several attractive topics on prime numbers. You will learn basic concepts of prime numbers from the beginning. They obey mysterious laws. Some laws are easily verified by hand, some laws were discovered 100 years ago, and some laws are yet to be discovered. Surprisingly, prime numbers are also applied to cryptography today. You will also learn how to construct practical cryptosystems using prime numbers.

The original course "Fun with Prime Numbers" was first offered in 2015 and attracted many students. This course in 2017 will be offered as its refined and upgraded version. All the lecture videos will be renewed, and a new topic on cryptography will be added so as to enliven and satisfy even the students who took the previous course.

No previous knowledge of prime numbers is required in this course. Calculating with a pen and paper, you will explore the mysterious world of prime numbers. The course is designed to encourage you to attack unsolved problems, and hopefully, discover new laws of your own in the future!



Week 1

What are Prime Numbers?

Week 2

Sums of Two Squares

Week 3

The Reciprocity Laws

Week 4

Prime Numbers and Cryptography

Week 5

Mystery of Prime Numbers: Past, Present, and Future

<https://www.edx.org/course/more-fun-with-prime-numbers>

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