

Lecture: Introduction to Combinatorics

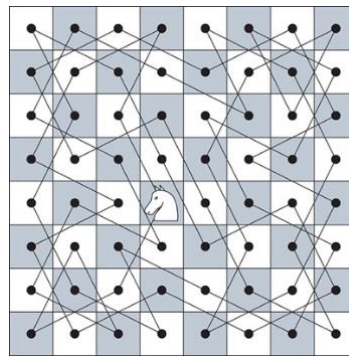
Lecturer: Dat Tran

Time and Place: Tuesdays, 09:15 – 10:45, P-701 (starting 07.04.2020, online)

Register: Via [moodle](#) or Email: tran@math.uni-leipzig.de

Contents:

- How many possible sudoku puzzles are there?
- In a lottery where six balls are selected from forty-nine, how often do two winning balls have consecutive numbers?
- In how many ways can we give change for €1 using only 10cent, 20cent, and 50cent pieces?
- Can we tile a floor with squares and regular hexagons?
- In chess, can a knight visit all the sixty-four squares of a chessboard just once and return to its starting point?



Combinatorics, the branch of mathematics concerned with selecting, arranging, and counting collections of objects, works to answer such these questions. In this course, I will give out a short introduction to this beautiful subject. This course is designed to be accessible for the 3rd year students and higher.

References:

[1] "An introduction to Combinatorics and Graph theory" by David Guichard,
https://www.whitman.edu/mathematics/cgt_online/cgt.pdf

[2] "Lecture notes: Combinatorics" by Torsten Ueckerd,
<http://www.math.kit.edu/iag6/lehre/co2015s/media/script.pdf>

[3] Chapter 3 of the book "Introduction to Probability" by Charles M. Grinstead and J. Laurie Snell,
http://www.dartmouth.edu/~chance/teaching_aids/books_articles/probability_book/amsbook.mac.pdf

[4] Wilson, Robin. Combinatorics: A very short introduction. Very Short Introductions. Oxford University Press, Oxford, 2016. xv+157 pp. ISBN: 978-0-19-872349-3

[5] will be updated during the course.

For updated information: <http://www.math.uni-leipzig.de/~tran/SS2020.html>