

Mathcamp 2022 Tentative Four-Week Schedule

| Time | Week 1 | Week 2 | Week 3 | Week 4 | |
|-------|--|--|---|---|---|
| 9 am | [HR] Computability theory 🌀🌀🌀 (Steve) | Algorithms for large primes 🌀 (Zach Abel) | 2-adic computer science 🌀🌀 (Eric) | A curious connection between p-adic distances and triangulations of a square 🌀 (Charlotte) | |
| | Introduction to graph theory 🌀 (Narmada) | Extremal graph theory 🌀🌀 (Yuval) | Measuring fairness 🌀 (Moon Duchin) | [HR] Algebraic solutions to Painlevé VI 🌀🌀 (Aaron Landesman) | |
| | Machine geometry 🌀 (Misha) | On beyond i 🌀 (Steve) | Representation theory (week 1) 🌀🌀 (Mark) | [HR] Ancient Greek mathematics 🌀 (Yuval) | |
| | Number theory 🌀 (Mark) | Ring theory 🌀 (Kayla) | Schubert calculus 🌀 (Kayla) | [HR] Problem solving: cheating in geometry 🌀 → 🌀🌀 (Zack) | |
| | The answer is χ 🌀 (Assaf) | The residue theorem 🌀 (Kevin) | Some basic point-set topology and measure theory 🌀 (Zoe) | The distribution of prime numbers 🌀 (Viv) | |
| 10 am | Cluster algebras from surfaces 🌀🌀 (Kayla) | Bonus group theory part 2 🌀 (Ben) | Diophantine approximation 🌀 (Travis) | Algebraic topology: homology 🌀 (Zoe) | |
| | Combinatorics 🌀 (Mark) | Equidistribution 🌀 (Viv) | Nonstandard analysis 🌀 (Aaron) | Combinatorial convex geometry 🌀 (Travis) | |
| | Complexity theory 🌀 (Linus) | Lehmer factor stencils 🌀 (Aaron and Eric) | On beyond on beyond i 🌀 (Assaf) | TBA i ? (Mark) | |
| | Introduction to linear algebra 🌀 (Eric) | Quantum computation 🌀 (Andrew Guo) | Special relativity 🌀 (Nic) | The abc's of polynomialland 🌀 (Eric) | |
| | The geometry of music 🌀 → 🌀 (Emily) | The Hales–Jewett theorem 🌀🌀 (Misha) | Szemerédi's {theorem, regularity lemma} 🌀🌀 (Yuval) | The satisfiability problem 🌀 (Misha) | |
| 11 am | Degree theory 🌀 → 🌀🌀 (Zoe) | Counter? I hardly know 'er! 🌀 (Narmada and Travis) | Arrow's impossibility theorem 🌀 (Ben) | Buffon's needle 🌀 (Ben) | Cantor before set theory 🌀🌀 (Ben) |
| | Dynamical systems for the calculus-averse 🌀 (Travis) | Erdős' distinct distance problem in the plane 🌀 (Neeraja Kulkarni) | Commutative algebra and algebraic geometry 🌀 (Mark) | Finite fields 🌀 (Aaron) | |
| | [HR] Intro to real analysis: epsilons and deltas 🌀 (Charlotte) | My two favourite type of sets: Cantor sets and Kakeya sets 🌀 (Charlotte) | Curves that classify geometry problems 🌀 (J-Lo) | Knot theory 🌀 (Emily and Kayla) | |
| | Introduction to group theory 🌀 (Susan) | Teichmüller theory of the torus 🌀 (Arya and Assaf) | The 17 wallpaper patterns 🌀 (Emily) | Zero knowledge proofs 🌀 (Dan Zaharopol) | Mathematical billiards 🌀 (Arya) |
| | Overly convoluted plans 🌀 (Ben) | The continuum hypothesis (week 1) 🌀🌀 (Susan) | [HR] Ultrafilters and combinatorics 🌀🌀 (Steve) | Representation theory (week 2) 🌀🌀 (Mark) | |
| 1 pm | Crash course 🌀 (Assaf) | Brouwer's fixed point theorem 🌀 (Zoe) | Hyperbolic geometry 🌀 (Arya) | Baire necessities for Banach–Tarski 🌀🌀 (Narmada) | |
| | [HR] Formal proof verification in Lean 🌀 (Aaron) | Hyperplane arrangements 🌀 → 🌀 (Emily) | Infinite groups are weird 🌀 (Narmada) | Chaotic dynamics and elephant drawing 🌀 (Ben) | |
| | Jacobi sums 🌀🌀 (Dave Savitt) | Information theory 🌀 (Linus) | Computer-aided design 🌀 (Elizabeth Chang-Davidson) | Machine learning (NOT neural networks) 🌀 (Linus) | Game theory, traffic, and the price of anarchy 🌀 (Assaf) |
| | Martingales 🌀 (Yuval) | Grammatical group generation 🌀 (Eric) | Problem solving: graph theory 🌀 (Misha) | Introduction to Galois theory 🌀 (Sim) | |
| | [HR] PL topology 🌀 (Arya) | [HR] The category of sets 🌀 (Nic) | The continuum hypothesis (week 2) 🌀🌀 (Susan) | Metric spaces 🌀 (Steve) | |

Key: [HR]—Homework Required