Mathcamp 2024 Tentative Four-Week Schedule

Time	Week 1		Week 2	Week 3		Week 4	
9 am	Are there nowhere-differentiable continuous functions? (Laithy)		Public key cryptography (Athina & Chloe)	Commutative algebra and algebraic geometry (1/2) (Mark)		Field extensions and Galois theory (2/2) (Mark)	
	From Hall's theorem to maximum flows (Mark)		Intro to combinatorics [graph flavored] (Kailee)	What do we do when we do Math? (Maya)		Markov triples (Misha)	
	Network algorithms and game theory (Sonya)		$\mathbb{R}, \mathbb{C}, \mathbb{H}, \mathbb{O}$ (Kevin)	Roots of unity (Chloe)	Hilbert's third problem (Narmada)	Linear models in statistics (*Mira Bernstein*)	
	Intro group theory (Susan)		Measure and Martin's axiom (1/2) (Susan)	Algorithmic randomness (Krishan)	The random graph and 0-1 laws (Krishan)	Paradoxes in probability (*Jane Wang*)	Fractals and dimension (*Jane Wang*)
	Geometric algebra (*Ari Nieh*)		EEEE *(Eigenvalues and eigenvectors through an engineer's eyes)* (Elizabeth)	The house always wins *(Random processes in gambling)* (Misha)	Topology to prove calculus (*Ruthi Hortsch*)	Totally positive dude *(Total positivity and cluster algebras)* (*Mia Smith*)	
10 am	Theory of computation (Athina)		The systems of equations you weren't taught *(Gröbner bases)* (Glenn)	Topological graph theory (Marisa)		Root systems (Kevin)	
	A recipe for resolving real riddles *(Tarski-Seidenberg theorem)* (Glenn)		Linear algebra (2/2) (Mark)	Field extensions and Galois theory (1/2) (Mark)		The first black hole: Schwarzschild spacetime (Laithy)	
	The circle method and Waring's problem (Kevin)		Points on a line, really? (Maya)	Wallpaper patterns (1/2) (Susan)		Commutative algebra and algebraic geometry (2/2) (Mark)	
	Mathcamp crash course *(Proof techniques)* (Zach)		Regular languages & word problems (Sonya)	Bernoulli numbers (*Dave Savitt*)		Arithmetic complexity (*Yuval Wigderson*)	
	King chicken theorems (Marisa)	Advanced chickenology *(Logic puzzles about graphs)* (Misha)	VC-Dimension (*Aaron Anderson*)			What is diagonalization? *(Lawvere's fixed point theorem)* (Della)	Hyperreal numbers (Krishan)
11 am	Geometric geometry *(Coarse and fine geometry)* (Arya)		MCSP: Markov chains and stochastic processes (Alyona & Arya)	Continued fractions and Pell's equation (Athina)		Intro to elliptic curves (Chloe)	
	The probabilistic method in graph theory and k-SAT problems (Kailee)		Problem solving (Mark)	Two topological theorems (Ben)		Error-correcting codes and sphere packing (Kailee)	
	Linear algebra (1/2) (Mark)		Alice and Bob go quantum (Narmada)	Impossible integration, also the vegan kind *(Liouville's theorem)* (Glenn)		Wallpaper patterns (2/2) (Susan)	
	How fast can we Banach this Tarski? (Narmada)		Graph on, graph off *(Limits of graph sequences)* (Travis)	Numerical analysis: how computers do calculus (Sonya)		Topological Tverberg's theorem (*Viv Kuperberg*)	
	Ordinals and cardinals (Krishan)	Surreal numbers (Krishan)		The axiom of choice (Laithy & Narmada)	Does the order matter? (Laithy)	Infinite games (Krishan)	Infinite chess (Della)
1 pm	Introduction to number theory (Chloe)		Introduction to ring theory (Eric)	Mathematical billiards (Arya)		Teichmüller theory of the torus *(Geometric structures on the torus)* (Arya)	
	Mathematical concepts for solving puzzles (Della)		Evolution of random graphs (Misha)	Inspecting gadgets (Della)		Ghostly graphs *(Spectral graph theory)* (Travis)	
	Problem solving: inequalities (Misha)		Stupid games on infinite sets *(Clubs and stationary sets)* (Susan)	How to multiply numbers reallllllly fast *(Algorithms for fast multiplication)* (Eric)		Algorithms for large primes (Zach)	
	Special relativity (*Nic Ford*)		Applications of linear algebra and projective geometry (Tim!)	Measure and Martin's axiom (2/2) (Susan)		Representation theory (*Aaron Landesman*)	
	Graph inequalities by magic *(Graph homomorphisms)* (Travis)	Toppling sandpiles *(The sandpile group)* (Travis)	Building mathematical sculptures (Zach)	Dynamics, mostly complex (*Scott Kaschner*)		Building (weird) topological spaces (*Dan Zaharopol*)	