

# MATH 649 Spring 2022

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**Professor:** Ben Schweinhart     **E-Mail:** [bschwei@gmu.edu](mailto:bschwei@gmu.edu)

**Lectures:** 17:55 – 19:10 PM on Tuesdays and Thursdays in EXPL 4106.

**Office Hours:** 15:30 – 16:30 PM on Tuesdays and Thursdays.

**Course Description:** This course on probabilistic combinatorics will cover parts of Alon and Spencer’s influential textbook “The Probabilistic Method.” Specific topics will include linearity of expectation, the second moment method, and random graphs. Further topics will depend on the interests of the students and may include martingales, the Erdős-Rényi phase transition, random cell complexes, or percolation. Most of the course will be in an active learning format where students give lectures and discuss problems.

**Prerequisites:** Basic (undergraduate) knowledge of discrete probability, graph theory, and combinatorics. I will cover the required background in probability, but I will do so concisely.

**References:** The textbook for the course is Noga Alon and Joel H. Spencer. *The Probabilistic Method*. Fourth edition. John Wiley & Sons, 2004.

**Safety:** An appropriate facemask must cover your nose and mouth at all times in the classroom. In addition, students should follow the university’s public health and safety precautions and procedures outlined on the university [Safe Return to Campus webpage](#) and complete the Mason COVID Health Check daily, seven days a week. Do not attend class if you are feeling sick. Depending on the COVID positivity rate and student preferences, some classes may be held online.

**Grading:** Students will be evaluated based on their participation

**Communication:** Important course announcements will be posted on Blackboard and/or by email. The best way to reach me is by email. I will do my best to respond within two business days.

**Gender identity and pronoun use:** If you wish, please share your name and gender pronouns with me and how best to address you in class and via email. I use “he/him” for myself and you may address me as “Ben” or “Dr./Prof. Schweinhart” in email and verbally.

**Campus Closure or Emergency Class Cancellation/Adjustment Policy:** If the campus closes, or if a class meeting needs to be canceled or adjusted due to weather or other concern, students should check Blackboard for updates on how to continue learning and for information about any changes to events or assignments.

**Academic Integrity:** Mason is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process.

**Disability Accommodations:** Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that

ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me.

**Disclaimer:** This syllabus is a general plan for the course and is subject to change at the instructor's discretion.