

# MATH 220: FINITE MATH

Summer 2022 (July 18-August 18)

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<b>Instructor:</b>	Nate Lesnevich	<b>Time:</b>	MTWRF 1:00 – 2:45
<b>Email:</b>	<a href="mailto:nlesnevich@wustl.edu">nlesnevich@wustl.edu</a>	<b>Place:</b>	Lopata Hall, Rm. 201
<b>Office Hours</b>	TR 3:00-4:00	<b>Office</b>	Cupples I, Rm 213

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**Communication:** All official communication for the course will go through Canvas. This includes course-wide announcements, grades, homework, etc. Time-sensitive communication should be done via my Wustl email listed above.

**Main References:** The following textbook is the official text for this course. It is not required that you purchase this book.

## Course Textbook

- Rosen, *Discrete Math and Its Applications, 8th Edition*, McGraw Hill, 2019.

The following texts are similar to the course text or a natural continuation, and are not at all required.

## Additional Sources

- Ross & Wright, *Discrete Mathematics, 5th Edition*, Pearson, 2003.
- Epp, *Discrete Mathematics with Applications, 5th Edition*, Cengage, 2020.
- \* Bona, *A Walk Through Combinatorics*.
- \* Cormen, Lieserson, Rivest, & Stein, *Introduction to Algorithms*.

**Objectives:** Topics from discrete mathematics will be explored with an emphasis on problem-solving and methods of proofs. Modules on counting; combinatorial tools; binomial coefficients and Pascal's triangle; Fibonacci numbers; combinatorial probability; integers, divisors and primes; and graphs will be covered as well as additional topics as time permits.

**Prerequisites:** This course is addressed mainly to college freshmen and sophomores; it would also be suitable to advanced high school students with an interest in mathematics. A good understanding of high-school arithmetic and algebra is expected.

## Tentative Course Outline:

	Topics	Chapters
Week 1	Logic and Proofs	1,2,5
Week 2	Algorithms, Number Theory, and Cryptography	3,4
Week 3	Counting and Probability	6,7,8
Week 4	More Counting and Graphs	8,10,11
Week 5	Extras, Presentations, and the Final	

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\* These are more advanced texts.

**Assignments and Grading Policy:** Grades will be determined by four sections:

Homework:	30%
Quizzes:	40%
Presentation:	10%
Final Exam:	20%

Homework will be assigned throughout the week prior and due each Wednesday (except the first week). Quizzes will be during the last part of class every Friday. One quiz will be longer and worth more, and may include previous topics. The final exam grade can replace any single lower quiz grade. There will be a single (potentially group/pair) presentation, and the final exam will be on the final day of class.

**Letter Grades:**

Percentage	Grade	Percentage	Grade
97%+	A+	77-80%	C+
92-97%	A	72-77%	C
90-92%	A-	70-72%	C-
87-80%	B+	60-70%	D±
82-87%	B	<60%	F
80-82%	B-		

**Important Dates:**

Larger Quiz ..... Fri August 05, 2022  
 Presentations ..... Tue August 16, 2022  
 Final Exam ..... Thur August 18, 2022

**Attendance:** Attending class is mandatory, especially given the condensed nature of a summer course. More than three unexcused absences will result in the deduction of one-third letter grade (i.e. A- to B+, etc).

**Academic Honesty:** I expect all writing and work to be your own. Looking up answers online is not allowed. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. The university-wide academic policy is below.

**COVID Protocol:** Students who have symptoms of COVID-19 must be tested and should not attend any in-person class. Missing in-person class sessions due to COVID isolation or quarantine or while awaiting the results of a COVID test will be considered an excused absence. Students may be asked to provide appropriate documentation based on course policy. Due to the accelerated format of Summer Session courses, in the event a student must isolate or quarantine, instructors may choose to allow the student to participate in class

synchronously over Zoom during the period of isolation/quarantine. Synchronous participation on Zoom are intended to support occasional, necessary absences from class and should not be used as a mechanism for students to participate fully remotely in in-person courses.

Students have been informed that they must notify instructors directly if they are symptomatic and awaiting a test result or if they test positive for COVID. Note that this is different from the process during the academic year due to the shortened timeline of Summer Session courses.

As an added precaution, everyone is strongly encouraged to complete a daily self-screening for COVID-19 symptoms before arriving to campus. The screening tool is available at [screening.wustl.edu](https://screening.wustl.edu). (Visitors/guests may access the tool at [visitorscreening.wustl.edu](https://visitorscreening.wustl.edu)). If you have symptoms of COVID, do not come to campus until you have a negative COVID test!

## University-Wide Policies

The following are University-wide policies that apply to but are not specific to this class (and apply to myself as well).

**Reporting Sexual Assault or Harassment** If a student discusses or discloses an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if a faculty member otherwise observes or becomes aware of such an allegation, the faculty member will keep the information as private as possible, but as a faculty member of Washington University, they are required to immediately report it to the Department Chair, Dean, or to Ms. Cynthia Copeland, the Associate Title IX Coordinator, at (314) 935-3411, [cmcopeland@wustl.edu](mailto:cmcopeland@wustl.edu). Additionally, you can report incidents or complaints to the Office of Student Conduct and Community Standards or by contacting WUPD at (314) 935-5555 or your local law enforcement agency. See: Title IX.

**Reasonable Accommodations for Disabled Students** Washington University in St. Louis supports the rights of enrolled students to a full and equal educational opportunity and, in compliance with federal, state, and local requirements, is committed to reasonable accommodations for individuals with documented disabilities. Disabled students for whom accommodations may be necessary must be registered with, and provide their instructors official notification through, WUSTL's Disability Resources ([www.disability.wustl.edu](http://www.disability.wustl.edu)). Once established, responsibility for disability-related accommodations and access is shared by DR, faculty, and the student. Please contact Disability Resources at 314.935.5970 or [disabilityresources@wustl.edu](mailto:disabilityresources@wustl.edu).

**Preferred Names and Gender Inclusive Pronouns** In order to affirm each person's gender identity and lived experiences, it is important that we ask and check in with others about pronouns. This simple effort can make a profound difference in a person's experience of safety, respect, and support. See: <https://students.wustl.edu/gender-pronouns-information/>, <https://registrar.wustl.edu/student-records/ssn-name-changes/preferred-name/>

**Emergency Preparedness** Before an emergency, familiarize yourself with the building(s) that you frequent. Know the layout, including exit locations, stairwells and the Emergency Assembly Point (EAP). Review the "Quick Guide for Emergencies" that is found near the door in many classrooms for specific emergency information and instructions. For additional Information and EAP maps, visit [emergency.wustl.edu](http://emergency.wustl.edu). To ensure that you receive emergency notifications, make sure your information and cell phone number is updated in SIS, and/or download. The WUSTL app and enable notifications. To report an emergency: Danforth Campus: (314) 935-5555 School of Medicine Campus: (314) 362-4357 North/West/South and Off Campus: 911 then (314) 935-5555

**Academic Integrity** Effective learning, teaching and research all depend upon the ability of members of the academic community to trust one another and to trust the integrity of work that is submitted for academic credit or conducted in the wider arena of scholarly research. Such an atmosphere of mutual trust fosters the free exchange of ideas and enables all members of the community to achieve their highest potential. In all academic work, the ideas and contributions of others must be appropriately acknowledged and work that is presented as original must be, in fact, original. Faculty, students and administrative staff all share the responsibility of ensuring the honesty and fairness of the intellectual environment at Washington University in St. Louis. For additional details on the university-wide Undergraduate Academic Integrity policy, please see: <https://wustl.edu/about/compliance-policies/academic-policies/undergraduate-student-academic-integrity-policy/>

**Disability Resources** At Washington University we strive to make the academic experience accessible and inclusive. If you anticipate or experience barriers based on disability, please contact Disability Resources at 314.935.5970, [disabilityresources@wustl.edu](mailto:disabilityresources@wustl.edu), or visit our website for information about requesting academic accommodations. See: <https://students.wustl.edu/disability-resources/>. Confidential Resources for Instances of Sexual Assault, Sex Discrimination, Sexual Harassment, Dating Violence, Domestic Violence, or Stalking The University is committed to offering reasonable academic accommodations (e.g. a no-contact order, course changes) to students who are victims of relationship or sexual violence, regardless of whether they seek criminal or disciplinary action. If a student needs to explore options for medical care, protections, or reporting, or would like to receive individual counseling services, there are free, confidential

support resources and professional counseling services available through the Relationship and Sexual Violence Prevention (RSVP) Center. If you need to request such accommodations, please contact RSVP to schedule an appointment with a confidential and licensed counselor. Although information shared with counselors is confidential, requests for accommodations will be coordinated with the appropriate University administrators and faculty. The RSVP Center is located in Seigle Hall, Suite 435, and can be reached at [rsvpcenter@wustl.edu](mailto:rsvpcenter@wustl.edu) or (314) 935-3445. For after-hours emergency response services, call (314) 935-6666 or (314) 935-5555 and ask to speak with an RSVP Counselor on call. See: RSVP Center.

**Bias Report and Support System (BRSS)** The University has a process through which students, faculty, staff, and community members who have experienced or witnessed incidents of bias, prejudice, or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. To report an instance of bias, visit <https://students.wustl.edu/bias-report-support-system/>.

**Mental Health Services** Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect a student's academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety, depression, and thoughts of suicide. See: <https://students.wustl.edu/mental-health-services/> Additionally, see the mental health services offered through the RSVP Center listed above.

**WashU Cares:** WashU Cares, specializes in connecting students to mental health, medical, financial and academic resources by using supportive case management. We seek to empower students to be successful through life's challenges and to have ownership of their experiences. Our services are designed to support Danforth Campus students. If you feel concerned about a students who may need help connecting to resources, we accept referrals from all students, faculty, and staff. If you are concerned about a student, you can file a report here: <https://washucares.wustl.edu/> and a WashU Cares Case Manager will reach out to you to get more information about your concern.

**The Center for Diversity and Inclusion (CDI)** supports and advocates for undergraduate, graduate, and professional school students from underrepresented and/or marginalized populations, collaborates with campus and community partners, and promotes dialogue and social change to cultivate and foster a supportive campus climate for students of all backgrounds, cultures, and identities.