

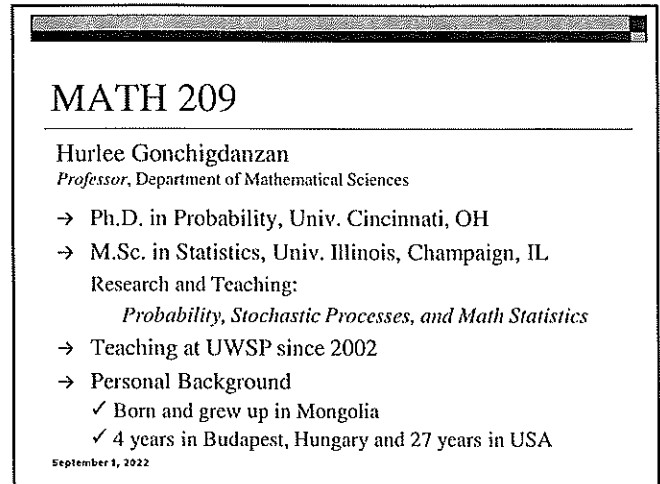
**MATH 209**

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Mathematics for Information Sciences

9/1/2022

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**MATH 209**

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Hurlee Gonchigdanzan  
*Professor, Department of Mathematical Sciences*

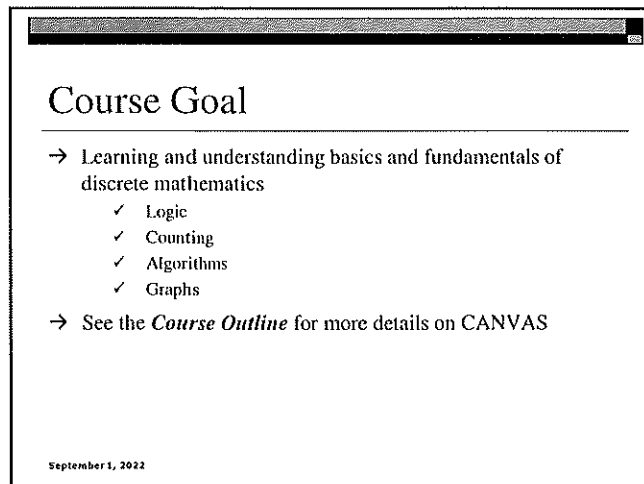
- Ph.D. in Probability, Univ. Cincinnati, OH
- M.Sc. in Statistics, Univ. Illinois, Champaign, IL

Research and Teaching:  
*Probability, Stochastic Processes, and Math Statistics*

- Teaching at UWSP since 2002
- Personal Background
  - ✓ Born and grew up in Mongolia
  - ✓ 4 years in Budapest, Hungary and 27 years in USA

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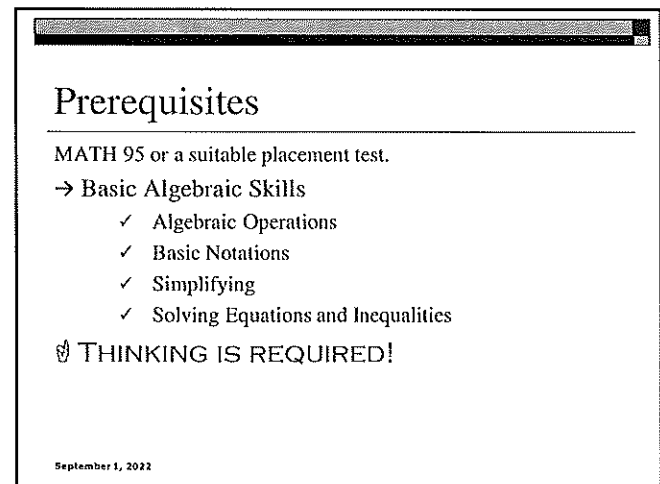
**Course Goal**

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- Learning and understanding basics and fundamentals of discrete mathematics
  - ✓ Logic
  - ✓ Counting
  - ✓ Algorithms
  - ✓ Graphs
- See the *Course Outline* for more details on CANVAS

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**Prerequisites**

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MATH 95 or a suitable placement test.

- Basic Algebraic Skills
  - ✓ Algebraic Operations
  - ✓ Basic Notations
  - ✓ Simplifying
  - ✓ Solving Equations and Inequalities

👉 THINKING IS REQUIRED!

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## Attendance

- Attendance is required and will be taken. However, your attendance will NOT be used against your course grade.

You need to understand the importance of the attendance

- There are many materials which you might NOT understand by reading the textbook
- Many examples with detail solutions will be given in class which helps you to understand the topics.

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## Course Grade

3 TESTS	60% (each test 20%)
HW	15%
FINAL EXAM	25%

You will be graded on

- understanding the concept
- correctness of the method and formula
- Accuracy, completeness, and proper notation



CONSIDER EVERY SINGLE TEST AND HW SERIOUSLY!!!  
IT IS A PART OF YOUR COURSE GRADE!!!

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## Letter Grades

☺ 93% ≤ A < 100%	☺ 87% ≤ B+ < 90%
☺ 90% ≤ A- < 93%	☺ 83% ≤ B < 87%
	☺ 80% ≤ B- < 83%
☺ 77% ≤ C+ < 80%	☺ 65% ≤ D+ < 70%
☺ 73% ≤ C < 77%	☺ 60% ≤ D < 65%
☺ 70% ≤ C- < 73%	☹ F < 60%

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## FAQ

- Is there anything for extra credit?  
Absolutely NONE. Consider each test and hw seriously.
- Is there any review class?  
No. You review first and ask questions if any.

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## Homework

- ✓ Homework will be collected and graded. It is an essential part of this course.
- ✓ Submit it in CANVAS as a single PDF file. The single pdf file may have as many pages as you need.
- ✓ Late homework will not be collected or graded regardless of the reason.
- ✓ Three homework with lowest percent will be dropped.
- ✓ It is highly recommended to read the examples in the textbook.

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## Test → 3 in-class tests

ABSOLUTELY NO MAKE-UP test, unless it is noticed in advance.

- ✓ If there is an unavoidable reason (emergency case) to miss the test, call me and leave a message, and document your absence.
- ✎ CONSIDER EACH TEST SERIOUSLY AND BE PREPARED AND IT IS A PART OF YOUR COURSE GRADE.

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## Final Exam [Online]

2:45PM - 4:40PM, MON, DECEMBER 19

- ✓ The final exam will be comprehensive.
- ✓ Details will be given by the end of the semester

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## Calculator

- A scientific calculator will be necessary in this course. (make it has trig functions)
- You may use a graphing calculator such as TI-83, if you already have one.
- Any type of computers, softwares, phones, and calculators with "QERTY" keyboard such as TI-89, TI-92, and TI-Nspire CAS are NOT allowed.

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**Communication**

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- ☑ Email [hurlee@uwsp.edu](mailto:hurlee@uwsp.edu)
- ☑ Please put your name and class number when you email or text me.
- ☑ Zoom: <https://uwsp.zoom.us/j/2307492939>

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**Class Webpage**

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CANVAS.UWSP.EDU

- ✓ Syllabus
- ✓ Course Outline

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**TUTORING SERVICES**  
The *Tutoring and Learning Center (TLC)*: <http://www.uwsp.edu/tlc/>

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**DISABILITIES**  
If special accommodations are required for exams, you need to contact the Disability & Assistive Technology Center (DATC) [datctr@uwsp.edu](mailto:datctr@uwsp.edu)  
DATC website: <https://www.uwsp.edu/datc/Pages/default.aspx>

**RIGHTS AND RESPONSIBILITIES**  
Student Academic Standards and Disciplinary Procedures, UWS/UWSP  
Chapter 14: <https://www.uwsp.edu/dos/Documents/UWS%2014-1.pdf>

**THE GENERAL RIGHTS AND RESPONSIBILITIES:**  
<https://www.uwsp.edu/stuhealth/Pages/Patient%20Information/Rights-Responsibilities.aspx>

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CHAPTER 1 The Foundations: Logic and Proofs

1.1 Propositional Logic

1.3 Propositional Equivalences

CHAPTER 2 Basic Structures: Sets, Functions

2.1 Sets

2.2 Set Operations

2.3 Functions

CHAPTER 3 Algorithms

3.1 Algorithms

3.2 The Growth of Functions

3.3 Complexity of Algorithms

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TEST #1

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CHAPTER 4 Number Theory and Cryptography

4.5 Applications of Congruences

CHAPTER 5 Induction and Recursion

5.4 Recursive Algorithms

CHAPTER 6 Counting

6.1 The Basics of Counting

6.3 Permutations and Combinations

6.5 Generalized Permutations and Combinations

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TEST #2

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## CHAPTER 9 Relations

9.1 Relations and Their Properties

9.2 n-ary Relations and Their Applications

9.5 Equivalence Relations

9.6 Partial Orderings

## CHAPTER 10 Graphs

10.1 Graphs and Graph Models

10.2 Graph Terminology and Special Types of Graphs

10.5 Euler and Hamilton Paths

10.6 Shortest-Path Problems

## CHAPTER 11 Trees

11.2 Applications of Trees

11.3 Tree Traversal

11.4 Spanning Trees

11.5 Minimum Spanning Trees

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## TEST #3

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## CHAPTER 12 Boolean Algebra

12.1 Boolean Functions

12.3 Logic Gates

12.4 Minimization of Circuits

## CHAPTER 13 Modeling Computation

13.3 Finite-State Machines with No Output

## APPENDIXES

Appendix 3 Pseudocode