

# Math 210/CS 210, Introduction to Discrete Mathematics, Winter 2019

**Instructor:** Joseph White (ST 212; 475-7720; email: [jwhite2@olympic.edu](mailto:jwhite2@olympic.edu))

**Office Hours:** M-F 12:00-12:50 pm, or by appointment

**Text:** Discrete Mathematics with Applications, Susanna S. Epp, (4<sup>th</sup> Ed.)

**Student Learning Outcomes for Math 210/CS 210:** Upon successful completion of MATH 210/CS 210, students will be able to:

- Determine logical equivalence of statement forms.
- Know how to prove a conditional statement.
- Manipulate quantified statements using quantifiers “for all” and “there exists.”
- Establish truth of results from number theory using indirect and direct methods.
- Recognize and show properties of sets and functions, including set operations, injections and surjections, and recursive definitions.
- Use mathematical induction to establish results about number sequences.
- Use permutations and combinations to compute basic probabilistic results, and to solve counting problems.
- Solve problems and apply concepts involving relations.
- Apply concepts of graphs and trees to complex counting problems.

## Requirements and Grading:

PRACTICE EXERCISE (HOMEWORK) COMPLETION (5%). A list of daily practice exercises selected from the text is included in this syllabus. These exercises will be checked periodically for completion (usually on Mondays). Please keep in mind that if you do not keep up with the daily exercises on a regular basis, you should not expect to do well in this course.

IN-CLASS/TAKE-HOME EXERCISE PARTICIPATION & COMPLETION (20%). Some class time will be devoted to in-class and/or take-home exercises. You may work with others on these problems; however, each student must write up and submit their own solutions.

EXAMS (75%). There will be three in-class exams (worth 15% each) and a comprehensive final exam (worth 30%). See the schedule sheet for material to be covered and dates for each test.

Your course grade will be assigned according to the following table:

Grade Points		
Percentage Score	Decimal Grade	Letter Grade
94%-100%	3.9-4.0	A
90%-93%	3.5-3.8	A-
87%-89%	3.2-3.4	B+
84%-86%	2.9-3.1	B
80%-83%	2.5-2.8	B-
77%-79%	2.2-2.4	C+
74%-76%	1.9-2.1	C
70%-73%	1.5-1.8	C-
67%-69%	1.2-1.4	D+
64%-66%	0.9-1.1	D
60%-63%	0.7-0.8	D-
0%-59%	0.0	F

Students who quit coming to class and do not officially withdraw through the registration office will receive an “F” for the course. I do not assign “WP” or “WF” grades. The last day to drop and receive a “W” is Thursday, February 14<sup>th</sup>.

## CS/Math 210 Practice Problem Assignments (Epp, 4<sup>th</sup> Edition)

2.1 #3, 6, 8(a,d), 12, 14, 21, 25, 32, 41

2.2 #3, 5, 9, 16, 19, 20(a,d,f), 22(a), 23(a), 34, 38, 44, 47

3.1 #1, 3, 6(a,b), 9, 11, 13, 16(b,c), 19, 32

4.1 #2, 4, 7, 9, 11, 14, 17, 19, 25, 36, 45, 52

4.2 #4, 15, 25, 35

4.3 #4, 10, 11, 12, 14, 15, 25, 26, 37(a)

4.4 #1, 5, 7, 13, 20, 27, 28(a), 29

4.6 #3, 15, 19

4.7 #1, 3, 10, 16, 17

5.1 #3, 5, 10, 12, 20, 23, 27, 43, 48, 55, 59

5.2 #3, 8, 13, 15

6.1 #1(a,c,e), 2, 5, 11, 13, 17, 27(a,b,c), 31(a,b,c), 33(a,b), 35(a,b)

6.2 #3, 5, 6, 8, 13, 16, 24, 25, 30, 33, 37

6.3 #3, 5, 6, 11, 12, 17, 30, 36

6.4 #1, 4, 17

7.1 #1, 3, 7(a,c), 10(a,b,c), 11(a,b,c), 13, 23, 33, 38

7.2 #1, 2, 6, 7, 11, 15, 16, 20, 21, 26, 38

7.4 #1, 2, 3, 8, 13, 16

8.1 #1, 2, 5, 10, 12(a), 13, 15, 19

8.2 #1, 3, 6, 9, 11, 12, 15, 20, 43, 45, 48

8.3 #1, 3, 5, 7, 11, 16(a), 20, 28, 29

8.4 #1, 3, 9(a), 19, 22

9.1 #2, 3, 4, 5, 7, 9, 11, 18

9.2 #1, 3, 4, 8, 9, 16, 19, 32(a,c), 34, 41

9.3 #1, 6, 11, 16, 19, 32

9.4 #10, 12, 17, 29, 35

9.5 #6, 7, 17, 19

9.7 #11, 16, 37

10.1 #1, 3, 5, 8, 10, 14, 17, 18, 21, 24, 30, 37

10.2 #1, 4, 6, 12, 14, 18, 19, 23, 25, 26, 28

10.3 #3a, 4, 5a, 6a, 20

10.4 #1, 2, 5, 6, 8, 10, 12, 14, 16, 25

10.5 #7a, 8, 10, 14, 22, 27

10.6 #1, 6, 10

## Math 210/CS 210 Proposed Schedule – Winter 2019

<b>Dates</b>	<b>Topics to be covered/Quiz and Exam dates</b>
Week 1: 1/2 – 1/4	Sections 2.1, 2.2
Week 2: 1/7 – 1/11	Sections 3.1, 4.1 – 4.3
Week 3: 1/14 – 1/18	Sections 4.4, 4.6, 4.7
Week 4: 1/22 – 1/25 NO CLASS on Monday, 1/21/18 Martin Luther King, Jr. Day	Sections 5.2, 6.1 EXAM 1 on Tuesday
Week 5: 1/29 – 2/1	Sections 6.2 – 6.4
Week 6: 2/4 – 2/8	Sections 7.1, 7.2, 7.4
Week 7: 2/11 – 2/15	Sections 9.1, 9.2 EXAM 2 on Monday
Week 8: 2/19 – 2/22 NO CLASS on Monday, 2/18/18 President's Day	Sections 9.3 – 9.5, 9.7
Week 9: 2/24 – 3/1	Sections 10.1 – 10.3 EXAM 3 on Monday
Week 10: 3/4 – 3/8	Sections 10.4 – 10.6
Week 11: 3/11 & 3/14	FINAL EXAM on Thursday, March 14, 10:00 am – 12:00 pm

*Note:* This is a proposed schedule only. I will make every attempt to stay as close to this schedule as possible, but changes may occur. Each student is responsible for all material presented and announcements made in class.

**Disability Accommodation:** If you need accommodations because of disability, contact the Office of Access Services (HSS 205, 475-7540). Then touch base with me briefly. (The office will also have sent me notification.)

**Mathematics Study Center:** The Math/Science Study Center (ST 124 & 126) is open to all students at no charge. To help you be successful, we encourage you to use the study center as a place to study, get spot help as you need it, and possibly form study groups with other students. Hours will be posted by the second week of classes.

## Policies

a. **IF YOU MUST MISS A TEST, YOU WILL NEED TO MAKE PRIOR ARRANGEMENTS, OR CALL 475-7720 TO LEAVE A MESSAGE IN CASE OF UNEXPECTED ILLNESS OR EMERGENCY.** If you do not call, or if the earliest reasonable opportunity to make-up the test has past, you will not be allowed to make it up. (Note: If you leave a message, then call back during my next listed office hour. After that, you will be too late to make arrangements for a make-up. In all cases, the next class meeting is too late. If you have “car troubles,” you will be expected to make up the test later THE SAME DAY.)

b. Classroom conduct is governed by the Olympic College **STUDENT CONDUCT CODE** (by contract upon enrollment). Its substance is mostly common courtesy and common sense. **Note:** Many students express that others whispering interferes with their concentration for math. It can be a distraction for the instructor, as well. For these reasons, sensitivity to this matter is required and enforced in the class. **Violation may result in significant deduction in the “class participation” grade.** (Understand that discussing the class material does not constitute an exception!)

c. You are expected to **CONTRIBUTE TO A FOCUSED ACADEMIC ATMOSPHERE.**

- Class time is not for “socializing” at any time.
- Cell phone use for the purposes of texting, email, or other social media is not permitted (this applies for all electronic devices).
- Consultation with the instructor is not appropriate at the start of class.
- If you have asked a question or two – stop and give others a chance! (You will sometimes need to save other comments and questions until after some study time.)
- If entering class late or leaving early, do so quietly.
- **Any** distracting behavior (or noise, etc.) becomes inappropriate in the classroom.

d. **CONCERNING ATTENDANCE.** I advise attending all class sessions, in the strongest terms; however, you do not need to notify me if you miss class occasionally, other than tests. **There will be no make-ups of any kind on in-class exercises,** which is the only direct impact of attendance on your grade. **When you miss class, you are responsible to study the material, use other resources such as the Study Center, and keep up.** By far the most common reasons for some students having trouble in math are poor attendance or falling behind.

e. Students are RESPONSIBLE for material covered in class, whether or not it is in the text.

f. Students are RESPONSIBLE for material covered in the text, whether or not it is discussed in class.

g. Graded take-home assignments are due at the **beginning of class** or at the designated time. Any late assignments will be penalized 10% per day. No assignments will be accepted after graded assignments are handed back.

### Classroom format and class time usage:

- We will begin most days with **QUESTIONS AND ANSWERS.** You need to **COME TO CLASS PREPARED WITH SPECIFIC QUESTIONS ON PRACTICE PROBLEMS.** The questions will be taken one at a time and discussed typically over 10 or 15 minutes.
- Most days, we will continue then with “**TRADITIONAL CLASSROOM FORMAT,**” mostly lecture and presentation by the instructor, on the new material scheduled to be covered that day. During this time, **QUESTIONS DIRECTLY RELATED TO THE MATERIAL AT HAND ARE WELCOME,** but *only* those directly related. Everyone must be careful to keep the format *focused and structured* to make good use of class time. (I may occasionally -- or will, as necessary -- ask you to save other comments and questions until after some study time!).
- Some class time will be devoted to discussion of **IN-CLASS EXERCISES.** Sometimes you may need to finish these outside of class.