MATH 1215 **Mathematical Thinking** Spring 2017

This course focuses on the development of mathematical thinking and its use in a variety of contexts to translate real-world problems into mathematical form and, through analysis, to obtain new information and reach conclusions about the original problems. Topics include symbolic logic, logical arguments, sets, counting principles, and topics in probability theory.

Class info:	MATH 1215-07 CRN: 30591	**Time**: TF 1:35-3:15 pm, first meeting Jan. 10 **Location**: 410 Ell Hall.
Instructor:	Monika Pichler 537 Nightingale pichler.mo@husky.neu.edu	**Office Hours:** T 3:30-5:00pm (tentative) R 10:30am-12:00pm

Text and Online Homework Access Kit: *Finite Mathematics* by Lial, Greenwell and Ritchey, Fourth Custom Edition for Northeastern University, with MyMathLab Student Access Kit.
MyMathLab Course Code: pichler15294

TA office hours and recitations: There will be weekly optional recitation sessions. The primary purpose of these sessions is to assist you in your understanding of the homework problems and problems that may appear on the quizzes. They will be run by Mohamed Elbehiry (elbehiry.m@husky.neu.edu). Mohamed offers office hours **TR 3-4pm in 542 NI**.
The schedule for recitations is as follows, *starting in the week of Jan. 16*:

W 12:00-1:10 pm 273 Ryder **W** 3:00-4:00 pm 283 Ryder

Students may earn up to 2 extra credit points on their final averages by attending recitation sessions. Each recitation is worth 1/2 of a point. No more than 1/2 point can be earned per week.

Calculator: A scientific calculator which can compute permutations and combinations.

Grading: This course CANNOT be taken pass/fail. Your grade is determined as follows:

Attendance and In-Class Problems	5%	Midterm	15%
Online Homework	5%	Final Exam	40%
Quizzes	35%		

Letter grades are determined from the numerical grades as follows:

A	A−	B+	B	B−	C+	C	C−	D+	D	D−	F
93-100	90-92.9	87-89.9	83-86.9	80-82.9	77-79.9	73-76.9	70-72.9	67-69.9	63-66.9	60-62.9	0-59.9

Attendance: Students are expected to attend all classes and are responsible for all information given when they are absent. The use of electronics is strongly discouraged.

Quizzes: The best 7 out of 9 quizzes will be counted. There is no makeup for missed quizzes, unless the absence is university-sanctioned (e.g. jury duty, athletic absences). The student must notify the instructor of the absence in advance and make arrangements for a makeup.

Midterm: There will be a one-hour in-class midterm.

Final Exam: All students must take a cumulative final exam at the scheduled time during the final exam period (unless you have a legitimate schedule conflict: only two finals at the same time or three in one day is a University recognized legitimate reason to be excused from taking the final at the scheduled time; students with such a conflict should complete a final exam conflict form, available on the registrar's website). In particular, do not make travel plans that conflict with the final exam.

Concerns: If you have a concern about the course that cannot be resolved with the instructor, you may contact the course coordinator, Marco Rainho, m.rainho@neu.edu. If the course coordinator does not settle the matter, contact Professor David Massey, 529NI, d.massey@neu.edu.

Disabilities: Students with disabilities may consult the Disabilities Resource Center (20 Dodge Hall, ext. 2675) and have their disabilities verified for appropriate accommodations.

Math Tutoring Center: Free tutoring at 540B Nightingale. Hours this semester: Mon-Thu 10am-9pm, Fri 10am-6pm. Please make an appointment online via myneu *the day before* for better scheduling. Limited walk-in tutoring available.

Academic Honesty: Cheating will not be tolerated. Every incident will be reported, and will result in a score of zero for the test or a failing grade for the course. For more information, visit http://www.northeastern.edu/osccr/academichonesty.html.

TRACE Evaluation: The University expects every student to complete the online TRACE survey evaluation of their courses at the end of the semester.

The instructor reserves the right to alter this syllabus according to the needs which may arise during the semester. It is each student's responsability to be aware of any such changes which are announced in class, whether or not that student is present at the time of the announcement. The present version was revised on March 31, 2017.

Tentative Schedule of Topics

Week		
1	1/10 (T)	Logical statements; connectives; truth tables for "not", "and", "or"(6.1) Truth tables for compound statements; equivalent statements (6.2)
	1/13 (F)	(6.2) continued, Conditional statements (6.3)
2	1/17 (T)	Conditional statements and simplifications (6.3 and 6.4)
	1/20 (F)	**Quiz 1** (6.1, 6.2), (6.4) continued, Logical arguments (6.5)
3	1/24 (T)	(6.5) continued
	1/27 (F)	**Quiz 2** (6.3, 6.4), (6.5) continued
4	1/31 (T)	Sets (7.1), Applications of Venn Diagrams (7.2)
	2/3 (F)	**Quiz 3** (6.5), (7.2) continued
5	2/7 (T)	Introduction to Probability (7.3)
	2/10 (F)	**Quiz 4** (7.1,7.2), (7.3) continued, Basic Concepts of Probability (7.4)
6	2/14 (T)	Conditional probability and independent events (7.5)
	2/17 (F)	**Quiz 5** (7.3,7.4), (7.5) continued
7	2/21 (T)	Bayes' Theorem (7.6)
	2/24 (F)	**Quiz 6** (7.5), Review for midterm
8	2/28 (T)	Review for midterm
	3/3 (F)	**Midterm Exam**
	3/6-3/10	**Spring Break, no classes**
9	3/14 (T)	~~Multiplication principle and Permutations (8.1)~~ SNOW DAY
	3/17 (F)	Multiplication principle and Permutations (8.1)
10	3/21 (T)	Combinations (8.2)
	3/24 (F)	More counting problems (8.1,8,2), Probability applications of counting principles (8.3)
11	3/28 (T)	**Quiz 7** (8.1,8.2); (8.3) continued
	3/31 (F)	Binomial probability (8.4)
12	4/4 (T)	Probability distributions and expected values (8.5)
	4/7 (F)	**Quiz 8** (8.3,8.4), (8.5) continued
13	4/11 (T)	(8.5) continued
	4/14 (F)	**Quiz 9** (8.5), Review for Final Exam
14	4/18 (T)	Review
	4/20 (R)	**Reading day**
	Drop dates	Tuesday, January 30: Last day to drop without a W grade Thursday, April 20: Last day to drop with a W grade
	Final	Friday, April 28, 10:30am-12:30pm in 130 Forsyth Building