

# Math 391 Mathematics & Magic<sup>1</sup> Fall 2018

Professor Margaret Readdy  
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Lectures: MWF noon in CB 335  
Office Hours: To be announced  
<http://www.math.uky.edu/~readdy/391>  
<https://readdymathmagic.blogspot.com/>

Texts:           Persi Diaconis and Ron Graham, *Magical Mathematics: The Mathematical ideas that animate great magic tricks*, Princeton University Press.

                  Martin Gardner, *Mathematics: Magic and Mystery*, Dover.

                  Colm Mulcahy, *Mathematical Card Magic: Fifty-two new effects*, CRC Press.

Prerequisites:   Math 213 Calculus III  
                  Math 261 Number Theory or Math 214 Differential Equations  
                  Math 322 Matrix Algebra

                  And one of:

                  Math 321 Intro Num Methods

                  Math 351 Topology I

                  Math 361 Modern Algebra I

                  Math 471 Advanced Calculus

Course           This course will focus on mathematical ideas behind magic tricks, including  
Material:       combinatorics, graph theory, knot theory, number theory, group theory, topology  
                  and coding theory. The course will also stress mathematical writing for both  
                  general and specialized audiences, as well mathematical communication to an audience.

Magic           ♦ ♠ ♥ ♣ One (1) deck of cards. Available at Kroger, Meijers, your favorite Dollar store...

Materials:

                  Magic rope. Pick your favorite color (green, blue, red, ...). Available at magic stores.  
                  You can also substitute **cotton** clothesline.

Grading:       Class Participation 20%  
                  Quizzes 20%  
                  Weekly Blog 20%  
                  Written Project 20%  
                  Class Final Magic Show 20%

                  In lieu of a Final Exam, we will have a Class Final Magic Show the last week  
                  of classes, formerly known as Dead Week and now known as Magic Week.

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<sup>1</sup>Boring title: Math Composition and Communication

Class Participation:	<p>You are expected to attend every class and be engaged during class – by being prepared for class (reading, bringing magic cards, etc.), asking questions, answering questions, giving constructive advice, teaching the class a new magic trick, etc.</p> <p>You are allowed two unexcused absences with no penalty. Each additional unexcused absence will result in losing 1/5 of your Class Participation grade.</p>
Quizzes:	<p>A short quiz will be given during the last fifteen minutes of each Friday lecture. This will cover material from the previous week’s Monday, Wednesday and Friday lectures.</p> <p>The lowest two quiz grades will be dropped. If you miss a quiz due to an absence (excused or not), this will be one of the two quiz grades which will be dropped.</p>
Class Blog:	<p>Each week you will be given a topic in which to write a blog entry. It will be due each Sunday at midnight.</p>
Written Project:	<p>You will write an expository paper about a mathematical topic of your choosing. You will be provided with a list of topics.</p> <p>Topic for the written project due Monday, October 1st  Draft is due by Monday, November 12th  Final version is due Monday December 4th</p>
Final Class Magic Show:	<p>The class will put on a magic show. More details to follow.</p>
Absences:	<p>Faculty Senate Rule 5.2.4.2 defines acceptable reasons for excused absences to be: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit “reasonable cause for nonattendance” by the professor. As required by University rules, you must present full documentation in order to request makeup work for a valid absence. Senate Rule 5.2.4.2 states that faculty have the right to request “appropriate verification” when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to University-related trips or a major religious holiday is required no later than 7 days prior to the absence.</p> <p>Per University policy, if you miss one-fifth or more of the scheduled lectures due to <i>excused</i> absences, the instructor will request that you withdraw from the course.</p>
Devices:	<p>Laptops and/or cellphones are not allowed to be used at anytime in the classroom without the instructor’s prior consent.</p>
Plagiarism:	<p>Plagiarism includes copying from outside sources, including internet sources. If charged, at minimum you will receive a zero. Maximum penalties include being suspended, dismissed or expelled from the University. For further information, consult the Faculty Senate rules.</p>

Classroom  
Decorum:

Code of Student Conduct (AR 4.10), Section V, Letter J, Instructional Setting Behavior:

*“Students who engage in conduct that results in disruption of an instructional setting may be directed by the instructor to leave the class for the remainder of the instructional setting period.”*

Examples include but are not limited to reading email during class, texting, taking phone calls, updating your facebook page, using a fidget spinner, reading the newspaper, interrupting classmates and speaking aloud without being called upon. An attitude of respect for and civility towards other students in the class and the instructor is expected at all times. If what you are doing would be inappropriate behavior on a job interview, then it is very likely inappropriate behavior in the classroom.

Photography  
& Recording

Video and audio recordings are not permitted during the class unless the student has received prior permission from the instructor. Recording of other students is prohibited. Any distribution of recordings is also prohibited. Students with specific recording accommodations approved by the Disability Resource Center should present their official documentation to the instructor.

All content for this course, including handouts, assignments, powerpoint lectures and videos, are the intellectual property of the instructor and cannot be reproduced, sold or used for any purpose other than educational work in this class without prior permission from the instructor.

Any violation of the class photography & recording policies will result in your final course grade being reduced by one letter grade as a minimum penalty.

Students  
with  
Disabilities:

Students with disabilities should provide your instructor with a Letter of Accommodation from the Disability Resource Center. The DRC can be reached via phone (859-257-2754) or email (drc@uky.edu).

The instructor reserves the right to modify this syllabus at any time.