Math 220 - Discrete Mathematics
Course Syllabus
Fall 2016

Instructor	:	Dr. Edward Burkard
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Office	:	Copley 234
Office Hours	:	TR 14:00-15:30
		and by appointment
Class Time	:	MWF 9:10-10:10
Class Location	:	Copley 133
Course Webpage	:	http://faculty.rmc.edu/edwardburkard/?page=Teaching/220F16

1. COURSE DESCRIPTION

This class will be an introduction to proofs by studying discrete mathematics (as opposed to continuous mathematics, such as calculus). We will cover topics such as set theory, formal logic, combinatorics (counting), and number theory. A running theme of the course will be writing effective mathematical proofs using valid logical arguments and proper usage of symbols. A large effort will be put into writing clear mathematical proofs. We will discuss various methods of proof such as direct proof, proof by contradiction, proof by contrapositive, and proof by induction. We will conclude the class by studying another discrete structure in mathematics, Boolean algebras, which is applicable in situations which have two states. This means that Boolean algebras have applications in circuit design since we have two states: off and on, or 0 and 1.

2. TEXTBOOK

The textbook for this class will be the second edition of *Book of Proof* by Richard Hammack. You can find this textbook for free at this link: `http://www.people.vcu.edu/~rhammack/BookOfProof/`

A supplement for Boolean algebras will be given out later in the class.

3. GRADE

Your grade will be determined as follows:

Item	Homework	Quizzes	Midterms	Final	Attendance and Participation
Percentage	24%	20%	30%	22%	6%

Your grade will be determined by the percentage of the total points you've obtained. The grade scale will be no stricter than

Letter	A	B	C	D	F
Cutoff	92%	82%	72%	57%	0%

with +'s and −'s to be used as needed for the final grade only. That is, getting at least 92% will guarantee an A, getting at least 82% will guarantee a B, getting at least 72% will guarantee a C, and getting at least 57% will guarantee a D.

4. Exams

There will be 2 midterm exams for this class. The tentative exam dates are October 5th and November 7th. Each midterm exam will account for 15% of the overall grade. The final is on Wednesday, December 14th. The final exam accounts for 22% of the overall grade. Most exam problems will closely resemble those of the homework and quizzes.

5. Quizzes

There will be brief quizzes at the beginning of class every Friday except for the week of Exam I (based on the tentative schedule) and the last week of class. There will be a total of 11 quizzes and provided no quiz has been missed (except with an appropriate excuse) the lowest quiz score will be dropped.

6. Homework

Homework will be assigned every day. It will be a combination of problems from the textbook as well as other problems. There will also be required reading from the textbook. It is essential that you do the reading as mostly just the main points will be covered in lecture. Homework will be collected every Monday, except for the week of Fall Break when it will be due on Wednesday. Your score on an assignment will be based on completeness of the assignment and correctness of select exercises.

7. Attendance and Participation

Attending class every day is mandatory and is a portion of your grade. 6% of your grade comes from attendance and class participation. The attendance portion involves coming to class every day and arriving to class on time. The participation portion involves being actively engaged in the class and asking relevant questions. Doing the required reading will greatly aid you here. Three unexcused absences from class will forfeit all 6% of the grade from this category and each subsequent unexcused absence will take a further 2% off your overall grade.

8. Proposed Course Outline

Section numbers refer to sections from the textbook. Starred sections are required reading but may not be covered in lecture. H* refers to homework due dates and Q* refers to quiz dates. This plan covers every section of the textbook as well as the additional topic of Boolean Algebras. This plan may change if we fall behind. We will for sure cover Boolean Algebras at the end of the course.

Week	Monday	Wednesday	Friday
1	Intro, 1.1, 1.2	1.2, 1.3, 1.4	Q1, 1.5, 1.6, 1.7
2	H1, 1.8, 1.9*, 1.10*	1.10*, 2.1, 2.2	Q2, 2.2, 2.3, 2.4
3	H2, 2.5, 2.6	2.7, 2.8*, 2.9	Q3, 2.9, 2.10, 2.11*, 2.12*
4	H3, 2.10, 2.11*, 2.12*	3.1, 3.2	Q4, 3.3
5	H4, 3.4, 3.5	EXAM I	4.1, 4.2, 4.3
6	H5, 4.3, 4.4, 4.5*	5.1, 5.2, 5.3*	Q5, 6.1
7	Fall Break	H6, 6.2, 6.3*, 6.4*	Q6, 7.1, 7.2*, 7.3, 7.4*
8	H7, 8.1, 8.2	8.3	Q7, 8.4
9	H8, 9.1, 9.2, 9.3*	10.0, 10.3*	Q8, 10.1, 10.2
10	H9, EXAM II	11.0, 11.1	Q9, 11.2, 11.3
11	H10, 11.4	11.5, 12.1	Q10, 12.2, 12.3
12	H11, 12.4, 12.5	Thanksgiving	Thanksgiving
13	H12, 12.5, 12.6	13.1, 13.2	Q11, 13.2, 13.3
14	H13, 13.4*, Boolean Algebras	Boolean Algebras	Boolean Algebras
15	N/A	FINAL	N/A

9. Disability

Randolph-Macon College is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodations to participate and complete requirements for this course, notify me immediately and contact the Disability Support Services Office (DSS@rmc.edu or 804-752-7343) for verification of eligibility and determination of specific accommodations.

10. Code of Academic Integrity

Your compliance with the Code of Academic Integrity is assumed at all times in this class. This includes, but is not limited to, submitting your own work (even if you work together on assignments) and not cheating on exams. Please make sure you have read and understand it.

11. Conduct

You are expected to act in a respectable manner. If you are disruptive, you will be asked to leave, and you will forfeit your attendance points for the day. If you have a cell phone, please turn it off (or at least place it on silent) during class time. Lectures being interrupted by cell phones going off is disrespectful to everyone in the classroom.

Material in the syllabus is tentative, and I reserve the right to change any information in this syllabus in the event of an unforeseen event.