All Sections

Syllabus* for MA 111 – Introduction to Contemporary Mathematics, Spring 2008

Section Number, TR, Time, Place

Instructor: Name, Office, Phone, Email
Departmental office: OT 719, 257-3336
Instructor office hours: Day, Time, Place

Textbook: *The Mathematical Palette*, 3rd ed., by Ronald Staszkow and Robert Bradshaw, Brooks/Cole - Thomson Learning, 2005, ISBN 0-534-40365-4

Aim: By the end of this course students should understand some of the basic elements of mathematical thinking that are used in a modern society such as logic, sets and counting, probability, finance matters, and geometry.

Material to be covered: In this course, we will discuss five topics covered by chapters 2, 3, 4, 9 and 7 from the book. First we will discuss some basic ideas about premises and conclusions, explore methods of logical argument, analyze truth tables and flowcharts, and use logic to help solve puzzles. Second, we will become familiar with sets, their operations such as unions and intersections, their representations by Venn diagrams, and their applications to counting problems. Third, we will learn how mathematical rules based on set theory can be used to answer probability questions drawn from areas such as games of chance, employment statistics, consumer buying habits, and medicine. Fourth, we will learn how to do basic finance calculations such as simple or compound interest and annuities. We will end up with a short journey through geometry such as the golden ratio, polygons, and tessellations.

Grading: You can earn up to 500 points in the course based on the following activities:

4 exams	400 (100 points each)
Homework	40
Quizzes	40
Attendance	20
Total	**500**

Your course grade will be based on the following scale:

450-500	400-449	350-399	300-349	0-299
A	B	C	D	E

Your solutions will be graded for mathematical correctness and for clarity of exposition. Students who wish to receive full credit should write in complete sentences laying out the arguments carefully.

---

* Course coordinator: Marian Anton, OT 761, 257-6792, anton@uky.edu

Exams: There are four exams. The last exam will not be cumulative. Make-up exams are given only if prior arrangements are made.

- Exam 1: Room, Feb. 7, Time
- Exam 2: Room, Mar. 20, Time
- Exam 3: Room, Apr. 10, Time
- Exam 4: Room, May. xx, Time

Homework and quizzes: There are twelve homework assignments and fifteen quizzes worth **4 points** each, but only the best ten of each type will count towards the final grade. Each assignment consists of odd numbered problems to be discussed in class and even numbered problems to be handed in at the end of the class. From each assignment only an unspecified subset of problems will be graded. There are **no make-up** assignments or quizzes. We recommend you start to work on an assignment as soon as the corresponding material is discussed in class. At the end it would be best for your understanding if you put aside your notes and wrote up the solutions entirely from scratch.

Attendance: It is compulsory and it will be checked indirectly by awarding one point towards the final grade for each homework assignment and quiz handed in class. Failing to do so will count as zero. You can earn up to **7 bonus points** towards the final grade by handing in all the twelve assignments and all the fifteen quizzes.

Help: If you are having difficulties or concerns with any aspect of the course, you should seek help or communicate your concerns immediately. Your instructor and in special cases, the course coordinator are happy to assist you. You can also seek help in the Mathskeller, see `www.mathskeller.org`.

Academic honesty: Students are encouraged to work together to understand a problem and develop a solution. However, the solution you submit for credit must be your own work. In particular you should write your solutions independently. Copying on exams and usage of books, notes or advanced calculators[†] during examinations is not allowed. Cheating or plagiarism is a serious offense and it will not be tolerated.

Caveat: Changes to this syllabus will be made by consensus only if needed.

[†] Such as TI-89, TI-92, HP-48 etc.

Calendar for MA 111, spring 2008

Date	Lecture	Assignment	Problem session	Due
Jan 10	2.1 Logic, Statements and Definitions	7, 9, 15, 17, 19, 21, 23, 27, 29, 31, 33, 41, 43, 45, 49, 51, 61; (10, 16, 22, 26, 30, 32, 42, 50)		
Jan 15	2.2 Inductive and Deductive Reasoning	9, 11, 15, 19, 23, 25, 33, 35, 37; (10, 12, 16, 18, 20, 24)	2.1	
Jan 17	2.3 Symbolic Logic and Truth Tables	7, 9, 11, 13, 17, 19, 21, 23, 25, 27, 29; (8, 10, 18, 22, 26, 28)	2.2	Quiz 2.1 HW 2.1, 2.2
Jan 22	2.4 Logic and Flowcharts	9, 11, 15, 17, 19; (8, 10, 16, 20)	2.3	Quiz 2.2
Jan 24	2.5 Logic and Puzzles	9, 11, 13, 17, 19, 21, 23, 25, 31; (10, 12, 18, 22, 24, 30)	2.4	Quiz 2.3 HW 2.3, 2.4
Jan 29	3.1 Finite and Infinite Sets	11, 13, 15, 17, 19, 21, 27, 29; (12, 14, 16, 18, 20, 26, 30)	2.5	Quiz 2.4
Jan 31	3.2 Set Operations and Venn Diagrams	9, 11, 13, 17, 19, 21, 25, 27, 29; (10, 12, 18, 20, 22, 26)	3.1	Quiz 2.5 HW 2.5, 3.1
Feb 5	Review		3.2	HW 3.2
Feb 7	**Exam 1, Room, Time**			
Feb 12	3.3 Applications of Sets	7, 9, 11, 13, 17, 19, 23, 27; (8, 10, 12, 14, 18, 20, 22, 24)		
Feb 14	3.4 Introduction to Counting	9, 11, 13, 15, 17, 23, 25, 27, 31, 35, 39, 41; (10, 12, 14, 16, 24, 26, 28, 30, 38, 40, 42, 46)	3.3	
Feb 19	4.1 Intuitive Concepts of Probability	13, 15, 17, 19, 21, 23; (12, 14, 16, 18, 22, 24)	3.4	Quiz 3.3 HW 3.3, 3.4
Feb 21	4.2 Calculating Probabilities	5, 7, 9, 11, 13, 19, 21, 23; (6, 8, 10, 12, 14, 18, 20, 22, 24)	4.1	Quiz 3.4
Feb 26	4.3 Probability and Odds	7, 9, 11, 13, 15, 17; (8, 10, 12, 14, 16, 18)	4.2	Quiz 4.1 HW 4.1, 4.2
Feb 28	4.4 Probability and Compound	7, 9, 11, 13, 15, 19, 21, 23, 27, 29, 31; (8, 10, 12, 14, 16, 20, 22, 28, 30, 32, 34, 38)	4.3	Quiz 4.2
Mar 4	4.5 Conditional Probability	7, 9, 11, 13, 15, 17, 19, 21, 23; (8, 10, 12, 16, 18, 20, 24, 26)	4.4	Quiz 4.3 HW 4.3, 4.4

Mar 6	4.6 Expected Value	9, 11, 13, 15, 19, 21; (8, 10, 12, 14, 16, 18, 20, 22)	4.5	Quiz 4.4, 4.5
Mar 18	Review		4.6	HW 4.5, 4.6
Mar 20	**Exam 2, Room, Time**			
Mar 25	9.1 Percents	11, 13, 15, 19, 21, 23, 27, 29, 31; (10, 12, 14, 18, 20, 22, 26, 28, 30, 32)		
Mar 27	9.2 Simple Interest	7, 9, 11, 13, 17, 19, 23, 25; (8, 10, 12, 14, 18, 20, 22, 24, 26, 28)	9.1	
Apr 1	9.3 Compound Interest	9, 11, 13, 15, 17, 19, 21, 25, 29, 31, 33; (10, 12, 14, 16, 18, 20, 22, 26, 28, 30, 32)	9.2	Quiz 9.1 HW 9.1, 9.2
Apr 3	9.4 Annuities	5, 7, 9, 11, 13, 15, 17, 19; (6, 8, 10, 12, 14, 16, 18, 20)	9.3	Quiz 9.2
Apr 8	Review		9.4	HW 9.3, 9.4
Apr 10	**Exam 3, Room, Time**			
Apr 15	7.3 Golden Ratios and Rectangles	1, 3, 5, 11, 13, 15, 19, 23, 25, 33; (2, 4, 10, 14, 16, 18, 22, 24, 34)		
Apr 17	7.4 Polygons and Stars	1, 3, 7, 11, 13, 15, 21, 25, 29, 39; (2, 6, 8, 22, 26, 34, 40)	7.3	
Apr 22	7.5 Tessellations	1, 3, 11, 15, 21, 25, 27, 29; (4, 12, 16, 18, 24, 26, 28)	7.4	Quiz 7.3 HW 7.3, 7.4
Apr 24	Review		7.5	Quiz 7.4 HW 7.5
May xx	**Exam 4, Room, Time**			