2710 Transition to Advanced Mathematics, Fall 2009

Instructor

Marius Ionescu
Office: MSB M333 (Storrs)
email: ionescu@math.uconn.edu
Office Hours: We 9:00-10:00 am; We 11:00am-12:00 (noon), Th 12:30-1:30pm

Lectures

TuTh 11:00-12:15 MSB219

Exams

1. **First midterm:** Thursday, October 1, in class
2. **Second midterm:** Thursday, November 5, in class

Description

A course designed to prepare the serious student for the more theoretical upper division mathematics courses. It includes basic concepts, principles and techniques of mathematical proof. It will also cover concepts commonly assumed in some of the higher mathematics courses; these concepts include sets, set operations, indexed family of sets, equivalence relations and partitions, functions, one-to-one functions, onto functions, induced set functions,...

Textbook

A Transition to Advanced Mathematics, 6th Edition, Smith-Eggen-Andre, Thompsons Brooke/Cole.

Syllabus

Lectures and Homework

1. **Lecture 1, 09/01/09** Introduction, Syllabus, Section 1.1 Propositions and Connectives
2. **Lecture 2, 09/03/09** Section 1.2 Conditionals and Biconditionals
   The first homework is due on September 10 and consists of the following problems: page 9 #2f),h), k), #3b),h),l), #4d),h),j), #8b),e),f); page 18 #4d),g),j), #8 f),h),i)k), #13c), f), i).
   Practice problems (not to be handed in): the remaining parts of the above problems.
3. **Lecture 3, 09/08/09** Sections 1.2 (cont'd) and Section 1.3
4. **Lecture 4, 09/10/09** Sections 1.3 (cont'd)
5. **Lecture 5, 09/15/09** Section 1.3 (cont'd), 1.4
6. **Lecture 6, 09/17/09** Section 1.4 (cont'd), 1.5
   Homework #2 (due Thursday, September 24, at the **beginning** of the class): page 26 #1 e,h,k; #5 d,g,i,j; #6 c,f,g; #8a,d; page 37 # 5 b,e; #6 b,c.

7. **Lecture 7, 09/22/09** Section 1.4 (cont'd), Examples
8. **Lecture 8, 09/24/09** Section 1.5, Examples
   Homework #3 (due Thursday, October 1): page 38 #8, 9 b), d); page 45 #3 b), d), g), #6a),d), #9.
   Pratice problems: the remaining parts of the above problems; page 37 #7; page 45 #5, 7,8
9. **Lecture 9, 09/29/09** Midterm Review
10. **Lecture 10, 10/01/09** First Midterm
11. **Lecture 11. 10/06/09** Section 1.6
12. **Lecture 12, 10/08/09** Section 1.6 (cont'd)
13. **Lecture 13, 10/13/09** Section 2.1
14. **Lecture 14, 10/15/09** Section 2.2
    Homework #4, due Tuesday, October 27: page 54 #5c),g) i); #7 d),e).h)j); page 76 #5 b),d); 11, 15; page 83 #3 c),g),j),n). #10 d),e),g); 13 b),c); #16 c), e), f), g)
15. **Lecture 15, 10/20/09** Problems
16. **Lecture 16, 10/22/09** Section 2.2 (cont'd), 2.3
17. **Lecture 17, 10/27/09** Section 2.3 (cont'd)
18. **Lecture 18, 10/29/09** Section 2.3 (cont'd)
    Homework #5:(due Thursday, November 5) page 92 #1 b,d,h; 5a,b; 12 a,b; 14; 17 a,d.
19. **Lecture 19, 11/03/09** Midterm review
    Practice problems for the midterm Please work out the remaining parts of the problems assigned as homework; in addition, you should solve the following problems
    page 53 #2,#4; page 76 #6, #8, #10,#14, #18
    page 83 #4, #8, #9, #11, #15; page 92 #2,#4, #6, #7, #9, #13, #18
20. **Lecture 20, 11/05/09 2nd Midterm**
21. **Lecture 21, 11/10/09** Section 2.4
22. **Lecture 22, 11/12/09** Section 2.4 (cont'd)
23. **Lecture 23, 11/17/09** Section 2.5
24. **Lecture 24, 11/19/09** Sections 2.5 (cont'd)
    Homework #6 (due Thursday, December 3 at the beginning of class) page 106 # 2 a,c,d (please justify your answers), #7, #8 b,e,i,m,q,s; #9 b,d; page 116 #3,#6 b,c, #7, #14 a,c. Here you can find solutions for this homework.
    Practice problems (not to be handed in): the remaining parts of the assigned problem; please try to work **all** parts of #8 and #9 on page 106; page 106 #6, #10; page 116 #1, #12, #13.
    Happy Thanksgiving!
25. **Lecture 25, 12/1/09** Section 2.5 Problems, Section 2.6
26. **Lecture 26, 12/3/09** Section 2.6 (cont'd)
    Last homework, due Tuesday, December 15, at the beginning of the final exam: page 127 #4 (all parts), 13, 14(all parts).
    Practice problems(not to be handed in): page 127 #3, 6, 10, 11, 17.
27. **Lecture 27, 12/8/09** Section 2.6, Problems
28. **Lecture 28, 12/10/09** Final review
    Final Info: The final exam is on Tuesday, December 15, 10:30-12:30, in room MSB219
    Extra office hours during the final week: Monday, 12/14/09, 10:00-12:00; Tuesday, 12/15/09, 1:00-3:00pm

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Marius Ionescu, 09 Dec 2009

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Course web site: http://www.math.uconn.edu/~ionescu/math2710f09/

Overview: A course designed to prepare the serious student for the more theoretical upper division mathematics courses. It includes basic concepts, principles and techniques of mathematical proof. It will also cover concepts commonly assumed in some of the higher mathematics courses; these concepts include sets, set operations, indexed family of sets, equivalence relations and partitions, functions, one-to-one functions, onto functions, induced set functions,...

Text: *A Transition to Advanced Mathematics, 6th Edition, Smith-Eggen-Andre, Thompsons Brooke/Cole.*

Webpage: Homework assignments and other important communications will be conveyed via the course web page:
http://www.math.uconn.edu/~ionescu/math2710f09/

Homework: The most important part of the learning process. Every Thursday I will post homework problems on the course webpage. These problems will be due the following Thursday at the beginning of the class. Late homework will not be accepted, but I will drop your lowest homework score when computing the final grade. Full credit for the homework will require solutions which are mathematically correct AND which are written with clarity. You are encouraged to work with others as long as you write your solutions in your own words and indicate the names of your collaborators on the assignment. Please double space your writing and leave a few lines between problems so that I have room to put in comments and give you feedback on your work. Write neatly! It is hard to grade a problem I cant read.

Each week I will grade only two of the assigned problems. I will select the problems to grade only after you hand in the homework.

Other: Please turn off your cell phones. No talking and **no text messaging** during the lectures allowed.

Exams: There will be two midterm exams and one final. Exam solutions must be entirely your own work. The first midterm will take place on Thursday, October 1; the second midterm will take place on Thursday, November 5.

Grading:

Homework	15%
Midterm 1	25%
Midterm 2	25%
Final	35%.