Math 2071, Transition to Advanced Mathematics, Fall 2015

General Info

Instructor: Damir Dzhafarov
Office: MSB 322
Email: damir@math.uconn.edu
Office hours: Wednesdays 2pm–3pm, and by appointment.
Lectures: Mondays, Wednesdays, Fridays, 11:15am–12:05pm, in MSB 319.
Text: Introduction to Mathematical Thinking: Algebra and Number Systems (1st Edition) by Will J. Gilbert and Scott A. Vanstone.

Tentative schedule

Subject to change. Please check back frequently.

Week 1: Sections 1.1-1.6.

Homework 1, due Wednesday, September 9. Text, p. 20: 1, 5, 6, 9, 12, 26, 28, 33, 37, 39, 45, 62, 66, 71.

Week 2: 2.1, 2.2.

Homework 2, due Wednesday, September 16. Text, p. 50: 2, 5, 7, 10, 11, 12, 27, 28.

Week 3: 2.2, 2.5.

Homework 3, due Monday, September 21. Text, p. 50: 9, 28, 70, 71.

Week 4: 3.1, 3.3, 3.4.

Homework 4, due Wednesday, September 30. Text, p. 82: 2, 3, 4, 5, 6, 8, 9, 10.

Week 5: 3.4, 3.5.

Homework 5, due Monday, October 5. (Extra credit, worth one homework assignment.) Text, p. 82: 22, 24, 25, 26, 29, 30, 42, 44.

Exam information. Make sure you have read and understood Sections 1.1–1.6, 2.1, 2.2 (excluding the extended Euclidean algorithm), 2.5, 3.1, 3.3, and 3.4, including the proofs of all theorems. Review all past homework assignments. I will have additional office hours on Thursday, 10:30–11:30am.

Midterm exam 1 solutions.

Review exercises. p. 22: 73, 76, 78. p. 50: 14, 16, 18. p. 52: 74, 83. p. 82: 1, 5, 7, 23, 27. p. 84: 56.

Week 6: Midterm exam, 4.1, 4.2.

Homework 6, due Wednesday, October 14. Text, p. 105: 12, 17, 18, 20, 21, 22, 27, 29, 30.

Week 7: 4.2, 4.3, 5.1.

Homework 7, due Wednesday, October 21. Text, p. 105: 33, 34, 36, 39, 40, 43; p. 121: 1, 2.

Week 8: 5.1, 5.2, 5.4, 6.1.

Homework 8, due Wednesday, October 28. Text, p. 121: 5 (be sure to justify why if 6 divides a^2 then 6 must divide a; note that 6 is NOT prime), 6, 8, 9, 24, 26, 28, 31, 32.

Week 9: 6.2, 6.3, 6.4, 6.5, 6.6.

Homework 9, due Wednesday, November 4. Test, p. 153: 2, 4, 6, 8, 16, 18, 36, 40, 42, 43, 44.

Week 10: 6.6, 6.9.

Homework 10, due Wednesday, November 11. (Extra credit, worth one homework assignment.) Text, p. 153: 24, 26, 28, 29, 32, 33, 34, 38, 47, 48 (use induction).

Exam information. Make sure you have read and understood Sections 4.1–4.3, 5.1, 5.2, 5.4, 6.1–6.6, including the proofs of all theorems. Review all past homework assignments. I will have additional office hours on Thursday, 3pm-4pm.

Midterm exam 2 solutions.

Review exercises. p. 106: 47, 48, 53, 56. p. 122: 35 (omit part c), 36 (hint: assume b does not equal d, and show that both sqrt(b) + sqrt(d) and sqrt(b) - sqrt(d) must be rational, conclude that sqrt(b) is rational, a contradiction), 37. p. 157: 83, 93, 96, 97, 98 (omit part b).

Week 11: Midterm exam, 8.1, 8.2, 8.3.

Homework 11, due Friday, November 20. Text, p. 218: 2, 12, 14, 20, 24, 28, 30, 32, 34, 36.

Week 12:

Week 13: Thanksgiving recess.

Week 14:

Week 15:

Week 16: Final exam.

Homework

Exercises from the text will generally be assigned every Monday and be due at the beginning of the lecture one week later. Students are encouraged to work together, but every assignment should be written up individually, and any collaborations should be indicated.

Exams

There will be two midterm exams, on Monday, October 5, and Monday, November 9. There will also be a cumulative final exam (date TBA).

Grading

The course grade will be the average of the homework (25%), the two midterm exams (25% each), and the final exam (25%). If your score on the final exam is higher than this average, your final exam score will count as your grade. The lowest homework score will be dropped.

Policies

No make-up exams will be given and no late homework will be accepted. All students are expected to abide by the University's Community Standards at all times.