

**Course Instructor:** Dr. Zdeňka Guadarrama

**Meeting Times:** TR @ 8:00-9:15 (SCI 205)

**Office:** Science Center 120-F

**Office Phone:** 816-501-4526

**E-mail:** [guadarrama@rockhurst.edu](mailto:guadarrama@rockhurst.edu)

**Office Hours:** Monday and Wednesday 9:30-11:00

Tuesday and Thursday 11:00-12:15

**Text:** Readings will be provided by the instructor.

### **Course description (catalogue)**

This course is a basic introduction to abstract mathematics emphasizing the development and presentation of sound mathematical arguments. Topics include logic, sets, relations, functions, and proof techniques. Little formal mathematics is needed, but intensive logical thought and an interest in the objectives of the course are essential.

### **By the end of the semester you should be able to:**

- Discuss basic perspectives on the nature of mathematical proof.
- Be able to formulate conjectures.
- Appreciate the fact that proof writing is a personal, versatile and creative activity.
- Whenever faced with a definition try to come up with examples and counterexamples.
- Read a statement to be proved and
  - a. Go through the following mental process:
    - ✚ What exactly do the words in the statement mean? Let me look up the definitions.
    - ✚ Ok, the hypothesis is: \_\_\_\_\_
    - ✚ The conclusion is: \_\_\_\_\_
    - ✚ Hmm.... That means that what I need to do is to show that \_\_\_\_\_ “
    - ✚ What do I know about the relationship between the “words” in the hypothesis? How can I possibly use those?
    - ✚ So what was the conclusion? Can I restate it somehow? Do I know anything about “stuff” that relates to the conclusion.

- ✚ Ok, I think I will try \_\_\_\_\_ method of proof. That means I will assume \_\_\_ and show \_\_\_\_\_.
- ✚ Now let's see what I can do....

- b. Translate the mental process described above into writing.
  - c. Clean up the scribbles, revise the logic, make sure everything makes sense and write a proof.
- Present a proof to your classmates.

### Grading

3 tests with corrections	30%
Quizzes/HW	20%
Proof presentation	10%
Class participation	20%
Final (Thurs. May 7, 8:00am – 10:00am)	20%

### Border lines for grading

A 93.3%	B+ 86.7%	C+ 76.7%	D+ 66.7%
A- 90%	B 83.3%	C 73.3%	D 63.3%
	B- 80%	C- 70%	F <63.3%

### About homework and quizzes

Every now and then, there will be announced, and sometimes unannounced, quizzes in class. Your 2 lowest quiz grades will not count towards your final grade. There will be **no make-up quizzes**.

The submission dates for all other course work will be announced with each assignment. Late assignments will not be accepted for grading. Students who are off campus representing Rockhurst University must make arrangements to submit their assignment at or before the assigned time. Please submit the assignment with a copy of the official Rockhurst letter excusing you for the class missed. If other special circumstances arise, see your instructor.

You are encouraged to work together on the class assignments (except for tests), but each of you has to write the arguments carefully and clearly. Remember that one of the objectives of the class is to develop your proof writing skills. Pay careful attention to your statements and notation. **Read your homework before you turn it in**, if it does not make sense to you, try again before you turn it in.

### **Tests**

After I grade your test and give it back, you will have a week to come by my office during office hours and, on the board, explain to me the problems that you missed on the test. This corrections, if done well, will give you back 20% of the missed points.

Ex. Suppose you made 80/100 in Test 1. You come to my office and correctly explain all the problems you missed. Your grade for Test 1 =  $80 + .2(20) = 84$ .

A make-up exam will only be considered if you notify your instructor within 24 hours of the beginning of the exam that you are to miss. If you schedule a make-up exam and miss your appointed make-up time then you will have no further option to take a make-up exam.

### **Proof presentation**

Each student will present a little proof on the board. The presentation will last about 20 minutes.

### **Class participation**

Participation is very important in this class. I will regularly pose specific questions to the class and record participation points.

### **VERY IMPORTANT NOTE**

Please feel free to talk to me if you have any questions, stop by my office or send me e-mail.

### **Academic Honesty Policy:**

Consistent with its mission as a learning community, Rockhurst has a commitment to foster an environment of academic integrity. To this end, issues involving academic dishonesty in this course will be resolved through the

process outlined in the College's Academic Honesty Policy. Please refer to page 253 in the University Catalog for definitions and details about academic honesty and plagiarism.

**From the Access Office:**

“Rockhurst University is committed to providing reasonable accommodations for students with disabilities. Please contact Sandy Waddell, Director of Access Services (Massman Hall, Room 7, 816.501.4689, [sandy.waddell@rockhurst.edu](mailto:sandy.waddell@rockhurst.edu)) to provide documentation and request accommodations. If accommodations have already been approved by the Access Office, please communicate with the instructor(s) of this course regarding these arrangements by the second week of class in order to coordinate receipt of services”

“Student contact information must be kept current in order to receive important notices from Rockhurst University. Your contact information is online via your OracleWeb account. Please check your local address, local phone number, and emergency contact information on OracleWeb and revise as needed. All important University notices will be sent only to your RU email address. Please check your RU email account in addition to any other email accounts you may have. Accounts are activated at the Computer Services Help Desk.”

“Course withdrawals are the responsibility of the student. The RU Catalog lists the procedures for a student to withdraw from one or all courses and will be upheld. If the student does not process course withdrawal(s) correctly, it will result in a failing grade.”

I reserve the right to make changes to the above stated policies at any point during the semester if I consider it necessary. You will be notified if any changes take place.