

## CMSC210 (Fall 2003) Final/Module D Take-Home Exercise Self-Evaluation Form

Your name			
Names of your collaborators (for any take-home and/or comprehensive exercise [except mutual eval sessions])			
List of exercises submitted on-time	Circle:	D1	D2 D3 D4
List of exercises completed by this time	Circle:	D1	D2 D3 D4
Self-evaluation (between 0 and 10)		Adjustment by the instructor	

### Self-evaluation instructions

For each of the following performance goals, **identify** relevant exercise(s) in this module **including Comprehensive Exercises [new for this module]**. Then, **demonstrate** that you achieved the goal by reflecting on your answers and your responses to the instructor's comments.

Note: The instructor's comments on your exercises indicate areas you need to improve with respect to certain learning goals. To convince the instructor of your achievement, you will need to respond to them in a way clearly visible to the instructor. That is, without your response, the instructor will not adjust your grade to 10.

A convincing self-evaluation would refer to all of the questions/instructions under each performance goal.

1. Model a variety of real-world phenomena as mathematical structures.
  - a. Identify exercises that are relevant to this category.
  - b. Explain how you would apply your experience when you need to represent real-world problems precisely and concisely.
2. Analyze whether a mathematical structure satisfies a collection of logical statements.
  - a. Identify exercises that would demonstrate this point most prominently.
  - b. Suppose that you need to design a computer program that would satisfy certain conditions. Explain how your experience with this goal would help such a process.
  - c. We all need to interpret and understand what other people are saying/writing. Explain how your experience with this goal would help such a process.
3. Specify mathematical structures using logical statements.
  - a. Identify exercises that would demonstrate this point most prominently.
  - b. Suppose that you need to write a program specification that would realize your intuitive idea. Explain how your experience with this goal would help such a process.
  - c. We all need to express our thoughts to other people in writing or speech. Explain how your experience with this goal would help such a process.
4. Analyze, distinguish, and relate mathematical structures with respect to their components and the properties associated with the components.
  - a. Identify exercises that would demonstrate this point most prominently.
  - b. Without training, we might fail to relate inherently related objects/phenomena and/or to distinguish inherently different ones. For example, can you classify fish, sharks, and whales? Can a three-year old do the same?. Explain how your experience with this goal would help such a process.
5. Identify cases where (i) different set of logical statements satisfy the same mathematical structures, and (ii) a set of logical statements satisfies multiple mathematical structures including unintended ones.
  - a. Identify exercises that would demonstrate this point most prominently.
  - b. All formal approaches (including mathematics) have their own limitations. In case of the *logic-structure connection*, one of the limitations is that the "satisfaction" relation is not a function. However, this property is not necessarily totally negative. Explain how your experience with this goal would help you to understand certain real-world situations, using some real-world examples.
6. Convince others that the modeling process is logically sound, using proofs and other methods of justification.
  - a. This is the focus of Module D. Identify exercises that would demonstrate this point most prominently.
  - b. Explain why proofs are accepted by people as a convincing tool (esp. in sciences and engineering), referring to how proofs would fit in the *logic-structure connection*.