CSC460 (Spring 2005) Module A Evaluation Form

Name	Self-evaluation (A, B, C possibly with +/–)	
	Adjustment by the instructor	

Evaluation Materials (Portfolio)

Your evaluation materials (referred to as "**portfolio**," and to be placed in the provided manila folder) consist of the following **Items**:

1. This form (must be filled out; see the instructions below)
2. Word-processed **supporting notes** responding to the instructions in this form (except for the materials completed during the evaluation workshop)
3. Take-home **exercises** (including the comprehensive exercise), chronologically ordered
4. Materials completed during the **evaluation workshop** (to be explained in class)

Self-Evaluation Procedure

During the module, before the evaluation workshop

- You regularly examine the learning goals check list (included below).
- If you think you satisfy a criterion, (i) place a check mark in the box (☑) at the end of the criterion, and (ii) in your supporting notes, explain *how* you satisfied the criterion in a way the instructor can be convinced. That is, you are expected to explain the *process*, not just the consequence.
- If you believe that you already wrote your response to a certain criterion in an earlier exercise, you can simply refer to that exercise (which must be included in your portfolio).

During the evaluation workshop (preliminary)

- At the beginning of the evaluation workshop, you must have **Items 1 through 3** *as hard copies*, as well as blank sheets for **Item 4**.
- There will be an in-class, open-ended module review exercise to check your understanding of the learning goals. Although your answers will not be graded per se, they may be used to validate your supporting notes. For example, if you thought you achieved the learning goals and could still not be able to respond to the review exercise well, you will need to improve your self-evaluation (Performance Goal 7).
- You will have an opportunity to share your portfolio with other students.
- Finally, you will write a reflective essay revealing your thought process during the evaluation workshop, and assign yourself a grade based on the course grading scheme (included at the end of this sheet).
- At the end of the session, you will submit your portfolio.

After the evaluation workshop

- If your written justification for a criterion is convincing, the instructor will also place a check mark next to yours.
- If necessary, the instructor will adjust your grade.
- Normally, your portfolio will be returned in the next class meeting.

Learning Goals Checklist (the goals not pursued in this module are "grayed")

In your **supporting notes**, clearly identify the criteria, e.g., **C1*a*** (for Content Goal 1 Criterion *a*), **P5*b*** (for Performance Goal 5 Criterion *b*), referring to the labels below.

Content Goals

1. Practical problems can often be transformed into research and computational problems. Every problem is associated with cost/significance, which is relative to the evaluator. Computational problems can be represented as a set, readily available as the input to computational processing. [**problem**]
   - *a*. Understood the connections and differences among practical, research, and computational problems, as well as the notion of cost/significance. ☐
   - *b*. Explained why a research problem can be transformed into a set. ☐
   - *c*. [optional; if necessary] Reviewed concepts in discrete math (sets, relations, functions, mathematical structures, logic; ref. http://www.tcnj.edu/~komagata/cmsc210/03f/Topics.pdf). (☐)
2. A theory is a potentially infinite, consistent body of knowledge which can be systematically derived from a small number of abstract principles. The gap between the principles and the entire information is the source of the theory's predictive power. Also being abstract, a theory can be applied to a broad range of phenomena, which might appear distinct. [**theory**]

   a. Understood the notion of theory, referring to its "predictability" and "applicability," using *your own* examples. ☐
   b. Explained how Theory of Computation could impact your career involving computation. ☐
3. Interactive computation subsumes algorithmic computation, but not vice versa. That is, there is a qualitative difference between these two modes of computation. [**interactive computation**] [not in this module]
4. The algorithmic notion of computation can be represented in a variety of equivalent forms, which define a bounded class of sets. That is, there is a limit to algorithmic computation. [**computability**]
   a. Understood the basic mechanism of Turing machine, partly through the use of a simulator. ☐
   b. Explained the connection between computational problems represented as sets and the use of Turing machines to process them. ☐
   c. Explained following the notions using a schematic diagram: decidability, undecidability, TM-recognizability, unsolvability, semi-decidability. ☐
5. The computable class of sets contain a hierarchy of proper subsets which can be characterized by distinct grammars and automata. [**formal languages and automata**] [not in this module]
6. The practicality of an algorithm depends on its complexity relative to the input data size. [**complexity**] [not in this module]
7. Power set, also encompassing the distinction between determinism and nondeterminism, can introduce discontinuity with respect to computability and complexity. [**power set**] [not in this module]

Performance Goals

1. Identify real-world problems which are relevant to the student's life and can be tackled by computational means. [**awareness**] [combined with other goals]
2. Transform real-world problems into research problems, and then into computational problems, along with the analysis of the cost/significance of a problem. [**transformation**]
   a. Understood the process through exercises. [simply refer to successfully-completed exercises] ☐
3. Analyze computational problems with respect to interactivity, computability, language/automata hierarchy, and complexity hierarchy. Then, evaluate the analysis with respect to its usefulness, correctness, and accuracy. [**analysis/evaluation**]
   a. Analyzed the computability (e.g., decidability) of a variety of problems including your own, using Turing machine as a model of computation. ☐
4. Respect, analyze, and give constructive criticisms to the ideas in the literature and those expressed by other people. [**critical attitude**] [not in this module]
5. Express ideas orally and in writing, in a manner clearly understood by other students (with equivalent background). Explain your own ideas orally and in writing, clearly and logically. Revise the ideas, reflecting the feedback from other students and the instructor. [**communication**]
   a. Completed all the exercises (take-home and in-class). ☐
   b. Responded to the other students' and the instructor's comments (e.g., on your exercises). ☐
6. Take initiative in both independent and group activities. Also extend the domain of theoretical inquiry beyond the scope prepared by the instructor. [**initiative**]
   a. Regularly contributed to class *and* group discussions/activities. ☐
   b. Regularly examined the evaluation criteria and placed check marks on this evaluation form. ☐
7. Reflect upon the student's own thinking process and assess the student's own performance relative to the content and performance goals. [**reflection**]
   a. Was able to reflect upon your experience in this module through the activities during the evaluation workshop. [during the eval workshop]
   b. Self-evaluated your achievements *accurately*. [during the eval workshop]

Self-Evaluation Criteria

At the end of the module evaluation workshop, propose your grade based on the following scheme (possible qualification with +/–):

- Grade A: Achieved all the learning goals relevant to the module
- Grade B: Achieved almost all the learning goals (except for one or two evaluation criteria) relevant to the module
- Grade C/Pass: Achieved most of the learning goals relevant to the module

// End