Appendix A. Assessment

Student Questionnaire: Pretest

Please use the 7-point scale to indicate your agreement or disagreement with each statement.

		strongly disagree	disagree	neutral	agree	strongly agree	not applicable	don't know
	BELIEFS							
1	Generally, I feel secure about attempting computational science.	1	2	3	4	5	N/A	DK
2	I study computational science because I know how useful it is.	1	2	3	4	5	N/A	DK
3	Knowing computational science will help me earn a living.	1	2	3	4	5	N/A	DK
4	I am sure I can do advanced work in computational science.	1	2	3	4	5	N/A	DK
5	I have a good understanding of what computational scientists do.	1	2	3	4	5	N/A	DK
6	It is clear to me how computational science is connected to other disciplines like math, sciences and computer science.	1	2	3	4	5	N/A	DK
7	Computational science is relevant to real world issues.	1	2	3	4	5	N/A	DK
8	I understand the methods of computational science.	1	2	3	4	5	N/A	DK
9	I enjoy working in groups.	1	2	3	4	5	N/A	DK
10	When I am working in a group, I am comfortable in a leadership role.	1	2	3	4	5	N/A	DK
11	When I am working in a group, I usually participate actively.	1	2	3	4	5	N/A	DK
12	When I am working in a group, I feel that I have important things to say.	1	2	3	4	5	N/A	DK
13	I feel that my contribution to group work is valued by the other members of the group.	1	2	3	4	5	N/A	DK

PART 2: Background Information

14 How many college computational science <u>courses</u> had you taken before this one?
1. 1 course
2. 2 courses
3. 3 courses
4. 4 or more courses
5. 0 courses

15 How many more computational science courses do you plan to take?

1. 1	4. 4	
2. 2	5. 5	7. 0
3. 3	6. 6 or more	

16 How many more courses do you plan to take in math and science?

1. 1	4. 4	
2. 2	5. 5	7. 0
3. 3	6. 6 or more	

17 What are the last 5 digits of your student ID number? _____

Student Questionnaire: Posttest

Please use the 7-point scale to indicate your agreement or disagreement with each statement.

strongly disagree — disagree — neutral — agree — strongly agree — not applicable — don't know

BELIEFS

#	Statement	1	2	3	4	5	N/A	DK
1	Generally, I feel secure about attempting computational science.	1	2	3	4	5	N/A	DK
2	I study computational science because I know how useful it is.	1	2	3	4	5	N/A	DK
3	Knowing computational science will help me earn a living.	1	2	3	4	5	N/A	DK
4	I am sure I can do advanced work in computational science.	1	2	3	4	5	N/A	DK
5	I have a good understanding of what computational scientists do.	1	2	3	4	5	N/A	DK
6	It is clear to me how computational science is connected to other disciplines like math, sciences and computer science.	1	2	3	4	5	N/A	DK
7	Computational science is relevant to real world issues.	1	2	3	4	5	N/A	DK
8	I understand the methods of computational science.	1	2	3	4	5	N/A	DK
9	I enjoy working in groups.	1	2	3	4	5	N/A	DK
10	When I am working in a group, I am comfortable in a leadership role.	1	2	3	4	5	N/A	DK
11	When I am working in a group, I usually participate actively.	1	2	3	4	5	N/A	DK
12	When I am working in a group, I feel that I have important things to say.	1	2	3	4	5	N/A	DK
13	I feel that my contribution to group work is valued by the other members of the group.	1	2	3	4	5	N/A	DK

SKILLS AND ABILITIES

		strongly disagree	disagree	neutral	agree	strongly agree	not applicable	don't know
14	This course helped me gain abilities in giving oral presentations.	1	2	3	4	5	N/A	DK
15	This course helped me gain an understanding of the main concepts of computational science (i.e., math, science, and computing).	1	2	3	4	5	N/A	DK
16	This course focused on answering real world questions	1	2	3	4	5	N/A	DK
17	This course was organized so that we were encouraged to discuss ideas.	1	2	3	4	5	N/A	DK
18	The structure of this course enabled me to discover some of the ideas of computational science for myself.	1	2	3	4	5	N/A	DK
19	This course provided opportunities for me to construct models.	1	2	3	4	5	N/A	DK
20	Student presentations in this course helped my learning.	1	2	3	4	5	N/A	DK
21	Instructor presentations in this course helped my learning.	1	2	3	4	5	N/A	DK
22	Discussions in this class helped my learning.	1	2	3	4	5	N/A	DK
23	Hands-on activities in this class helped my learning.	1	2	3	4	5	N/A	DK
24	Written assignments in this class helped my learning	1	2	3	4	5	N/A	DK
25	Reading materials that the instructor created helped my learning	1	2	3	4	5	N/A	DK
26	Other reading materials helped my learning	1	2	3	4	5	N/A	DK
27	The feedback we got helped my learning	1	2	3	4	5	N/A	DK
28	I understood why we did each module	1	2	3	4	5	N/A	DK
29	I understood most of the ideas presented in this course.	1	2	3	4	5	N/A	DK

30 By the end of this course, I felt able to apply the concepts presented.　　**1　2　3　4　5　　N/A　DK**

31 This course helped me get better at seeing alternative approaches to a problem.　　**1　2　3　4　5　　N/A　DK**

32 This course helped me feel more comfortable with the idea that some questions have no single right answer.　　**1　2　3　4　5　　N/A　DK**

33 I enjoyed taking this computational science course　　**1　2　3　4　5　　N/A　DK**

PART 2: Background Information

34 What is your age? _____

35 Which of the following represents your year in college?
1. First year　　　　2. Sophomore　　　　3. Junior
4. Senior　　　　　　5. Senior +1　　　　6. Graduate Student
7. Post-professional degree

36 What is your gender?　　1. Female　　　　　　2. Male

37 What is your intended major? (please choose only one)
1. Biology　　　　　2. Chemistry　　　　　3. Computer science
4. Education　　　　5. Environmental science　6. Finance
7. Geology　　　　　8. Mathematics　　　　　9. Psychology
10. Physics　　　　　11. Other

38 What is the field of your intended career? (please choose only one)
1. Science / Engineering　　　　2. Medical / Dental / Other Health Care
3. Teaching K-12　　　　　　　　4. Business / Policy
5. Social sciences　　　　　　　6. Humanities / Arts
7. Undecided/Other

39 How many college computational science <u>courses</u> had you taken before this one? _____

40 How many more computational science courses do you plan to take? _____

41 How many more courses do you plan to take in math and science? _____

42 What are the last 5 digits of your student ID number? _____

Evaluation of Materials

Date _____

Module Title _____

Please use the 7-point scale to indicate your agreement or disagreement with each statement.

		strongly disagree	disagree	neutral	agree	strongly agree	not applicable	don't know
CONTENT								
1	All sections are clearly identified.	1	2	3	4	5	N/A	DK
2	Objectives of the module are clearly stated.	1	2	3	4	5	N/A	DK
3	The software employed is NOT outdated.	1	2	3	4	5	N/A	DK
4	All resources that are cited give credit to the author.	1	2	3	4	5	N/A	DK
5	The materials provide the reader with avenues for further research.	1	2	3	4	5	N/A	DK
6	The information within the module is consistent with the stated objectives of the module.	1	2	3	4	5	N/A	DK
7	The information is organized such that it will be easily understood by students.	1	2	3	4	5	N/A	DK
8	The content of linked sites is worthwhile and appropriate.	1	2	3	4	5	N/A	DK
9	The course content is free of bias (i.e., sexual, racial, or ethnic, etc).	1	2	3	4	5	N/A	DK
10	A contact person or address is identified for the module.	1	2	3	4	5	N/A	DK
CONTENT VALIDITY								
11	The scientific information for the course is accurate.	1	2	3	4	5	N/A	DK
12	The mathematical information for the course is accurate.	1	2	3	4	5	N/A	DK
13	Charts and/ or graphs are clearly labeled and easy to read.	1	2	3	4	5	N/A	DK
14	Charts and/ or graphics aid in reaching the stated objectives for the course.	1	2	3	4	5	N/A	DK

| 15 | The source of data is referenced. | 1 2 3 4 5 | N/A DK |
| 16 | The information is free of grammatical, spelling, and other typographical errors. | 1 2 3 4 5 | N/A DK |

AUDIENCE ENGAGEMENT

17	The module content promotes inquiry learning.	1 2 3 4 5	N/A DK
18	Students are encouraged to think and reflect.	1 2 3 4 5	N/A DK
19	Critical thinking skills are needed to analyze and synthesize information.	1 2 3 4 5	N/A DK
20	Students are encouraged to continue exploration and research with additional hypertext links on the web site.	1 2 3 4 5	N/A DK
21	When appropriate to the module, data sharing with other students is encouraged.	1 2 3 4 5	N/A DK

22 Please provide other comments, questions, or suggestions: