

Computer Science: Learning Goals



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Learning Goals: A Tale of Two Efforts

- Course and Topic Level Goals
 - All 5 1st and 2nd year core courses
 - Process, Results, Reflection
- Study of Learning Goals in the Classroom
 - Case Study in a non-majors course
 - What value do students see?
 - How does it change the course?



Goals

- Describe, in detail,
 - What students can do
 - When
 - How assessed
- Look for (eventually)
 - Duplication
 - Missed dependencies
 - More consistency across sections/instances



Process

- Topic Goals
 - By the end of the course students can...
 - First Cut: Exam analysis
 - Lecture materials
 - ID topic areas
 - Make sentences that complete
 - By the end of the course students can...
- Course Level Goals
 - Discussion
 - Grid-based placement of Topics under Course
 - Fix, re-do update



What did we get out of this?

- Exam design is MUCH easier
- There are important learning goals we are not assessing
 - Some course goals are not supported by topic goals
- Supported a coherent “story” for a class
 - And identified beyond anecdote where there are issues
- Enables iterative refining of course materials
- Incredibly valuable to discuss, debate



Tale 2:

Study of Learning Goals in the Classroom

- CPSC 101: Connecting with Computer Science
 - Non majors, varied purposes
- Instructors previously involved interested in developing LGs
 - Help make clear what we really want students to know
 - Not just programming 😊



Learning Goals Creation Process

- Discussion directed by topic areas (lectures)
- Instructor in Spring 07 made LG as developed and re-developed lectures.
 - Re-worked them in Fall 07 and...



How LGs were used (effectively)

- Featured LGs prominently at the beginning of each class.
- Started the term with a LG of learning how to use LGs to know what to learn in the class.
- Made (and kept) an explicit promise that all exam questions would be based on LGs



Impact on Students

- Interviews
 - 11 students just after first midterm
- Surveys:
 - Please complete the following sentence five times:
 - For me, in the class, the use of learning goals was _____

What do students say?

N=239	Study	Exams	Lecture/ course	Focus	Understanding	Learning
Study	50					
Exams	13	25				
Lecture/ course	2		39			
Focus	21	14	33	102		
Understanding			5	3	11	
Learning			1	5	1	12



Focus

- Focus
- On track
- Summarize
- Outline
- Expectations
- Organize
- Guide



What do instructors say?

- We have a contract with students
 - We and they are **clear** on their responsibilities
 - Separates key material from interesting discussion
 - Keeps any one topic from accidentally dominating course
- Exams are very simple to write
 - You've already done the work
 - Though it does take time and refinement to write good, examinable topic goals
- Makes it much easier for frequently revised courses

Look for a full report by end of summer 2008.



Questions/Comments



Helping Students Know and Practice What They Need To Know

- Collaborative Web Site supporting creation and review of multiple choice questions
- Students create questions, distracters, and explanations of correct answers
- Other students can “practice” questions and comment on results
- Students reflect, develop meta-cognitive skills, explain

Interested for 2008-2009? Email: esimon@cs.ubc.ca

	Study	Exams	Lecture / course	General Focus	Focus	Track	Summary	Guide	Organize	Outline	Understanding	Learning
Study	50											
Exams	13	25										
Lecture/ course	2		39									
General Focus	10	10	11	38								
Focus	2	2	6	1	14							
Track	1		6			12						
Summary			3	1			6					
Guide	7		2	1		1		10				
Organize	1		4	1					8			
Outline		2	1						1	7		
Understanding			5	1			1		1		11	
Learning			1	3			1		1		1	12