

## 6.042 Assessment Survey

### 1 Instructions

The EECS Department is trying to develop a system to monitor and improve teaching effectiveness. Part of this effort involves formulating and checking an Educational Objectives and Outcomes statement like the one for 6.042 on the course web page.

We would like your feedback on how well you feel these objectives and outcomes were achieved for you personally. We would like you to write your name on your survey submission to cross-check self-assessments against grades; we think the cross-check will be helpful in improving the course. However, **writing your name is optional**.

*No one on the 6.042 staff will look at any survey results until after grades are assigned, so you need not be concerned that what you say in your self-assessment will impact your grade at all.*

In the indicated space next to each item, please enter a digit from five (5) to one (1) where

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5	means	"this objective/outcome was	<b>thoroughly</b> achieved for me personally."
4	means	" ...	<b>reasonably well</b> ... "
3	means	" ...	<b>adequately</b> ... "
2	means	" ...	<b>somewhat</b> ... "
1	means	" ...	<b>not</b> ... "

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## 2 Objectives

On completion of 6.042, students will be able to explain and apply the basic methods of discrete (noncontinuous) mathematics in Computer Science. They will be able to use these methods in subsequent courses in the design and analysis of algorithms, computability theory, software engineering, and computer systems.

In particular, students will be able to

1. **reason mathematically about basic data types and structures** used in computer algorithms and systems; distinguish rigorous definitions and conclusions from merely plausible ones; synthesize elementary proofs, especially proofs by induction.  
(enter 5 “thoroughly achieved, . . . , 1 “not achieved”) \_\_\_\_\_
2. **model and analyze computational processes** using analytic and combinatorial methods. \_\_\_\_\_
3. **apply principles of discrete probability** to model and solve elementary problems of reliability and estimation. \_\_\_\_\_
4. **work in small teams** to accomplish all the objectives above. \_\_\_\_\_

## 3 Learning Outcomes

Students will be able to:

1. use **logical notation** to define and reason about **fundamental mathematical concepts** such as sets, relations, functions, and integers.  
(enter 5 “thoroughly achieved, . . . , 1 “not achieved”) \_\_\_\_\_
2. **evaluate elementary mathematical arguments** and identify fallacious *reasoning* (not just fallacious conclusions). \_\_\_\_\_
3. **synthesize induction hypotheses and simple induction proofs.** \_\_\_\_\_
4. **apply graph theory models** of data structures and state machines to solve problems of connectivity and constraint satisfaction, *e.g.*, scheduling. \_\_\_\_\_
5. apply the method of invariants and well-founded ordering to **prove correctness and termination of processes** and state machines. \_\_\_\_\_
6. **derive closed-form and asymptotic expressions** from series and recurrences for growth rates of processes. \_\_\_\_\_
7. **calculate numbers of possible outcomes** of elementary combinatorial processes such as permutations and combinations. \_\_\_\_\_
8. **calculate probabilities** and discrete distributions for simple combinatorial processes; calculate means and variances. \_\_\_\_\_

9. solve problems of estimation and error tolerance by **applying theorems on deviation from the mean**. \_\_\_\_\_
10. problem-solve and **study in a small team** with fellow students. \_\_\_\_\_

## 4 Course Activities

Indicate using the same five (5) to one (1) scale:

- How helpful were the following materials and activities in

	understanding the big ideas	preparing for exams
course notes		
the Rosen text		
lectures		
lectures slides		
in-class problem solving sessions		
problem sets		
online problems on the reading		
discussion with staff during in-class sessions		
other discussion with staff, <i>e.g.</i> , in office hours		
email from course staff		
collaboration with fellow students on psets		

- How helpful overall was the course in helping you achieve the Objectives and Outcomes?  
\_\_\_\_\_
- How interested would you be in having another class in the “lecture/studio” style of 6.042?  
Circle one:  
enthusiastic   interested   somewhat interested   uninterested   unwilling

## 5 Further Comments

We would be interested in hearing any other comments or suggestions you may have about the course: