

**William Paterson University of New Jersey**  
**College of Science and Health**  
**Department of Computer Science**  
**Analysis of Course Coverage and Assessment Report Data**  
**Fall 2015 – Spring 2017 Assessment Cycle**

**Course Number:** CS 2600

**Course Coordination Committee Members:** Cyril S. Ku

**Date:** June 1, 2017

**A. Course Pre-requisites/Co-Requisites**

**a) Problems/Issues Identified:**

No problem identified.

**b) Suggestions for Improvement:**

N/A

**B. Course Objectives**

**a) Problems/Issues Identified:**

No problem identified.

**b) Suggestions for Improvement**

N/A

**C. Course Student Learning Outcomes**

**a) Problems/Issues Identified:**

The learning outcomes for Spring 2016 are different from the outcomes for Spring 2017. The outcomes for Spring 2016 are more details and the outcomes for Spring 2017 are more high level which were taken from the departmental course outlines.

**b) Suggestions for Improvement**

Need to make the student learning outcomes uniformed. Look at the departmental course outlines and update the official course outline if necessary.

**D. Course Content**

**c) Problems/Issues Identified:**

The breakdown of the topics for the course is not the same.

**d) Suggestions for Improvement**

Again, make them the same for easy comparison semester by semester.

**E. Assessment of the CS Program Student Outcomes**

**Suggestion about Student Outcome S2:**

**Demonstrate abilities to apply knowledge of mathematics to the discipline of computer science.**

This course teaches discrete mathematics with an emphasis on the application of discrete mathematical theories to computer science. For example, the application of Boolean algebra to digital logic; the application of trees to natural language processing; the application of logic to Prolog programming; etc. This student outcome of applying mathematics knowledge the computer science discipline is appropriate and is assessed well.

#### F. Analysis of the Course Learning Outcomes Assessment Data and Suggested Improvements

The assessment data of the course learning outcomes are listed in Section G below. Because of the different sets of learning outcomes, it is hard to make the assessment comparison between the two semesters (Spring 2016 and Spring 2017). The two sections (01 and 60) in Spring 2016 have identical results. That might be a mistake in these two assessment reports. The instructor for these two sections had left the department and so there was no way to trace back the results. The bottom line, need to fix the learning outcomes and the breakdown of the topics covered.

#### G. Course Coverage and Assessment Report Data

Course: CS 2600-01 Discrete Structures

Instructor: Ali Moghani

Semester: Spring 2016

	<b>Learning Outcomes</b>	<b>Where Measured</b>	<b>Percentage of Satisfactory Results*</b>
1	I have general concepts of discrete mathematics and their applications.	Semester Grades	83
2	I know what Propositional logic, Logical form, truth table, and logical equivalence, Conditional statements, Valid and invalid arguments Application: digital logic circuits	Test #1, Homework #3	82
3	I understand that Predicate logic Quantified statements (universal and existential) Negation Introduction to Prolog	Homework #2	80
4	I learned what is Set theory, Cartesian product, Relations and functions Set operations, Venn diagram	Test #2, Homework #3	91
5	I know the importance of Elementary number theory and methods of proofs Direct proof and counterexample Indirect argument: contradiction and contraposition	Homework #3	73
6	I learned different concepts like Sequences, mathematical induction, and recursion Summation and product notations Factorial	Homework #3, Test #1	85
7	I learned the combinatorics, Counting and probability Permutation Combination, Pascal triangle Pigeonhole principle	Homework #2, Test #2	97
8	I learned the Graphs and trees Matrix representation Applications	Homework	87

		#5, Test #2	
9	I understand that how important is Analysis of algorithm efficiency Algorithm complexity and Big-O	Homework #1, Test #1	92
10	A group project free subject in Discrete Structures	Project #1	95

**\* Notes:**

1. For all the scores, the percentage corresponds to the number of students who receive a score of at least 70% on the question(s) related to the learning outcome.
2. Semester grade consists of composite scores of homework, projects, and exams. The grades were (curved/not curved).

Course: CS 2600-60 Discrete Structures

Instructor: Ali Moghani

Semester: Spring 2016

	<b>Learning Outcomes</b>	<b>Where Measured</b>	<b>Percentage of Satisfactory Results*</b>
1	I have general concepts of discrete mathematics and their applications.	Semester Grades	83
2	I know what Propositional logic, Logical form, truth table, and logical equivalence, Conditional statements, Valid and invalid arguments Application: digital logic circuits	Test #1, Homework #3	82
3	I understand that Predicate logic Quantified statements (universal and existential) Negation Introduction to Prolog	Homework #2	80
4	I learned what is Set theory, Cartesian product, Relations and functions Set operations, Venn diagram	Test #2, Homework #3	91
5	I know the importance of Elementary number theory and methods of proofs Direct proof and counterexample Indirect argument: contradiction and contraposition	Homework #3	73
6	I learned different concepts like Sequences, mathematical induction, and recursion Summation and product notations Factorial	Homework #3, Test #1	85
7	I learned the combinatorics, Counting and probability Permutation Combination, Pascal triangle Pigeonhole principle	Homework #2, Test #2	97
8	I learned the Graphs and trees Matrix representation Applications	Homework #5, Test #2	87
9	I understand that how important is Analysis of algorithm efficiency Algorithm complexity and Big-O	Homework #1, Test #1	92

10	A group project free subject in Discrete Structures	Project #1	95
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**\* Notes:**

1. For all the scores, the percentage corresponds to the number of students who receive a score of at least 70% on the question(s) related to the learning outcome.
2. Semester grade consists of composite scores of homework, projects, and exams. The grades were (curved/not curved).

Course: CS 2600-01: Discrete Structures

Instructor: Cyril S. Ku

Semester: Spring 2017

	Learning Outcomes	Where Measured	Percentage of Satisfactory Results*
L1	Be capable of formulating models and theoretical constructs needed to make further progress in computer science.	All Homework	50%
		All Quizzes	83%
		Exam #1	63%
		Exam #2	58%
		Final Exam	46%
L2	Be able to operate proficiently with these fundamental logical, combinatorial, and algebraic representations and tools in a manner required by and with a strong emphasis on computer scientific directions of development. Extensive practice and rigorous problem-solving drills will characterize the level of performance and expertise students will be acquiring.	All Homework	50%
		All Quizzes	83%
		Exam #1	63%
		Exam #2	58%
		Final Exam	46%

**\*Notes:**

1. For all the scores, the percentage corresponds to the number of students who receive a score of at least 70% on the question(s) related to the learning outcome.
2. Semester grade = Homework (15%) + Quizzes (20%) + Exam #1 (21%) + Exam #2 (21%) + Final Exam (23%)