

William Paterson University
College of Science and Health - Department of Computer Science

Fall 2013 – Spring 2015 Assessment Cycle
Analysis of the Program's Student Outcome Assessment Data

Program's Student Outcome: S8:

Demonstrate an understanding of the major programming domains and the knowledge of the most appropriate programming language for each domain.

ABET's Related Student Outcomes: (b), (i).

Curriculum Committee Subgroup: Programming Languages

Members: John Najarian, Gilbert Ndjatou (Chair)

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A. Analysis of the Assessment Data

For the assessment period Fall 2013 to Spring 2015, this student outcome was assessed in CS3820 with 8, 13, 24, and 13 students taking the course respectively. From these students, only 4 (which represents less than 7% of those students) did have less than adequate ability. However, the following deficiencies are observed: some students do not know or remember the features of a programming language that are needed for some programming domains; and some students also have difficulties distinguishing the web programming languages.

B. Suggestions for Improvement

- Use more than one testing methodology to test students' knowledge of the features of a programming language that are needed for the programming domains: fill-in questions, multiple choices, and direct responses. Also give them homework assignments on this topic.
- Give homework assignments on the different classes of web programming languages.

C. Improvement Implemented

The above suggestions have been implemented in Fall 2016.

D. List all the “performance level/frequency/percentage” tables and their sources.

- a. Faculty Course Assessment Report: CS3820, Fall 2013

Data Collected: Each student’s level of performance on questions on a test and the final exam that test their understanding of the major programming language domains.

Method of Collection: Each student is given a numeric score on each of these questions.

Performance Levels	Frequency	Percentage
Some Ability	1	12.5 %
Adequate Ability	1	12.5 %
More than Adequate Ability	2	25.00 %
High Ability	4	50.00 %

Observations: In general, students know the most appropriate language used in each of the major programming domains. However, some students do not know or remember the features of a programming language that are needed for some programming domains.

- b. Faculty Course Assessment Report : CS3820, Spring 2014

Data Collected: Each student’s level of performance on questions on a test and the final exam that test their understanding of the major programming language domains.

Method of Collection: Each student is given a numeric score on each of these questions.

Performance Levels	Frequency	Percentage
Some Ability	1	7.7 %
Adequate Ability	5	38.5 %
More than Adequate Ability	3	23.1 %
High Ability	4	30.8 %

Observations: A large majority of students have a good grasp of major programming domains and the knowledge of the most appropriate programming language for each domain. However, as in the previous semester, some students have difficulties remembering the features of a programming language that are needed for some programming domains.

- c. Faculty Course Assessment Report: CS3820, Fall 2014

Data Collected: Each student’s level of performance on questions on tests and the final exam was used to determine their understanding of the major programming language domains. Likewise, the homework assignments reflected their progressive attainment thereof.

Method of Collection: Each student is given a numeric score on each test question and homework assignment.

Performance Levels	Frequency	Percentage
Some Ability	1	4%
Adequate Ability	8	33%
More than Adequate Ability	12	50%
High Ability	3	13%

Observations: We did not have enough time to explore each category of Scripting languages. JavaScript was our primary focus and the alternatives were given short coverage. Worse, we had little time to study the JVM and CLI models' internals in depth; we just did the basics. Likewise, we could not cover code optimization. Scott is definitely most impressive.

- d. Faculty Course Assessment Report: CS3820, Spring 2015

Data Collected: Each student's level of performance on questions on a test and the final exam that test their understanding of the major programming language domains.

Method of Collection: Each student is given a numeric score on each of these questions.

Performance Levels	Frequency	Percentage
Some Ability	1	7.7 %
Adequate Ability	5	38.5 %
More than Adequate Ability	3	23.1 %
High Ability	4	30.8 %

Observations: In addition to the fact that some students have difficulties remembering the features of a programming language that are needed for some programming domains, some students also have difficulties distinguishing the web programming languages.