

# Lincoln University

## Curricula Program Assessment Plan

School Natural Sciences and Mathematics

Department Computer Science (Branch of Mathematics)

### Mission Statement

The mission of the Computer Science Branch of the Math department is to provide students with the tools needed for life-long learning so that Lincoln's graduates can fully participate in the technological global society of the Twenty-first Century. Our specific goal is to raise the level of participation in technical fields of under-represented groups, especially African Americans and women. The students can choose two concentrations in Computer Science through which they will gain the knowledge necessary to succeed in the applied and/ or research areas of Computer Science.

Academic Year 2009-2010 Assessment Cycle 2009-2012

Curricula Program Major Computer Science

### I. Program Goals

The following are the current goals for the program of the Bachelor of Science degree in Computer Science:

1. Increase the number of students who major in Computer Science.
2. Maintain high standards for Computer Science course contents by assuring that the Student Learner Outcome goals (item II) are followed.
3. Maintain high retention rate for Computer Science Majors.
4. Assist the students to create a portfolio to showcase their qualifications in seeking employments.
5. Continue to improve the department assessment techniques in evaluating Computer Science students' learner outcomes as well as the effectiveness of the computer science program.

## II. Student Learning Outcome Goals

After completing the Bachelor of Science degree in Computer Science, the student should be able to:

1. Demonstrate mastery of a minimum of three programming languages such as Visual C++, Java, and Visual BASIC in terms of both grammar and the set of commands. The student's learning will include procedural, object-oriented, event-driven, and GUI/ component-based programming as well as general understanding of formal languages and compilers.
2. Solve problems and analyze algorithms. The students must become skillful in solving mathematics, science, and business problems, and be able to analyze and apply algorithms in solving problems in these and other disciplines.
3. Read, analyze, organize, and use data. The students must become competent in managing data. This includes, database design and modeling, and using the proper data structures to organize and store data, so that it can be used as information.
4. Demonstrate mastery of the fundamental concepts of computer organization and fundamentals of computer architecture, mostly from a software developer's point of view. This includes understanding the logical gates, how CPU executes machine instructions, how the operating systems handles multitasking jobs, etc.
5. Read and write technically and communicate ideas in the discipline.
6. Concentration-specific goals:

Applications: Demonstrate skills in advanced features of commercial computer application software in the areas such as Spreadsheets, Database, Web Programming, and Computer Animations.

Mathematics: Demonstrate strong mathematical skills.

## III. Program Assessment Data Sources

- A. CA-1" -Knowledge based Assessment of Student Learning Outcomes in a course
- B. Class SLO Data Worksheets (Complements CA-1)
- C. Annual Assessment Reports
- D. PAWS
- E. Entrance Interview Form
- F. Exit Interview Form

- G:** Student Research Evaluation Form (pending student research)
- H:** Internship Form (pending internship)
- I:** Student Internship Evaluation Form (pending internship)
- J:** Senior Portfolio Evaluation Form- Computer Science Majors
- Other:** Computer student retention rate and graduation rate

#### **IV. Methods of Analysis - Class SLO Data Worksheets (Complements CA-1)**

The students are assessed in each Student Learner Outcome category of a given course using the Class SLO Data Worksheets on a scale of 1-4 as shown below:

1. Unacceptable (<58%)
2. Needs improvement ( $\geq 58\%$  & <73%)
3. Satisfactory ( $\geq 73\%$  & <88%)
4. Secure ( $\geq 88\%$ )

The **average** and **standard deviation** in each category are calculated. The **attendance**, and the **grade frequencies** as well as **Pass/Fail** grades are also tabulated on the SLO worksheet for each class.

#### **V. Method of Analysis - CA-1**

The combined assessment results for some of the key courses such as CSC-158 (all sections) collected using the Class SLO Data Worksheets will be recorded on the CA-1 forms in each different SLO and the corresponding knowledge categories. The CA-1 forms will include recommendations for improvements when applicable/ necessary.

#### **VI. Other Methods of Analysis**

The Computer Science Majors will fill the *Entrance Interview Form* soon after declaring major in Computer Science and will fill the *Exit Interview Form* in their senior year. The professors who will carry research with a given student will evaluate their student's work using the *Student Research Evaluation Form*. Those students, who carry internships under the course CSC-299, will fill the *Internship Form* and their work supervisor will assess the students' internship work using the *Student Internship Evaluation Form*. The Computer Science senior's portfolio will be assessed using the *Senior Portfolio Evaluation Form*. All data from different forms will be analyzed and reported on the *Annual Assessment Report Summary Sheets*.