

(Approved by the CS faculty on November 22, 2013)
BS CS - Systems Track
Degree Program Assessment Plan

Degree Program: BS CS Systems Track (346004BS)
Department or School: Computer Science
College: Buchtel College of Arts & Sciences
Assessment Coordinator: Dr. Kathy Liszka
Department Chair or School Director: Dr. Yingcai Xiao
Semester of this Program Update: F13

Program Mission and Goals:

The mission of this program is to produce students in the Department of Computer Science at the University of Akron who are proficient in academic skills leading to employment in Computer Science and related fields or admission to Computer Science graduate programs. The objective is to graduate students within eight semesters of full-time academic work.

Previous Program Modifications:

This track of B.S. in C.S. was created in Fall 2011.

Student Learning Outcomes: List the learning outcomes, that is, what students know and are able to do by the time they graduate. Use blue font to show commonalities for different degrees. That is, those degrees with the same learning outcome but in different degree programs within a unit.

1. Students will demonstrate fundamental knowledge and skills in Computer Science.
2. Students will be able to apply the knowledge and skills in solving computing problems.
 - a. Students will be able to analyze the requirements of computing problems.
 - b. Students will be able to design and implement solutions to computing problems.
3. Students will be able to communicate effectively about computing solutions.
4. An understanding of professional, ethical, legal, security and social issues and responsibilities.
5. An ability to function effectively on teams to accomplish a common goal.

Assessment Plan: Outline the procedure followed to demonstrate what students are learning and how well they are learning it in relation to the learning outcomes.

Learning Outcome 1: Students will demonstrate fundamental knowledge and skills in Computer Science.

Rubric for Learning Outcome 1: Students will answer a set of common content questions on the Major Field Aptitude Test (MFAT) in the gateway course 3460:490 Senior Seminar. Topics will include multiple choice questions covering the topics of Discrete Structures, Programming, Algorithms and Complexity, Systems (Architecture, Operating Systems, and Networking), Software Engineering, and Information Management (Database Systems and Data Modeling). Questions will be scored as correct/incorrect such that student average question and overall scores can be used to establish benchmarks and for longitudinal comparisons.

Learning Outcome 2. Students will be able to apply the knowledge and skills in solving computing problems.

- a. Students will be able to analyze the requirements of computing problems.
- b. Students will be able to design efficient solutions to computing problems.

Students will complete a capstone project in the gateway course 3460:490 Senior Seminar. Typically an undergraduate research project is conducted or a new program application is designed and implemented. A written report is part of the final project.

Rubric for Learning Outcome 2: Student work will be scored using the following rubric:

0	1	2	3	4	Score
Unacceptable	Poor	Acceptable	Good/Solid	Exemplary	
Project is not correctly specified, designed or implemented.	Project is partially specified, designed and implemented with major deficiencies.	Project is largely specified, designed and implemented as planned with several minor deficiencies.	Project is almost completely specified, designed and implemented as planned with only a few minor deficiencies.	Project is completely specified, designed and implemented as planned with no deficiencies.	
If a research project is chosen, results are not well documented, data collection and analysis are not complete or well organized. If a programming project is undertaken, code is incomplete and not working.	If a research project is chosen, results are partially documented and analyzed. If a programming project is undertaken, the code is demonstrated to be working with minor bugs and with some of the features implemented.	If a research project is chosen, results are well documented and reasonably analyzed. If a programming project is undertaken, the code is demonstrated to be working with minor bugs and with most of the features implemented.	If a research project is chosen, results are well documented and reasonably analyzed. If a programming project is undertaken, the code is demonstrated to be working correctly with most of the features implemented.	If a research project is chosen, results are well documented and thoroughly analyzed. If a programming project is undertaken, the code is demonstrated to be working correctly with all features implemented.	

Learning Outcome 3. Students will be able to communicate effectively about computing solutions.

The final project is presented in a public forum such as the spring University of Akron Student Innovation Symposium or the department's annual CS/IT Day.

Rubric for Learning Outcome 3:

0	1	2	3	4	Score
Unacceptable	Poor	Acceptable	Good/Solid	Exemplary	
Quality of the poster presentation and/or project demonstration is poor, with lack of detail or professional presentation.	Quality of the poster presentation and/or project demonstration is fair, with much room for improvement in content and professional presentation.	Quality of the poster presentation and/or project demonstration is fair, with room for improvement in content.	Quality of the poster presentation and/or project demonstration is good.	Quality of the poster presentation and/or project demonstration is excellent.	
Very poor oral communication skills, with little ability to answer any questions or participate in a discussion with reviewers.	Poor oral communication skills, with ability to answer some questions and participate at a low level of discussion with reviewers.	Acceptable oral communication skills, with ability to answer most questions and participate in a moderate level of discussion with reviewers.	Good oral communication skills, with ability to answer questions and participate in a high level of discussion with reviewers.	Excellent oral communication skills, with ability to answer questions and participate in a rigorous level of discussion with reviewers.	

Learning Outcome 4. An understanding of professional, ethical, legal, security and social issues and responsibilities.

Topics of ethics, legal and social impact in Computer Science are addressed in the Association of Computing Machinery (ACM) Code of Ethics (<http://www.acm.org/about/code-of-ethics>) and the Institute of Electrical and Electronics Engineers (IEEE) Computer Society Software Engineering Code of Ethics and Professional Practice (http://www.computer.org/portal/web/certification/resources/code_of_ethics).

Students will answer a set of common content questions in the gateway course 3460:490 Senior Seminar.

Rubric for Learning Outcome 4: Questions will be scored as correct/incorrect such that student average question and overall scores can be used to establish benchmarks and for longitudinal comparisons.

Learning Outcome 5. An ability to function effectively on teams to accomplish a common goal.

Rubric for Learning Outcome 5: Students work together and present a group project in the required course 3460:480 Software Engineering.

0 Unacceptable	1 Acceptable	2 Exemplary	Score
Group project results are incomplete and incorrect.	Group project results are incomplete but ones submitted are correct.	Group project results are complete and correct.	
Quality of group project design with regard to application of the concepts presented in course is poor.	Quality of group project design with regard to application of the concepts presented in course is good.	Quality of group project design with regard to application of the concepts presented in course is excellent.	

Data Collection Plan: Describe who will collect data and/or when the data will be collected by course or year.

Learning Outcome 1, 2, 3, and 4: Data will be collected when students take the gateway course 3460:490 Senior Seminar. This is typically spring of year 4.

Learning Outcome 5: Data will be collected when students take the required course 3460:480 Software Engineering. This is typically spring of year 3 or 4.