Academic Assessment Plan
Department of Computer Science, College of Arts and Sciences
Bachelors of Science

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Steps 5 & 6 – to be completed in Fall 2005

1. Program goals
The mission of the Bachelor of Science Program in Computer Science is to instill the student with a system-level perspective that transcends the implementation details of individual software components, to appreciate the structure of such software systems, and understand the processes involved in their construction. Graduates of the program understand not only the theoretical underpinnings of the discipline but also how that theory influences, and is applied in, practice. The program emphasizes the key themes of abstraction, complexity, and evolutionary change as applied to development and analysis of software. The program provides a solid foundation that allows the student to maintain their skills in the rapidly evolving field.

2. Learning objectives
Students of the Computer Science program must develop a wide range of capabilities and skills. Below are a list of cognitive capacities and skills relating to Computer Science that represent the learning objectives of the program.

• **Knowledge and understanding.** Demonstrate knowledge and understanding of essential facts, concepts, principles, and theories relating to Computer Science and software applications.

• **Modeling.** Use such knowledge and understanding in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

• **Requirements.** Identify and analyze criteria and specifications appropriate to specific problems, and plan strategies for their solution.

• **Critical evaluation and testing.** Analyze the extent to which a computer-based system meets the criteria defined for its current use and future development.

• **Methods and tools.** Deploy appropriate theory, practices, and tools for the specification, design, implementation, and evaluation of computer-based systems.

• **Professional responsibility.** Recognize and be guided by the social, professional, and ethical issues involved in the use of computer technology.

• **Communication.** Make succinct presentations about technical problems and their solutions.

• **Teamwork.** Be able to work effectively as a member of a software development team.
3. **Approaches and Methods for Assessment**

The Department of Computer Science will utilize a number of methods to assess how well students are meeting the stated learning objectives. These methods will be implemented and integrated vertically into the curriculum to allow full spectrum view of student progress. The CS curriculum is grounded by a lower division three course sequence (CS 10051, CS 23021, and CS 33001). Upon completing CS 33001 there are a number of required core upper division courses. A number of these courses are prerequisites for a new Capstone course. The methods are developed to support analysis throughout the program curriculum. Namely, data is acquired and utilized from early stages of the program (CS 10051 and CS 23021), the middle of the program (CS 33001), and at or near exit (Capstone and Major Field Test).

The methods that will be used for assessment include the following:

- Entrance questionnaire in CS 23021 to assess prerequisite knowledge
- Entrance questionnaire in CS 33001 to assess prerequisite knowledge
- Exit survey in CS 33001 to assess learning objectives
- CS 49901 Capstone Project – The course is an integrative experience that brings together all components of the undergraduate computer science curriculum. This course is a required course for the degree program.
- Exit survey in CS 49901 to assess learning objectives
- Major Field Test

4. **Measures for Assessment**

A number of measures and metrics can be derived from implemented assessment methods, enrollment and graduation data, and student data (i.e., grades and transcripts). Of course it will take nearly a four year period to have a complete set of data per student. The Capstone course is being offered Fall 2004, however there is no questionnaire or survey results for students taking this course, as these assessment methods were not in place the previous years.

The measures that will be used in the first stage of assessment are the following:

- Questionnaire results from CS 23021 and CS 33001
- Survey results from CS 33001 and CS 49901 Capstone
- Student GPAs (in major)
- Major Field Test results

As the duration of the assessment reaches the point where complete data for the degree program is acquired for students (data covering freshman to senior years for specific students) then the following measure and metrics can be examined:

- Capstone experience evaluation
- Correlate questionnaire results with grades and completion
- Correlate survey results with grades and completion
- Correlate questionnaire results with Major Field Test results and Capstone evolution
5. **Results & Findings**
First set of initial findings to be presented in Fall 2005.

6. **Improvement**
Initial improvements will be presented in Fall 2005, however little data will be acquired by that time frame and as such changes to this plan may be premature.