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Introduction
This report presents findings of the department’s 2009-2010 academic year student outcomes assessment activities. The data, on which this report is based, including a breakdown by each dimension of the rubrics used, are available on the shared CSADMIN directory. A few administrative notes on the data collection: Due to scheduling issues two assessment activities (outcomes Gen 3b and IT-1a) were postponed from spring 2009 to fall 2009 to get a larger sample size and are included in this report.

Summary
The overall report is a positive one with all assessments of the outcomes showing student performance at or above expectations. There were, however, three issues found in the analysis of the data that may require further investigation by the Curriculum Committee:

1. While scores on our analysis of written work have always been satisfactory four rubrics: Gen 3a, IT1-b, IT2 and IT3 showed low scores on dimension dealing with documentation. This may indicate a need to take action, as a faculty, to emphasize the need for explanations. The data from prior years have also indicated this as one of our weaker points. In the spring term a committee looked at this issue and made recommendations for changes to 1250, 1260 and 2020, and requested additional data be gathered next term.

2. The exit interview indicates that one third of the students did not feel they received the skills in management and accounting that are listed in the IS program’s outcomes. However there were only three responses, so this may not be significant.

3. The results from the Software Engineering course showed issues in understanding the software lifecycle. There were changes made in the course to re-emphasize this material. This outcome should be re-measured in fall of 2010.

4. The results of the departmental exit interview shows that the students who went through the networking course when it was still writing intensive did not feel that they had good skills in network analysis. The students assessed this year under the new syllabus performed well on all dimensions of the networking rubric. This indicates the change was a successful one.
General Outcomes Assessed

Gen 2b via the College Senior Survey and Departmental Exit Interview

2) Each graduate will be able to perform well as a part of society. (ABET e, g, h)
   b) Each graduate will be prepared with the skills necessary to become life-long learners. (ABET h)

The data was collected in the college’s spring 2009 senior survey, and the spring 2010 departmental exit interview. In the college survey there was one question which asked students how much their coursework had developed their lifelong learning skills. On a scale of 1(lowest) to 5 (highest) the average response was 4.3. The spring 2010 departmental exit interview contained three questions related to lifelong learning. Those measuring attitude were very positive, while the question on attending ACM meetings was low. This was probably influenced more by student schedule issue more than anything else. No significant difference was observed on these measures between the three concentrations. These direct and indirect measures indicate that students do perceive the need for lifelong learning.

I can teach myself new technical skills. 2b

![Pie chart showing responses to the question. The majority of students responded with Strongly Agree or Agree.](chart.png)
I have taught myself additional skills outside of class. 2b

- Strongly Agree: 84%
- Agree: 12%
- Neutral: 4%
- Disagree: 0%
- Strongly Disagree: 0%

I frequently attended ACM meetings. 2b

- Strongly Agree: 40%
- Agree: 16%
- Neutral: 16%
- Disagree: 24%
- Strongly Disagree: 4%
Gen 3b in CSCI 3400 Network Fundamentals

3) Each graduate will possess core knowledge of computer fundamentals. (ABET i)
   b) Each graduate will understand computer networks and networking. (ABET i)

The results were collected in two sections of CSCI3400 taught in fall of 2009. Overall results were good with an aggregate of 98% of students meeting or exceeding requirements. None of the dimensions were below 95% meeting or exceeding expectations.
Gen 5a in CSCI 3250 Software Engineering I

5) Each graduate will possess the ability to create computer-based solutions. (ABET c,g)
   a) Each graduate will understand the software life cycle. (ABET c, g)

The results were collected in the two sections of CSCI3250 taught in fall of 2009, and two sections taught in spring 2010. Overall results were not good with an aggregate of 46% of students failing to meeting expectations. Some dimensions were very good, but others pulled down the average.

These dimensions did not meet the minimum expectation: Verifications and Validations Identified, Appropriate Documentation Identified, Documentation Described, Verifications and Validations Described. The information here is at odds with our observations and those of the advisory board that the student can and do implement the software lifecycle. The results need to be analyzed more closely.
Verifications and Validations Identified

- Does Not Meet Expectations: 66%
- Meets Expectations: 15%
- Exceeds Expectations: 19%

Appropriate Documentation Identified

- Does Not Meet Expectations: 66%
- Meets Expectations: 15%
- Exceeds Expectations: 19%
Documentation Described

- Does Not Meet Expectations: 60%
- Meets Expectations: 21%
- Exceeds Expectations: 19%

Verifications and Validations Described

- Does Not Meet Expectations: 67%
- Meets Expectations: 14%
- Exceeds Expectations: 19%
Concerned over this performance the material was reviewed with the students from the fall sections in the follow on Software Engineering II course. Their performance was re-measured with very positive results, with all four of the dimensions of concern showing marked improvement.

The instructors of the software engineering courses are revising the course to re-emphasize these basics. This outcome will be re-assessed in the fall of 2010 to check on the effects of after these changes have been implemented.
Verifications and Validations
Identified SE2

- Does Not Meet Expectations: 25%
- Meets Expectations: 8%
- Exceeds Expectations: 67%

Appropriate Documentation
Identified SE2

- Does Not Meet Expectations: 4%
- Meets Expectations: 8%
- Exceeds Expectations: 88%
Gen 5b in CSCI 2300 Essentials of Information Security

5) Each graduate will possess the ability to create computer-based solutions. (ABET c,g)  
   b) Each graduate will understand how security issues impact his or her solutions. (ABET g)

The results were collected in the one section CSCI 2300 - Essentials of Information Security in the fall of 2009. The results were good with 94% of students meeting or exceeding expectations.

The only dimension of concern is that of password security where expectations were met or exceed by 70% of students
Gen 5b in CSCI4727 Computer Operating Systems
5) Each graduate will possess the ability to create computer-based solutions. (ABET c,g)
   b) Each graduate will understand how security issues impact his or her solutions. (ABET g)

The results were collected in CSCI 4727 Operating Systems in the spring of 2010. The results were good with 93% of students meeting or exceeding expectations overall, and none of the dimensions falling below the threshold values.

Summary
**Gen 5c in CSCI 1260, CSCI 2160 and CSCI 2910**

5) Each graduate will possess the ability to create computer-based solutions. *(ABET c,g)*
   c) Each graduate will be able to use classic and current tools to implement a solution to a given problem. This includes knowledge of two programming languages and mastery of at least one. *(ABET c)*

Since all three courses (CSCI 1260 Intro to Computer Science 2, CSCI 2160 Assembly Language and CSCI 2910 Server Side Programming) use compatible rubrics the data from all 37 students has been aggregated. The individual courses are considered below. Overall results were good with an aggregate of 89% of students meeting or exceeding requirements. The only dimension failing to meet expectations was one of the dimensions for commenting.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does Not Meet Expectations</td>
<td>11%</td>
</tr>
<tr>
<td>Meets Expectations</td>
<td>31%</td>
</tr>
<tr>
<td>Exceeds Expectations</td>
<td>58%</td>
</tr>
</tbody>
</table>

The dimension on module level commenting (1260/2160) / properly commenting (2910) had only 63% of our students met or exceeded expectations. However 83% of students met or exceed the dimension, "Comments to enhance readability." Some research is warranted here.
Gen 5c in CSCI 1260 Intro to Computer Science 2
Had the best results in the commenting dimension, but the worst in the use of constants.

Gen 5c in CSCI 2160 Assembly Language
Had the best results in readability commenting, but the lowest on module level commenting

Gen 5c in CSCI 2910 Server Side Programming
Had the middle values for commenting, but all individual evaluations were either exceeds or does not meet
Concentration Specific Outcomes Assessed

IT-1a in CSCI2910 Server Side Programming

IT-1 Each graduate of the Information Technology Concentration will be able to plan and implement web applications that conform to industrial standards using current tools and technologies. (ABET IT-j, IT-k, IT-m)

   a. Each graduate will be able to design, implement and manage a secure server side web application with broad user interface capabilities. (ABET IT-j, IT-k, IT-m)

The results were collected in the one section of CSCI2910 taught in fall of 2009. Overall results were good with an aggregate of 90% of students meeting or exceeding requirements.

Summary

Three of the dimensions: Database (and other external) connections properly tested at run time, Clean User Interface and Output validates as XHTML compliant, were close to thirty percent of students not meeting expectations and require some investigation.
Database (and other external) connections properly tested at run time

- Exceeds Expectations: 71%
- Does Not Meet Expectations: 29%

Clear user interface

- Exceeds Expectations: 43%
- Meets Expectations: 29%
- Does Not Meet Expectations: 28%
On a positive note the three dimensions dealing with documentation all showed 100% meeting or exceeding expectations.
Objectives Assessed

Advisory Board Review
A team of five members of the advisory board examined one Software Engineering II capstone presentation. In all dimensions, of the rubric, 100% of the students met or exceeded the standards.
College Senior Survey
The data collected in spring 2009 became available in fall 2009. The data indicated a positive attitude among the students towards the curriculum and faculty. The comments were a generally mixed bag with no clear trends emerging. A full breakdown is in the 2008_2009 folder.

Departmental Senior Exit Interview
Of the thirty questions posed only three failed to achieve a 70% positive rating. In all three of these cases no significant difference was found among students in the three concentrations.

I frequently attended ACM meetings.

This was one of three questions designed to gather data on outcome 2b. Since the other two measures: “I can teach myself new technical skills” and “I have taught myself additional skills outside of class”, had over 80% of the responses in the strongly agree category the issue of preparing our students to be lifelong learners does not seem to be an issue. Looking at the commentary the recurring theme for non attendance was overcrowded schedules (work, courses, and family.) It is interesting to note that the CS Majors tended to be the most likely to attend.
I can analyze network performance.

This was one of two questions designed to gather data on outcome 3b regarding networking. The other measure for this outcome: “I can administer a computer network” fared better with 60% of responses being agree or strongly agree, 32% neutral, and 8% disagree or strongly disagree. This indicates that students feel they can use but perhaps not analyze networks. There were some comments with this question, and in the general section that stated that the technical content of the networking course was suffering due to the constraints of it being writing intensive. This question needs to be monitored to see if the change from writing intensive this year leads to a change in the outcome. As expected there was a significant difference between the CS, IS and IT concentrations.

The faculty provided effective advisement on career planning.

This question showed that 28% strongly agree, 32% agree, 32% neutral, 4% disagree, and 4% strongly disagree.
While this question did not yield positive results, it was primarily due to an almost 1/3 rating of neutral. Only 8% of the students reported a negative opinion. Among the CS major's it was an even 3 way split between agree strongly, agree and neutral. However in IT and IS there were more students in the negative. The students were however, were very satisfied on the companion question about their advisement on course selection with 80% agreeing or strongly agreeing. This is an issue the faculty should consider in the 2010-2011 school year.

College Alumni Survey
The college performed an alumni survey in spring 2009, with the data becoming available in fall 2009. However there was only one response from a departmental alumnus. Hence no analysis was performed. It is planned to perform a small more targeted survey in fall of 2010.