

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: S12:

Demonstrate an understanding of the ethical and legal issues for computing professionals and the impact of computing technology in society.

ABET's Related Student Outcomes: (e), (g).

Assessment Committee Members: Gilbert Ndjatou (Chair), Bogong Su, Erh-Wen Hu

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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 the capstone seminar course CS4800. In CS4800, 22, 14, and 11 students respectively took the course and only 4 of them (which represents 4.5%) did have less than adequate abilities.

In Fall 2013, we found 2% with sub-adequate ability and 15% adequate; that leaves 83% more than a adequate and high, which is quite well accomplished.

Fall 2014 gives us a roughly uniform distribution with each of the 4 categories, all values being 25%, varying by plus or minus 3.5%. This reduced state is attributed to lack of enthusiasm in the students but that often reflects a deeper problem (teacher side) or just a compositional problem in terms of student body.

In Spring 2015, we find all students adequate or above but bimodal, with near 50% in the high category because of stronger prior reinforcement of ethics inculcated in the workplace. Those students led discussions and promoted excellent; this is a common theme (a few strongly motivated students benefit any class they are in).

B. Suggestions for Improvement

In Fall 2013, we observe that that knowing ethics conceptually and demonstrating ethical behavior are two nearly distinct goals. By in class discussion and on-the-spot surveys, student knew about ethical rules like not to cheat, plagiarize, or violate copyright but living by such principles is a distinct issue in that many cheat, plagerism is not treated as abhorrent, and copyrights maybe disrespected. A society with ideals that does not live by them is seriously problematic. Suggestion: We need to promote a sense of moral responsibility, to teach students to intrinsically resist committing unacceptable behavior. They need to live the standard, not just be aware of a set of rules and then disregard them. While Spring 2015 shows that the workplace reinforces ethical responsibility, we cannot in a class force job-occupational benefits, nor can we wait till they are on the job (as that is just too late and we would be secretly failing as teachers in that case).

In conclusion, we need to encourage students to genuinely and personally value these legal principles and to do so enough so they adhere to them in daily behavior and life.

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: CS4800, Fall 2013

Data Collected: The homework and weekly quizzes were the context for studying and inculcating an appreciation of the ethics of responsible computer scientists and professionals.

The students had weekly homework assignments of answering questions on the specific topic of the week. The 8 quizzes then tested them in their appreciation thereof.

Method of Collection: Score on the ethics parts of the final exam

Performance Levels	Quiz 1	Quiz 2	Quiz 3	Quiz 4	Quiz 5	Quiz 6	Quiz 7	Quiz 8
Some Ability	9%	5%	0%	0%	0%	5%	0%	0%
Adequate Ability	45%	14%	14%	9%	0%	18%	9%	14%
More than Adequate Ability	41%	32%	32%	41%	23%	45%	50%	59%
High Ability	5%	50%	55%	50%	77%	32%	41%	27%

Observations: Ethics should be emphasized earlier in the curriculum. Our students are respectful and polite but some are not above copying code from each other or the internet. They come from economically depressed neighborhoods where getting a job is a primary goal. Most work in the field while going to school. Some would rather comply with the boss rather than to challenge an invasion of privacy. Or at least they did so before the course. We reviewed many resources linked to from on my web page: <http://cs.wpunj.edu/~najarian/cs480/cs480main.html> and student were encouraged to learn and eventually appreciated the importance of ethical behavior in terms of fairness, an open society, respect of ownership/copyright... The quizzes indicate progress in terms of numerical assessment. They peak at the 5th quiz. The last quiz covered multiple topics due to limited time.

The topics were roughly:

- Overview of Ethics and Ethics for IT Workers and IT Users.
- Computer and Internet Crime.
- Privacy
- Freedom of Expression. Freedom of speech versus censorship in cyberspace.
- Intellectual Property: the implication of copyrights, and patent laws.
- Software Development and Impact of Info. Technology on Productivity and Quality of Life.
- Social Networking.
- ACM Code of Ethics for Computer Scientists and Professionals, IEEE Code of Ethics for Computer Engineers and Professionals, and Ethics of IT Organizations.

The textbook is the most modern but reflects certain opinions and perspectives too strongly. Baase and others provide alternate views and a less corporate-prescriptive analysis. My web pages provide some balance and diversity.

b. Faculty Course Assessment Report : CS4800, Fall 2014

Data Collected: The students essentially taught the ethics part of the course. The students also had some homework assignments of answering questions on the specific topic of the week. Half the final exam was on ethics

Method of Collection: Score on the ethics parts of the final exam

Performance Levels	Frequency	Percentage
Some Ability	4	28.5 %
Adequate Ability	3	21.5 %
More than Adequate Ability	4	28.5 %
High Ability	3	21.5 %

Observations: It takes much time to cover each and every material of ethical sections and students were not much enthusiastic at this part.

c. Faculty Course Assessment Report: CS4800, Spring 2015

Data Collected: Students discussed case studies and answered questions at the end of each chapter as part of in class discussions.

Method of Collection: Scores were based on class participation via direct response to the professor questions and by following up on other student responses. Students were also required to lead discussion of case studies on ethical issues from the text.

Performance Levels	Frequency	Percentage
Some Ability	0	0 %
Adequate Ability	4	36 %
More than Adequate Ability	2	18 %
High Ability	5	46 %

Observations: Several students had a good understanding of ethical issues and consistently led discussions. These students with a stronger ethics backgrounds were typically those that also worked or had previous work experience. This help to provide a realistic and practical application of some of the ethical issues discussed in the text. Further development of the course will include more case studies to emphasize some of the ethical dilemmas that can arise in the workplace. Ethics should be emphasized earlier in the curriculum as it serves as the foundation for the second part of the course on writing a academic style research paper.
