

University of Minnesota Morris Digital Well

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Assessment of Student Learning Reports

Assessment of Student Learning Committee
(Inactive)

Fall 2016

Computer Science Discipline 5-Year Assessment Plan 2016-2021

Computer Science Discipline

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Academic Program: Computer Science

Academic Division: Science and Mathematics

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In the space below, list your Program Student Learning Outcomes (PSLOs):

The computer science program at the University of Minnesota, Morris has Program Level Student Learning Objectives (PLSO's) that fit into the following six broad categories:

- Development of process-level awareness and thinking (2018-2019)
- Development of technical proficiency (2019-2020)
- Development of flexibility in learning habits and tool use (2017-2018)
- Development of skills necessary for group oriented work (2016-2017 (+CSLO collaboration))
- Development of communication skills (2014-2015, 2020-2021 (+CSLO written communication))
- Development of an awareness of ethical considerations. (2015-2016, 2016-2017 (+CSLO ethical reasoning))

Enter Academic Program Name:				
Program Student Learning Outcome(s) to be assessed	How will you measure the outcome?	Where will the data be collected and by whom?	When will the data be collected?	Overlap with CSLOs?*
<p>2016-17 Teamwork (Development of skills necessary for group oriented work)</p> <p>Development of an awareness of ethical considerations.</p>	<p>During the Spring 2017 semester, students in CSCI 3601 (our processes, programming, and languages core class) will carry out a group project of substantial size. The students will work in a variety of small groups in both lab and project settings that simulate the conflicting demands of real-world software development.</p> <p>We will use the AAC&U VALUE rubric for Teamwork to assess our students. There may need to be a combination of self-reported, peer-reported, and direct assessment data for this learning outcome, so figuring out meaningful ways for us to measure and assess teamwork will be essential. We may also use this process to help us guide the students' learning in this area, since it will require us to think about what we really want good team work to look like and how it could possibly be assessed and thought about in a concrete way.</p> <p>Peter Dolan will be contributing student work for the MN VALUE Project for the Ethical Reasoning rubric for external evaluation.</p>			<p>Collaboration</p> <p>Ethical Reasoning</p>
<p>2017-2018 Development of flexibility in learning habits and tool use</p>	<p>During the Fall 2017 semester, students in CSCI 3601 (our processes, programming, and languages core class) will (again) carry out a group project of substantial size. The students begin the term by working through a series of labs, adding a variety of new tools (such as software testing frameworks and collaborative code development tools) to their repertoire as they go.</p> <p>We are looking for students to gain comfort with a variety of tools and apply them in a group project. To assess this for each individual, students will write a short reflection on the use of the tools in the course (about the new tools they are using and how those tools fit into the socio-technical system). What roles can the tool play in their interactions and in the development process? We are hoping to help students develop habits of mind here - learning new tools is useful and good. Students often struggle with accepting the barrage of new tools in the course. This experience helps them be ready for continuing work in industry or academia, where software developers are often expected to learn to use a variety of new tools on their own. We will begin to implement some strategies to help students manage this and gain some flexibility.</p> <p>We will look at the results from the Spring 2017 assessment of team work and seeing if anything should be looked at in that area in the fall offering of CSCI 3601.</p> <p>Similarly, in CSCI 3403 (the practicum part of our computing systems core course), students are learning a large variety of new tools in a short span of time. We will be thinking about how to help students use these courses to build on this learning outcome. Even if we don't assess this learning outcome at this time, we will be looking at ways that the assessment in 3601 is working so that it can be used in the future for 3403.</p>			<p>Technology literacy</p>

<p>2018-2019 Development of process-level awareness and thinking</p>	<p>During the Spring 2019 semester, students in CSCI 3402 (the conceptual part of our computing systems core class) will study issues relating to structuring resources and sub-systems in a computing system.</p> <p>Nic is going to choose a topic or two for the students where there is an assignment that reveals knowledge of processes. An example might be an assignment that reveals some of their knowledge of systems and sub-systems, and how the hierarchical structure of these systems supports complex processes. One possibility would be to look at the memo writing assignment to assess how well students understand the impact of different restrictions or guidelines on the outcome of a designed system. The Therac-25 memo assignment fits nicely, and would also be able to be a way to assess written communication and/or critical thinking (which may help campus-wide assessment efforts too).</p> <p>We will consider whether or not the results from the Fall 2017 3601 assessment on tool use merit changes and re-assessment.</p>	<p>Written communication and/or critical thinking</p>
<p>2019-2020 Development of technical proficiency</p>	<p>During the Fall 2019 semester, students in CSCI 1301 (one of our two choices in the introductory course sequence), students will use a functional programming language, which is likely to be a new experience for all or most of them. We are interested in the level of proficiency that students are able to achieve with support from a beginner friendly tool. We are not expecting mastery-level proficiency, but we are particularly interested in assessing how well the students can accomplish tasks and how well they understand and apply feedback from development tools (the development environment itself, error messages, etc.). We will be looking to measure students' ability to accomplish the tasks in a functional manner and their comfort with abstraction.</p> <p>We will consider whether or not the results from the Spring 2019 assessment on process-level awareness and thinking merit changes and re-assessment.</p>	<p>Technology literacy</p>
<p>2020-2021 Development of communication skills</p>	<p>During the Spring 2021 semester, students in CSCI 4901 (our senior seminar course) will each complete a technical paper and give a presentation on their topic. We will assess the students' papers from this term using a rubric we will develop, based in part on the written communication VALUE rubric, but incorporating ideas of our own about what it means to write a paper for our senior seminar. We will also assess their talks using the oral communication rubric or an adapted form of that rubric.</p> <p>We want to verify that our students are gaining these skills before they complete our program, so we will be looking for upper-milestone level or mastery in these papers and talks. Our course is pass/fail, so the main way that we measure student success is that they pass the course. We think about how well the curriculum supports this success in terms of how many students don't pass or are asked to rewrite portions of their paper or give their talk for a second time. In this case, the value of creating a rubric that explicitly captures what we are looking for will be to help students see and faculty know in a more concrete way what it looks like to be successful in this course.</p>	<p>Written and oral communication</p>

*Your PSLOs need not overlap with CSLOs, but if your PSLO does reinforce or overlap with a CSLO, please report that information.

Please report any other planned assessment for your academic program in the space below:

We are having a bit of an ongoing conversation about how the different PSLOs are addressed in our program (what courses focus on which PSLOs, what level of achievement we are aiming for, how we will know if the course leads to successful completion of the PSLO for the student). We have a working document to hold elements of this conversation and a set of documents for our courses where we discuss learning goals and assessment for each course. We are working on supporting student achievement of these learning outcomes.

We are continuing to work on adding PSLOs and course learning goals to all of our course syllabi so that we can say, explicitly, where in the program our students are picking up these PSLOs.

Just as an update and a reminder to our discipline when we go to write our report - using the ethical reasoning rubric caused us to alter the learning goals for our IS 1091 course to be sure to cover a bit more about ethical frameworks in the teaching of that course. We're not sure if that's "closing the loop", but it does seem to be an example of improving the courses because of something we noticed in the process of carrying out assessment.