

## **SYNOPSIS OF FALL 2015 ASSESSMENT**

Students will apply the scientific method, develop hypotheses, analyze results and draw conclusions.

Fall 2015 Scientific Reasoning assessment involved:  
47 course sections, 818 students, and 30 faculty

### **Methodology of Assessing Institution-level Student Learning Outcomes (ISLOs)**

Program chairs, each responsible for guiding the continuing success of an academic degree program at the college, detailed required coursework within their program where students are introduced to and develop mastery of each ISLO.

Faculty from disciplines and programs across DCC reviewed ISLO requirements and discussed ways that the ISLO is introduced, reinforced, and mastered by students at various levels.

Faculty developed a shared rubric and guidelines for assessing student competency within specified required courses with rating levels: Beginning, Developing, Meeting, and Exceeding.

Participating faculty applied the rubric to student work in fall 2015.

A designated faculty member served as ISLO leader to collect, organize, and analyze data from faculty using the rubric.

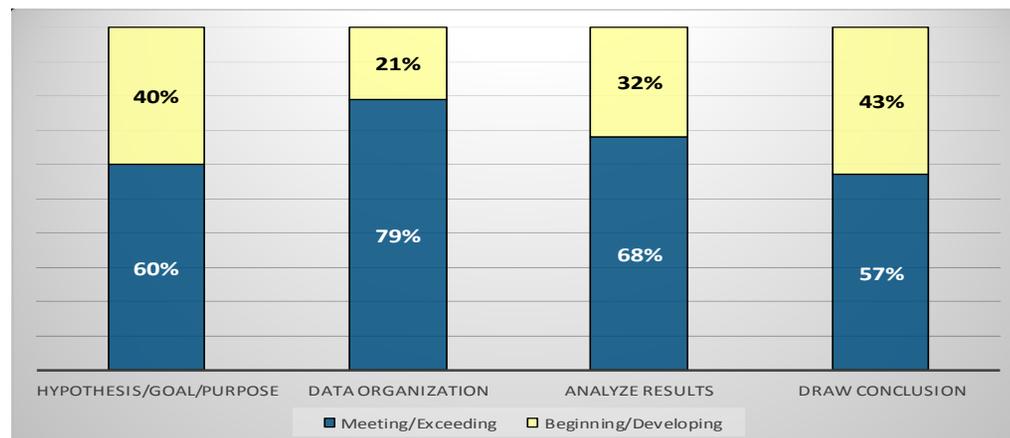
Participating faculty reviewed the results and analysis, and collaborated on final recommendations.

### **Recommendations Based on Assessment of All Six Institution-level Student Learning Outcomes**

- Limit class size to increase student success in achieving and excelling in the institution-level student learning outcomes.
- Provide support and time for faculty to meet across programs/disciplines so that strategies can be developed and implemented that support student success in achieving and excelling in the institution-level student learning outcomes.
- During next assessment cycle, consider (1) norming sessions and/or holistic scoring, (2) capturing information about students who do not persist to semester's end, and (3) analysis that allows comparisons between achievement early and late in college career at DCC.

### **Findings and Conclusions**

The Scientific Reasoning rubric identified four standards to assess for scientific reasoning: hypothesis/goals/purpose, data organization, analyze results, and draw conclusions. The graphic below indicates the percentage of students either meeting or exceeding the standard compared to the percentage of students who either did not meet the standard or at beginning stages of development.



Based on the data, it appears that DCC students' strengths are in their ability to organize data and analyze results. The areas in which DCC students can improve are in their ability to generate a hypothesis/goal/purpose and to draw conclusions. Some methods to strengthen student achievement in these areas may consist of modifying the focus of assignments to better align with the Scientific Reasoning ISLO, creating more post-lab assessments to summarize learning at the end of a lab session, and/or increasing time for faculty to collaborate not only within their department but also across departments.

### **Recommendations Specific to Scientific Reasoning ISLO**

- Add additional time to lab and/or lecture (extending 1hr and 50 minute lab to 3hrs).
- Add recitation sections (1 hr sessions in which scientific inquiry is discussed, time to be spent on linking lab info back to hypothesis/goal/purpose and drawing conclusions).
- Seek out additional space for expansion of labs where currently insufficient lab space is provided as appropriate for the course.
- Add additional equipment/staff/open lab funding to provide more hands-on access for students.
- Continue using the Scientific Reasoning Rubric as a useful tool for articulating the expectations for teaching and learning in science.