

Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

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Office of Institutional Effectiveness and Student Success
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Office of Institutional Effectiveness and Student Success

The purpose of the Office of Institutional Effectiveness and Student Success is to conduct analytical studies and provide information in support of institutional planning, policy formulation, and decision making. In addition, the office provides leadership and support in research-related activities to members of the NOVA community engaged in planning and evaluating the institution's success in accomplishing its mission.

When citing data from this report, the Northern Virginia Community College (NOVA) Office of Institutional Effectiveness and Student Success must be cited as the source.

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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Introduction

In 2017-2018, Northern Virginia Community College (NOVA) implemented course embedded assessment of General Education Core Competencies, which NOVA calls “Core Learning Outcomes.” Prior to 2017-2018, Virginia Community College System (VCCS) required NOVA to assess General Education Core Competencies using standardized assessments chosen by the VCCS. NOVA decided to implement course embedded assessment, a direct measure using students’ actual work or student performance, in 2017-18 based on recommendations from NOVA’s Ad Hoc Committee on General Education Assessment established in Spring 2016 and State Council of Higher Education for Virginia (SCHEV) *Policy on Student Learning Assessment and Quality in Undergraduate Education* adopted in July 2017.¹ SCHEV policy requires that every Virginia public institution of higher education assess six general education competencies at least once in a six-year period. Four core competencies are mandated by SCHEV to be assessed by all institutions: Critical Thinking, Written Communication, Quantitative Literacy, and Civic Engagement. Two additional educational competencies, based upon SCHEV’s guidelines, were to be selected by the institutions themselves. The VCCS selected Professional Readiness and Scientific Literacy as their two additional core competencies.² Therefore, NOVA’s curriculum includes six general education core competencies, called Core Learning Outcomes, that students attain throughout their educational program at NOVA.

The Ad Hoc Committee on General Education Assessment recommended NOVA start course embedded assessment by benchmarking how educational programs and disciplines are currently assessing Core Learning Outcomes (CLOs). Two CLOs, Critical Thinking and Quantitative Literacy, were chosen to be assessed across the curriculum based on best practice.³ In Spring 2018, the College requested associate degree programs, standalone certificates, and disciplines without degrees to assess either Critical Thinking or Quantitative Literacy in a course that aligns with the competency chosen using a common assessment method course-wide. The faculty of each program/discipline determined which Core Learning Outcome (CLO) they would assess for 2017-2018, how they would operationalize the CLO, and a common assessment method. At the end of the planning and evaluation cycle, each program/discipline analyzed and documented the results of the assessment activities. Based on the results, programs/disciplines created actions to seek improvements to assessment and student learning for these Core Learning Outcomes.

The assessment process at NOVA is faculty-driven as per best practice. As Tables 1 and 2 make clear, the planning and evaluation process engages a significant number of teaching faculty, academic deans, and provosts. Table 1 details the Pathway Provosts, Deans, and Program Lead Faculty responsible for compiling their program’s 2017-2018 Core Competency Assessment Report. Table 2 lists Pathway Provosts, Deans, and Discipline Chairs/CLO Contacts responsible for compiling their discipline’s 2017-2018 Core Competency Assessment Report. Such widespread faculty participation is not only in compliance with SACSCOC *Principles of Accreditation*, but is also integral to maintaining a culture of assessment and promoting data-driven decision-making.⁴

¹ State Council of Higher Education for Virginia. *Policy on Learning Assessment and Quality in Undergraduate Education*. Richmond: SCHEV, 2017. Digital.

² Virginia Community College System. "General Education, Section 5.0.2." *Policy Manual*, 2019. Digital.

³ Eggen, Theo and Bernard Veldkamp. "A General Framework for the Validation of Embedded Formative Assessment." *Journal of Educational Measurement* (2019): 1-18. Digital. Gerretson, Helen and Emily Golson. "Introducing and Evaluating Course-Embedded Assessment in General Education." *Assessment Update* 16.6 (2004): 4-6. Digital. Garfalo, Blaine, et al. "The Use of Course Embedded Signature Assignments and Rubrics in Programmatic Assessment." *Academy of Business Journal* 1.1 (2016): 8-20. Digital. Kumar, Rita, et al. "Purposeful Assessment Design: Aligning Course-Embedded Assessment with Program-Level Learning Goals." *Business Education Innovation Journal* 10.1 (2018). Digital.

⁴ Carpenter, Rowanna and Celine Fitzmaurice. "Assessment and Faculty Support: Fostering Collegial Community to Strengthen Professional Practice." *Journal of General Education*. 67.1-2 (2018): 90-108. Digital. Elliott, Robert and Diane Oliver. "Linking Faculty Development to Community College Student Achievement: A Mixed Methods Approach." *Community College Journal of Research and Practice*. 40.2 (2016). Digital. Nat'l Institute for Learning Outcomes Assessment. "What Faculty Unions Say About Student Learning Outcomes Assessment." 2011. Digital.

This report is a compilation of 23 Quantitative Literacy course embedded assessment reports completed in 2017-2018. VCCS Policy: General Education (5.0.2) defines Quantitative Literacy is “the ability to perform accurate calculations, interpret quantitative information, apply and analyze relevant numerical data, and use results to support conclusions. Degree graduates will calculate, interpret, and use numerical and quantitative information in a variety of settings.”⁵ This report presents the varied assessment methods and targets utilized by programs/disciplines, the assessment results and analysis, and the ways in which the results were used to seek improvement as reported in the *Annual Planning and Evaluation Report (APER) for Instructional Programs*. It is one of two Core Competency Assessment Reports completed for the 2017-2018 cycle. The second Core Competency Assessment Report for 2017-2018 is a compilation of the Critical Thinking assessments. Each of these documents provides the CLO assessment reports for degree programs and standalone certificates first, followed by disciplines without degrees, and each section is presented alphabetically by program/discipline name.

⁵ Virginia Community College System. "General Education, Section 5.0.2." *Policy Manual*, 2019. Digital.

Quantitative Literacy
Core Learning Competency Assessment Report: 2017-2018
Submitted by Instructional Programs/ Select Certificates: 2017-2018

Table 1. Program/Certificate Pathway Provost, Deans, and SLO Lead Faculty: 2017-2018 Core Competency Assessed

Pathway Provost & Dean	Program/Certificate	SLO Lead Faculty	Core Competency	
			CT	QL
Business and Hospitality Management, Annette Haggray, AL Ivy Beringer, AL	Accounting, A.A.S.	Rujuta Panchal, LO	X	
	Business Administration, A.S.	Mohammad (Kabir) Jamal, AL		X
	Business Management, A.A.S.	Mohammad (Kabir) Jamal, AL		X
	Contract Management, A.A.S.	Charles Taylor, WO		X
	Hospitality Management, A.A.S.	Jill Guindon-Nasir, AN	X	
	Marketing, A.A.S.	Judy McNamee, AN		X
Education and Public Service, Molly Lynch, MA Evette Hyder-Davis, MA	Administration of Justice, A.A.S.	Jo Ann Short, AN	X	
	Drivers Education Career Studies Certificate	Nicole Mancini, MA	X	
	Early Childhood Development, A.A.S.	Susan Johnson, LO	X	
	Paralegal Studies, A.A.S.	Joyce McMillan, AL	X	
	Social Sciences, A.S. Teacher Educ. Specialization	Ashley Wilkins, MA	X	
	Substance Abuse Rehab. Counselor Certificate	Chandell Miller, AL	X	
Engineering and Applied Technology, Sam Hill, WO Abe Eftekhari, AN	Air Conditioning & Refrigeration, A.A.S.	Martin Kang, WO		X
	Architecture Technology, A.A.S.	Armen Simonian	X	X
	Automotive Technology, A.A.S.	Laura Garcia-Moreyra, AL	X	
	Construction Management Technology, A.A.S.	Siamak Ghorbanian, AL		X
	Engineering, A.S.	Rudy Napisa, AN		X
	Welding: Basic Techniques Career Studies Certificate	Matthew Wayman, MA	X	
General Studies, General Education, Global Studies, AVP Sharon Robertson, AN Barbara Hopkins, AN	General Studies, A.S.		X	X
Health Sciences, Nicole Reaves, ME Shelly Powers, ME	Dental Assisting A.A.S.	Lisbeth Shewmaker, ME	X	
	Dental Hygiene, A.A.S.	Marina McGraw, ME		X
	Diagnostic Medical Sonography, A.A.S.	Leigh Giles-Brown, ME	X	
	Emergency Medical Services, A.A.S.	Gary Sargent, ME		X
	Health Information Management, A.A.S.	Jacqueline Gibbons, ME	X	
	Medical Laboratory Technology, A.A.S.	Maria Torres-Pillot, ME	X	
	Occupational Therapy Assistant, A.A.S.	Megan Cook, ME	X	
	Personal Training Career Studies Certificate	Dahlia Henry-Tett, MA	X	
	Phlebotomy Career Studies Certificate	Maria Torres-Pillot, ME	X	
	Physical Therapist Assistant, A.A.S.	Jody Gundrum, ME	X	

Pathway Provost & Dean	Program/Certificate	SLO Lead Faculty	Core Competency	
			CT	QL
	Radiography, A.A.S.	Jarice Risper, ME	X	
	Respiratory Therapy, A.A.S.	Donna Oliver-Freeman, ME		X
	Veterinary Technology, A.A.S.	Tregel Cockburn, LO	X	
Information and Engineering Technologies, Chad Knights, AN Paula Ford (Interim), WO	Cybersecurity, A.A.S.	Margret Leary, AL	X	
	Engineering Technology, A.A.S.	Rudy Napisa, AN		X
	Information Technology, A.S.	Moses Niwe, AL		X
	Information Systems Technology, A.A.S.	Moses Niwe, AL		X
Languages, Pamela Hilbert, AN Jennifer Daniels, AN	American Sign Language to Eng. Interpretation	Paula Reece, AN	X	
	Professional Writing Certificate	Jennifer Nardacci, AN	X	
Life Sciences, Julie Leidig, LO, Diane Mucci, MA	Biotechnology, A.A.S.	Xin Zhou, MA	X	
	Horticulture Technology, A.A.S.	Anders Vidstrand, LO	X	
Liberal Arts and Communications, Pamela Hilbert, AN Jimmie McClellan, AL	Liberal Arts, A.A.			X
Mathematics and Computer Science, Sam Hill, WO Alison Thimblin, WO	Computer Science, A.S.	Larry Shannon, AN	X	
Nursing and Surgical Technologies, Nicole Reaves, ME, Marsha Atkins, ME	Nursing, A.A.S.	Brenda Clark, ME	X	
Physical Sciences, Julie Leidig, LO, Barbara Canfield, LO	Science, A.S.	Mary Vander Maten, AN		X
Social Sciences, Molly Lynch, MA, Katherine Hitchcock, LO	Public History & Historic Preservation Career Studies Certificate	Marc Dluger, LO	X	
	Social Sciences, A.S.		X	X
	Social Sciences, A.S. Geospatial Specialization	Michael Harman, LO	X	
Visual, Performing and Media Arts, Annette Haggray, AL, David Epstein, WO	Fine Arts, A.A., Photography Specialization	Gail Rebhan, WO	X	
	Graphic Design, A.A.S.	Dwayne Treadway, LO		X
	Interior Design, A.A.S.	Kristine Winner, LO		X
	Music, A.A., A.A.A. Specialization	Lisa Eckstein, AL	X	
	Music Recording Technology Certificate	Sanjay Mishra, LO	X	
	Photography and Media, A.A.S.	Aya Takashima, AL	X	
	Visual Art, A.F.A. (Fine Arts, A.A. in 2017-2018)	Fred Markham, AL	X	

Quantitative Literacy
Core Learning Competency Assessment Report: 2017-2018
Submitted by Disciplines without Degrees or Certificates

Table 2. Discipline Pathway Provosts, Deans, and Department Chairs/CLO Contact: 2017-2018 Report

Pathway Provost & Dean	Discipline	Faculty Department Chair	Core Competency	
			CT	QL
Life Sciences: Julie Leidig, LO, Diane Mucci, MA	Biology ⁶	Karla Henthorn, AN	X	
Physical Sciences: Julie Leidig, LO, Barbara Canfield, LO	Chemistry	Pirabalini Swaminathan (Chair), AN and Katherine Burton, AL: SLO/CLO Contact		X
	Geology	William Bour, LO		X
	Physics	Tatiana Stantcheva (Chair), AL and Francesca Viale, LO: SLOs/CLO Contact	X	
Social Sciences: Molly Lynch, MA, Katherine Hitchcock, LO	Economics	Kiet Quach, AN	X	
	Geography*	Melinda Alexander, AL	-	
	History	Tom Rushford, AN	X	
	Political Science ⁷	Jack Lechelt, AL		
	Psychology*	Assessment Committee: Deanna DeGidio, AN, Chair and Karen Livesey, AN; Joan Passino, AN	-	
	Sociology	Virginia D'Antonio, WO and SLOs: Nicole Hindert, AL	X	
Mathematics and Computer Science: Sam Hill, WO, Alison Thimblin, WO	Mathematics	Martin Bredeck, AL		X
Languages: Pamela Hilbert, AN Jennifer Daniels, AN	English	Chris Kervina, AN	X	
	World Languages ⁸ Arabic Chinese French German Italian Japanese Korean Latin Russian Spanish	Martha Davis, AL	-	
Molly Lynch, MA and Ellen Fancher-Ruiz, AN	SDV	Margarita Martinez, AN	X	

* Report not received.

⁶ Assessed Scientific Literacy, as well as Critical Thinking.

⁷ Piloted Civic Engagement assessment.

⁸ Assessed Written Communication, instead of Critical Thinking.

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BUSINESS ADMINISTRATION, A.S.....	4
BUSINESS MANAGEMENT, A.A.S.....	5
CONSTRUCTION MANAGEMENT TECHNOLOGY, A.A.S.....	6
CONTRACT MANAGEMENT, A.A.S.....	7
DENTAL HYGIENE, A.A.S.....	9
EMERGENCY MEDICAL SERVICES, A.A.S.....	10
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Program and Select Certificates
Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018
Air Conditioning and Refrigeration, A.A.S.

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.

Program Purpose Statement: This curriculum is designed to prepare students for jobs in the air conditioning and refrigeration field. The second year provides students with skills that lead to leadership positions in the HVACR industry. Occupational objectives include industry licensing, advanced critical thinking skills and state tradesman licenses in HVACR.

Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																														
<p>Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will demonstrate Quantitative Literacy skills calculating superheat and sub-cooling.</p> <p>[X] QL</p>	<p>Principle of Refrigeration AIR121</p> <p>Direct Measure: Students were assessed at final exam.</p> <p>Assessment scale is 0 - 100% - Pass or Fail. Questions: 67. Calculating Superheat. 68. Calculating Sub-cooling.</p> <p>Sample Size (Write N/A where not offered).</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #d3d3d3;">Campus/Modality</th> <th style="background-color: #d3d3d3;">Total # Sections Offered</th> <th style="background-color: #d3d3d3;"># Sections Assessed</th> <th style="background-color: #d3d3d3;"># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>WO only</td> <td>6</td> <td>2</td> <td>22</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td style="background-color: #d3d3d3;">Total</td> <td style="background-color: #d3d3d3;">6</td> <td style="background-color: #d3d3d3;">2</td> <td style="background-color: #d3d3d3;">22</td> </tr> </tbody> </table> <p>*Dual-enrollment</p>	Campus/Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed	WO only	6	2	22	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	6	2	22	<p>Semester/year data collected: Fall 2017 - 1 of 4 sections (WO Campus only) total 10 students that took the Final Exam. Spring 2018 -1 of 2 sections (WO Campus only) total 12 students that took the Final Exam.</p> <p>Target: students will score 80% or higher overall on each criterion as well as the overall score.</p> <p>Results by CLO:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2" style="background-color: #d3d3d3;">AIR 238</th> </tr> <tr> <th style="background-color: #d3d3d3;">Question</th> <th style="background-color: #d3d3d3;">2017-2018</th> </tr> </thead> <tbody> <tr> <td>Q 67</td> <td>86.36%</td> </tr> <tr> <td>Q 68</td> <td>81.81%</td> </tr> <tr> <td style="background-color: #d3d3d3;">Total</td> <td style="background-color: #d3d3d3;">84.09%</td> </tr> </tbody> </table> <p>Results: Overall SLO score average 84.09%. Target SLO score average 80%. Comparison to previous results: The target score was met. Compared to previous results: The scores are very different than previous semesters. Target score was exceeded for both questions. Superheat and Sub-cooling are extremely important subjects for the student to manage in the Field of HVAC.</p> <p>Strengths: The instructor has made the effort to convey the importance of the topic and students have understood and use Quantitative Literacy to solve the questions.</p> <p>An improvement for next year will be to ask the same questions in a fill in the blank instead of the multiple choice format.</p>	AIR 238		Question	2017-2018	Q 67	86.36%	Q 68	81.81%	Total	84.09%	<p>Previous action(s) to improve CLO if applicable: N/A</p> <p>Target Met: Yes</p> <p>Based on recent results, areas needing improvement:</p> <p>Current actions to improve CLO based on the results: The Program Head is collecting Final Exams to get better data sample for next year's report.</p> <p>Next assessment of this CLO: To continue with Quantitative Literacy, there is a better class. Will need to get better data for next years' report.</p>
Campus/Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed																														
WO only	6	2	22																														
Online	N/A	N/A	N/A																														
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Architecture Technology, A.A.S.

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Program Purpose Statement: The Architecture curriculum is designed to prepare students for employment. The graduates will find employment in the field of architecture, construction, and urban design utilizing their construction knowledge, graphic communication and problem solving skills. Students must see their architecture advisor to satisfy individual goals.																																																																																					
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																																																		
<p>Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will be able to describe how buildings are constructed.</p> <p>[X] CT [X] QL</p>	<p>Architectural Design and Graphics I & II ARC 231 and ARC 232</p> <p>Direct Measure: Measured by evaluation of projects produced in our capstone course. Projects were evaluated in 4 areas for each SLO on a scale from 1-4. 1=not demonstrated, 2= marginally demonstrated, 3=well demonstrated, 4=very well demonstrated. See attached Capstone Course Evaluation forms.</p> <ol style="list-style-type: none"> a. Project demonstrates the students' ability to research building materials and methods. b. Project demonstrates the students' ability to assemble building components. c. Project demonstrates the students' ability to design construction details. d. Project demonstrates the students' ability to graphically communicate construction systems. <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Campus/Modality</th> <th># of Total Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>AL only</td> <td>1</td> <td>1</td> <td>5</td> </tr> <tr> <td>AN only</td> <td>1</td> <td>1</td> <td>6</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Total</td> <td>2</td> <td>2</td> <td>11</td> </tr> </tbody> </table> <p>*Dual-enrollment</p>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	AL only	1	1	5	AN only	1	1	6	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	2	2	11	<p>Semester/year data collected: Fall 2017 and Spring 2018</p> <p>Total of 24 projects were evaluated in December 2017 and May 2018 by two teams, one for each campus, including seven Faculty and Professional Architects and Engineers. The Project evaluation team rated the projects which presented 3.10 for SLO 7 on a scale of 1-4.</p> <p>Target: The Architecture Cluster has agreed that a target of 2.5 is acceptable for each of the SLOs with an ultimate goal of 3.0</p> <p>Results by In-Class, Online, Dual Enrollment (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Spring 2018</th> <th colspan="2">Spring 2016</th> </tr> <tr> <th>Average Score</th> <th>Percent \geq Target</th> <th>Average Score</th> <th>Percent \geq Target</th> </tr> </thead> <tbody> <tr> <td>AL</td> <td>2.50</td> <td>100</td> <td>2.57</td> <td>102.8</td> </tr> <tr> <td>AN</td> <td>3.71</td> <td>148.4</td> <td>3.46</td> <td>138.4</td> </tr> <tr> <td>Total</td> <td>3.1</td> <td></td> <td>3.0</td> <td></td> </tr> </tbody> </table> <p>Offered only at AL and AN</p> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by CLO Criteria/Question Topics</th> <th colspan="2">Spring 2018</th> <th colspan="2">Spring 2016</th> </tr> <tr> <th>Average Score</th> <th>% of Students \geq Target</th> <th>Average Score</th> <th>% of Students \geq Target</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>3.00</td> <td>50</td> <td>3.05</td> <td>50</td> </tr> <tr> <td>b</td> <td>3.14</td> <td>67</td> <td>2.97</td> <td>63</td> </tr> <tr> <td>c</td> <td>3.08</td> <td>75</td> <td>2.84</td> <td>69</td> </tr> <tr> <td>d</td> <td>3.19</td> <td>83</td> <td>3.19</td> <td>83</td> </tr> <tr> <td>Total</td> <td>3.10</td> <td>68.75</td> <td>3.01</td> <td>66.25</td> </tr> </tbody> </table> <p>Current results improved: [X] Yes [] No [] Partially</p>	Results by Campus/Modality	Spring 2018		Spring 2016		Average Score	Percent \geq Target	Average Score	Percent \geq Target	AL	2.50	100	2.57	102.8	AN	3.71	148.4	3.46	138.4	Total	3.1		3.0		Results by CLO Criteria/Question Topics	Spring 2018		Spring 2016		Average Score	% of Students \geq Target	Average Score	% of Students \geq Target	a	3.00	50	3.05	50	b	3.14	67	2.97	63	c	3.08	75	2.84	69	d	3.19	83	3.19	83	Total	3.10	68.75	3.01	66.25	<p>This SLO has not been evaluated in 2016-17. Score of 3.10 is slightly higher than last evaluation (2016) score of 3.02. AN has shown a higher score than AL when breaking down our SLOs to evaluate specific criteria and gain more detailed evaluation. We (Architecture Faculty) can now concentrate on the areas that need the most improvement.</p> <p>We have taken into consideration the advice of the Architecture Curriculum Advisory Committee. By measuring the SLOs through evaluation of the capstone courses, the evaluation includes all other relevant courses, thereby making the evaluation comprehensive and efficient.</p> <p>Target Met: [X] Yes [] No [] Partially</p> <p>Based on the recent results, areas needing improvement: The result is above ultimate goal of 3.0. Though the target has been exceeded, we will continue to make the courses more challenging and also marketable as per recommendations of the Architecture Curriculum Advisory Committee members.</p> <p>Next assessment of this CLO: May 2020.</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Business Administration, A.S.

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.																																																																																												
Program Purpose Statement: The Associate of Science degree curriculum in Business Administration is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in Business Administration with a major in Accounting, Business Management, Decision Science and Management, Information Systems, Finance, Marketing, etc.																																																																																												
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<p>Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: No rubric provided</p> <p>Students will be able to calculate the basic impact of marginal cost for the production of goods in a capitalist system.</p> <p>[x] QL</p>	<p>Principles of Micro Economics ECON 202</p> <p>Direct Measure: Calculate the average total, fixed and marginal costs for a "competitive" firm given a certain production cost schedule.</p> <ol style="list-style-type: none"> 1. determining the efficient level of output 2. calculating output based on market price 3. calculating total profit <p>No rubric provided</p> <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Campus/Modality</th> <th>Total # Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr><td>AL</td><td>5</td><td>0</td><td>0</td></tr> <tr><td>AN</td><td>15</td><td>2</td><td>39</td></tr> <tr><td>MA</td><td>9</td><td>0</td><td>0</td></tr> <tr><td>LO</td><td>10</td><td>1</td><td>21</td></tr> <tr><td>ME</td><td>N/A</td><td>N/A</td><td>N/A</td></tr> <tr><td>WO</td><td>7</td><td>1</td><td>16</td></tr> <tr><td>Online</td><td>N/A</td><td>N/A</td><td>N/A</td></tr> <tr><td>DE*</td><td>N/A</td><td>N/A</td><td>N/A</td></tr> <tr><td>Total</td><td>46</td><td>4</td><td>76</td></tr> </tbody> </table> <p>*Dual-enrollment</p> <p>Data not parsed by A.S. or A.A.S. Program</p>	Campus/Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed	AL	5	0	0	AN	15	2	39	MA	9	0	0	LO	10	1	21	ME	N/A	N/A	N/A	WO	7	1	16	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	46	4	76	<p>Data collected: Spring 2018</p> <p>Target: 65% of students will score 65% or higher overall and on each criterion.</p> <p>Results by In-Class, Online, Dual Enrollment (Specify N/A where not offered):</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Campus/Modality</th> <th colspan="2">Results Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>Percent \geq 65</th> </tr> </thead> <tbody> <tr><td>AL</td><td>DNR</td><td>DNR</td></tr> <tr><td>AN</td><td>74.07</td><td>66.67</td></tr> <tr><td>MA</td><td>DNR</td><td>DNR</td></tr> <tr><td>ME</td><td>N/A</td><td>N/A</td></tr> <tr><td>LO</td><td>42.86</td><td>38.10</td></tr> <tr><td>WO</td><td>62.5</td><td>68.75</td></tr> <tr><td>Online</td><td>DNR</td><td>DNR</td></tr> <tr><td>DE</td><td>N/A</td><td>N/A</td></tr> <tr><td>Total</td><td>68.04</td><td>59.21</td></tr> </tbody> </table> <p>DNR: Did Not Report Data</p> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Question/Topics</th> <th colspan="2">Results Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>% Students \geq Target</th> </tr> </thead> <tbody> <tr><td>1.</td><td>82.66</td><td>65.79</td></tr> <tr><td>2.</td><td>54.96</td><td>53.95</td></tr> <tr><td>3.</td><td>53.44</td><td>51.32</td></tr> <tr><td>Total</td><td>68.04</td><td>65.79</td></tr> </tbody> </table> <p>Current results improved: [] Yes [] No [] Partially [x] NA (First time assessed)</p> <p>Strengths by Question: Students were strongest on question 1 which required that they fill out the table and understand the concept of efficiency.</p> <p>Weaknesses by Question: The students were weak at understanding marginal cost as related to marginal revenue and projecting profits based on total cost and total revenue.</p>	Campus/Modality	Results Spring 2018		Average Score	Percent \geq 65	AL	DNR	DNR	AN	74.07	66.67	MA	DNR	DNR	ME	N/A	N/A	LO	42.86	38.10	WO	62.5	68.75	Online	DNR	DNR	DE	N/A	N/A	Total	68.04	59.21	Question/Topics	Results Spring 2018		Average Score	% Students \geq Target	1.	82.66	65.79	2.	54.96	53.95	3.	53.44	51.32	Total	68.04	65.79	<p>Previous action(s) to improve CLO if applicable: First time assessment</p> <p>Target Met: [] Yes [] No [x] Partially</p> <p>Based on recent results, areas needing improvement: The students were weak at understanding marginal cost as related to marginal revenue and projecting profits based on total cost and total revenue. Two of the campuses and Online did not report results.</p> <p>Current actions to improve CLO based on the results: These results (and the failure to report) were communicated to the SLO lead, the discipline, the pathway dean, and the pathway provost and remedies were discussed at the Business and Accounting Pathway Council meeting in Fall 2018. The pathway dean and provost will follow up by speaking with their peers from other disciplines and Online to develop a college-wide system to ensure Online results are included in future assessments. The SLO lead will raise the issue again with the pathway dean at the January 2019 college-wide discipline meeting.</p> <p>Next assessment of this CLO: The curriculum committee for the program has an agenda item to revisit, rewrite and reschedule the curriculum map during their next meeting.</p>
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Business Management, A.A.S.

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<p>Program Purpose Statement: The Associate of Applied Science degree curriculum in Business Management is designed for persons who seek employment in business management or for those presently in management who are seeking promotion. The occupational objectives include administrative assistant, management trainee, department head, branch manager, office manager, manager of small business, and supervisor.</p>																																																																																								
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Two of the campuses and Online did not report results. The students assessed were not parsed based on their placement in either the A.S or A.A.S. programs. ECON 202 is an alternative course for the A.A.S. students, so we cannot be certain that the overall results are a sample representative of the population.</p> <p>Current actions to improve CLO based on the results: These results (and the failure to report) will be communicated to the SLO lead for the discipline and the appropriate deans for follow up. To ensure that students are exposed to the topics of marginal cost/marginal revenue and total cost/total revenue, the discipline will discuss means to include these topics in other courses within the curriculum. This discussion will take place at the college-wide discipline meeting in January 2019. The next time this SLO is assessed, ECON 202 will be the chosen course for the A.S. program and ECON 120 will be used to assess the A.A.S. program. In addition, the Economics department will be given better instructions regarding the need to parse students by program placement.</p> <p>Next assessment of this CLO: The curriculum committee for the program has an agenda item to revisit, rewrite and reschedule the curriculum map during their next meeting.</p>
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Construction Management Technology, A.A.S.

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Program Purpose Statement: The curriculum is designed to qualify personnel in both engineering technology and management for employment in all areas of a construction firm. Occupational objectives include engineering aide, construction project manager, construction supervisor, estimator, and facilities planning and supervision.

Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																										
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: SLO 2 which measures mathematically the areas, sizes and quantities of a typical building system (i.e. Masonry System)</p> <p>[X] QL</p>	<p>Direct Measure: A sample building layout containing Masonry walls are issued to the students.</p> <ul style="list-style-type: none"> Students' abilities to survey and calculate and quantify of materials used in the masonry system is measured. Students' use of unit prices and price extension to arrive at the total estimated cost of that masonry system is assessed. <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Campus/Modality</th> <th style="text-align: center;"># of Total Sections Offered</th> <th style="text-align: center;"># Sections Assessed</th> <th style="text-align: center;"># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>AL only</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">9</td> </tr> <tr> <td>Online</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>DE*</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">9</td> </tr> </tbody> </table> <p>*Dual-enrollment</p>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	AL only	1	1	9	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	1	1	9	<p>Semester/year data collected: Fall 2017</p> <ul style="list-style-type: none"> 1 section offered /year, method introduced Fall 2017 Data collected, Fall 2017 <p>Target: Student average score is minimum of 75%</p> <p>Average score:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Campus/Modality</th> <th colspan="2" style="text-align: center;">Assessment Results Fall 2017</th> </tr> <tr> <th style="text-align: center;">Average Score</th> <th style="text-align: center;">Percent \geq Target</th> </tr> </thead> <tbody> <tr> <td>AL only</td> <td style="text-align: center;">78</td> <td style="text-align: center;">84</td> </tr> </tbody> </table> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Results by CLO Criteria/ Question Topics</th> <th colspan="2" style="text-align: center;">Assessment Results: Fall 2017</th> </tr> <tr> <th style="text-align: center;">Average Score</th> <th style="text-align: center;">% Students \geq Target</th> </tr> </thead> <tbody> <tr> <td>1. Quantify material</td> <td style="text-align: center;">75</td> <td style="text-align: center;">81</td> </tr> <tr> <td>2. Calculate Units & Price</td> <td style="text-align: center;">81</td> <td style="text-align: center;">84</td> </tr> <tr> <td>Total</td> <td></td> <td></td> </tr> </tbody> </table> <p>Current results improved: [X] Yes [] No [] Partially</p> <p>Strengths: Students' strength generally is in System Identification.</p> <p>Weaknesses: quantifying the material applied.</p>	Campus/Modality	Assessment Results Fall 2017		Average Score	Percent \geq Target	AL only	78	84	Results by CLO Criteria/ Question Topics	Assessment Results: Fall 2017		Average Score	% Students \geq Target	1. Quantify material	75	81	2. Calculate Units & Price	81	84	Total			<p>Previously this CLO was not assessed.</p> <p>Target Met: [X] Yes [] No [] Partially</p> <p>Based on recent results, Students in general need improvement in Geometry more than Arithmetic as indicated by the SLO 2 assessment.</p> <p>Currently Program revision is proposed to require MTH course completion prior to BLD 231 so they are better prepared quantitatively. Revision will be reviewed and implemented Fall 2019.</p> <p>Next assessment: Fall 2019</p>
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Contract Management, A.A.S.

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<p>Program Purpose Statement: This program is designed for individuals who plan to seek employment in contract management positions and for those presently in contract management positions who seek career advancement. The program is designed to create opportunities for positions in contract management for both government agencies and private industry. Instruction includes both the theoretical concepts and the practical applications needed for future success in the contract management field. This will provide a greater understanding of acquisition, life cycle management, and contracting processes. Occupational objectives include project manager, procurement analyst, contract administrator, contract specialist, contract negotiator, contract price analyst, and contract termination specialist.</p>																																																
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<p>Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will be able to recognize and apply fundamental contracting techniques by utilizing the basic Federal contracting processes: cost estimation procedures, requirement determinations, and characteristics of best value analysis.</p> <p>[x] QL</p>	<p>Cost and Price Analysis and Negotiation Techniques CON 217</p> <p>Direct Measure: The assignment to the students was to prepare a major acquisition plan that focuses on independent government estimates, strategies for conducting cost and price analysis, and determining best value. This assignment also required the students to understand labor mix, material mix and indirect cost to assist with the development of a cost estimate. In addition, it focused on principles of contract administration, cost effectively managing government contracts, creating effective work flows, maintaining accurate contract documentation, applying performance matrix, creating change control tools, and mitigating risk to the government. Information needed to establish an effective evaluation criterion, as well as conduct a best value analysis.</p> <p>The evaluation method utilized by the Contract Management was the Direct Evaluation Method to assess the SLO. The program rubric utilized 6 criteria:</p> <ol style="list-style-type: none"> 1. Identify the seven fundamentals federal contracting processes. 2. Analyze customer requirement determinations. 3. Define federal cost estimation procedures. 4. Analyze direct material & direct labor requirements in order to develop cost estimate. 5. Analyze requirements in order to develop an effective federal contracting evaluation criteria 	<p>Data collected: Spring 2018</p> <p>Target: 80% of the students should score 3 or higher.</p> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Criteria</th> <th style="text-align: center;">4</th> <th style="text-align: center;">3</th> <th style="text-align: center;">2</th> <th style="text-align: center;">1</th> <th style="text-align: center;">% of Students</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">8</td> <td style="text-align: center;">3</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> <td style="text-align: center;">92%</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">10</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> <td style="text-align: center;">92%</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">75%</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">6</td> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">75%</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">8</td> <td style="text-align: center;">3</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> <td style="text-align: center;">92%</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">75%</td> </tr> </tbody> </table> <p>Overall: 83% of students achieved 90% Target of 3 or higher in each category</p> <p>Describe the results: The rubric above clearly demonstrates that the students in the Contract Management Program are grasping understanding of basic Federal contracting processes: (2) Analyzing customer requirement determinations, and (5) and developing evaluation criteria. However, the students were weakest and did not meet the target in the following advanced areas of applying federal contracting process SLO criteria: (3) Defining cost estimation procedures, (4) Analyze direct material and labor requirements to develop a cost estimate, and (6) Identify the quantitative and qualitative methods for determining best value. Criteria 6 showed some improvement, going from a benchmark score of 61% to 75%.</p> <p>Comparison of previous assessment:</p>				Criteria	4	3	2	1	% of Students	1	8	3	0	1	92%	2	10	1	0	1	92%	3	6	3	2	1	75%	4	6	3	2	1	75%	5	8	3	0	1	92%	6	4	5	2	1	75%	<p>Previous actions to improve CLO: To improve the learning outcomes from Fall 2017 and Spring 2018, the Contract Management Program placed a greater emphasis on fundamentals of cost and price analysis in CON 170.</p> <p>Instructors implemented the following to further develop the student's skills:</p> <ul style="list-style-type: none"> • Provided students with additional research material that targets the identified areas of labor, material, indirect costs, and requirements determination (Spring 2018). • Introduced cost accounting concepts in 100-level courses (i.e. Con 100 and CON 170 courses) cost and pricing assignments. • Emphasis was placed on the identified areas regarding the Fundamentals of Cost and Price Analysis (CON 170) course (Spring 2018). • Additional assignments were given to focus on the identified areas: requirements determination, evaluation criteria, best value analysis and cost and price analysis (Spring 2018). <p>Most recent results: Following the 2017 and 2018 SLO, the Contract Management Program established a target of 80% or a score of 3 or better. Based on the evaluation, criteria 1, 2, and 3 were met. Overall the program achieved 83% or a score of 3 or higher. However, students did not achieve the target in the more advanced areas of cost estimating, best value analysis and requirements determination. Based on the results, students were weakest and did not meet the target in the following criteria: (4) Analyze direct material and labor requirements to develop a cost estimate, (5) Analyze requirements to develop an effective federal</p>
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Contract Management, A.A.S.

<p>6. Identify the quantitative and qualitative methods for determining best value.</p> <p>Performance levels are as follows:</p> <ul style="list-style-type: none"> • 4 - Exemplary • 3 - Good/Solid • 2 - Acceptable • 1 - Unacceptable <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Campus/ Modality</th> <th style="padding: 5px;">Total # Sections Offered</th> <th style="padding: 5px;"># Sections Assessed</th> <th style="padding: 5px;"># Students Assessed</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">WO only</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">12</td> </tr> <tr> <td style="padding: 5px;">Online</td> <td style="padding: 5px;">N/A</td> <td style="padding: 5px;">N/A</td> <td style="padding: 5px;">N/A</td> </tr> <tr> <td style="padding: 5px;">DE*</td> <td style="padding: 5px;">N/A</td> <td style="padding: 5px;">N/A</td> <td style="padding: 5px;">N/A</td> </tr> <tr> <td style="padding: 5px;">Total</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">12</td> </tr> </tbody> </table> <p>*Dual-enrollment</p>	Campus/ Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed	WO only	1	1	12	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	1	1	12	<p>The students achieved an overall 83% (the established benchmark) for the 2016 and 2017 SLOs. Students in 2017 and 2018 achieved an overall 83%. Students performed above the 92% level in the basic concepts of fundamental contract processes, analysis of requirements and developing and analyzing evaluation criteria (criteria 1, 2, and 5) with significant improvement in criteria 5 (70% to 92%) and criteria 6 (61% to 75%). The only area that dropped in performance was criteria 3 (93% to 75%).</p> <p>Next assessment: Spring 2018</p>	<p>contracting evaluation criteria, and (6) Identify the quantitative and qualitative methods for determining best value. Criteria 6 is the weakest at 61%. It should also be noted that the CMP has changed the format on the assignments this year to better reflect the issues that a Contracting Professional will face while performing his/her duties.</p> <p>Achievement of targets: The Contract Management Program established a target of 83% or a score of 3 or better. Based on the evaluation criteria 1, 2, and 5 were met. Overall the program achieved 83% or a score of 3 or higher. However, students did not achieve the target in the more advanced areas of cost estimating, best value analysis and requirements determination. Based on the results, students were weakest and did not meet the target in the following criteria: (3) Define cost estimation procedures, (4) Analyze direct material and labor requirements to develop a cost estimate, and</p> <p>(6) Identify the quantitative and qualitative methods for determining best value. Criteria 6 remains weak, even though students improved from 61% to 75%.</p> <p>Current action to improve SLO: To improve the learning outcomes, the Contract Management Program instructors will take the following steps:</p> <ul style="list-style-type: none"> • Provide students will additional research material in CON 100 that targets the identified areas of labor, material, and indirect costs (Spring 2018). • Introduce quantitative methods in 100 level courses cost and pricing assignments. • Emphasis will be placed on the identified areas of cost estimation and quantitative methods regarding the Fundamentals of Cost and Price Analysis course, CON 170 (Fall 2018). • Additional assignments that focus on the identified areas requirements determination, evaluation criteria, best value analysis and cost and price analysis (Spring 2018).
Campus/ Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed																			
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 *Dental Hygiene, A.A.S.*

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.																																														
Program Purpose Statement: The program is designed to prepare students to serve in a dynamic and growing health profession as members of the dental health team. After successful completion of the program, the student will be eligible to take the National Board Dental Hygiene Examination and professional licensure examinations. Upon successful completion of the licensing process, the title "Registered Dental Hygienist" (R.D.H.) is awarded.																																														
Core Learning Outcome	Evaluation Methods	Assessment Results		Use of Results																																										
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: A comparative analysis using appropriate statistics, graphs and charts, and accurate labeling and explanation of graphs. Includes determination of success of reaching program goals. [X] QL</p>	<p>Dental Public Health II DNH 227</p> <p>Direct Measure: Program Development Project Evaluation: Includes a comparative analysis using appropriate statistics, graphs and charts, and accurate labeling and explanation of graphs. Includes determination of success of reaching program goals.</p> <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Campus/Modality</th> <th># of Total Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>ME only</td> <td>1</td> <td>1</td> <td>31</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr style="font-weight: bold;"> <td>Total</td> <td>1</td> <td>1</td> <td>31</td> </tr> </tbody> </table> <p><small>*Dual-enrollment</small></p>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	ME only	1	1	31	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	1	1	31	<p>Semester/year data collected: Spring 2018</p> <p>Target: 80% of students to achieve 75% or higher</p> <p>Results by In-Class, Online, Dual Enrollment</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Spring 2018</th> <th colspan="2">Spring 2016</th> </tr> <tr> <th>Average Score</th> <th>Percent ≥ Target</th> <th>Average Score</th> <th>Percent ≥ Target</th> </tr> </thead> <tbody> <tr> <td>ME</td> <td>93.7</td> <td>100</td> <td>92.2</td> <td>100</td> </tr> </tbody> </table> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by CLO Criteria/ Question Topics</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>AVG Score</th> <th>% of Students ≥ Target</th> </tr> </thead> <tbody> <tr> <td>Program Development Project</td> <td>94.5</td> <td>92.8</td> </tr> </tbody> </table> <p>Current results improved: [X] Yes [] No [] Partially</p> <p>Strengths by Criterion/ Question/Topic: The results show that the students understand how to interpret the statistical analysis and how that can be used to demonstrate the success of a community health program.</p> <p>Weaknesses by Criterion/ Question/Topic: Rubric is being revised to further break down into components to better identify strengths and weaknesses.</p>		Results by Campus/Modality	Spring 2018		Spring 2016		Average Score	Percent ≥ Target	Average Score	Percent ≥ Target	ME	93.7	100	92.2	100	Results by CLO Criteria/ Question Topics	Spring 2018		AVG Score	% of Students ≥ Target	Program Development Project	94.5	92.8	<p>Previous action(s) to improve CLO if applicable: N/A</p> <p>Target Met: [X] Yes [] No [] Partially</p> <p>Based on recent results, areas needing improvement: No significant weaknesses were noted so no suggestions for improvement are being made at this time.</p> <p>Current actions to improve CLO based on the results: This Rubric is being revised for Spring 2020.</p> <p>Next assessment of this CLO: Fall 2020</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Emergency Medical Services, A.A.S.

<p>NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.</p>																																																										
<p>Program Purpose Statement: The curriculum is designed to develop the competencies needed to prepare the student to take and successfully pass the Virginia certification exams for Emergency Medical Technician-Basic (EMT-B), Emergency Medical Technician-Intermediate (EMT-I), and/or Paramedic. EMT-Basic certification is foundational to all other EMS certifications. This means that all EMS providers must successfully complete EMT-Basic certification in order to continue on to any other level of certification. While the EMT-Intermediate and Paramedic curricula introduce “advanced” competencies to the students, they are—in essence—a more in-depth continuation of the competencies introduced and mastered in the EMT-Basic curriculum. Competencies at each level of certification are demonstrated via State and/or National examinations that include both cognitive (“written”) and psychomotor (“practical”) components</p>																																																										
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																							
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: The EMS Advanced Life Support Student will demonstrate competent affective behavior related to emergency medical care, as measured by the Northern Virginia Community College EMS Program Affective Behavior Assessment tool. [x] QL</p>	<p>Students from the following advanced life support level EMS sections were assessed:</p> <ul style="list-style-type: none"> • 151: Introduction to Advanced Life Support • 201: Professional Development • 207: Advanced Patient Assessment • 205: Advanced Pathophysiology <p>Direct Measure: Assessments were completed by faculty based upon direct student observation as well as any applicable peer reported incidents occurring during the relevant term. Faculty were assigned students based on the student’s primary ALS class level. The affective behavior assessment tool utilized was developed, in part, from information gained from the Joint Review Committee on Educational Programs for the EMT-Paramedic and incorporates eleven relevant affective domain topic areas that directly reflect content from the roles and responsibilities portion of our national paramedic level curriculum.</p> <p>Accompanying each topic area were expectations to guide faculty in appropriate scoring. Faculty were advised to assign scores based on behavioral patterns and not on remote atypical occurrences.</p> <p><u>Scoring:</u> Each of the eleven topic areas were scored via a Likert scale of 0-2:</p> <ul style="list-style-type: none"> • 2 = Competent 	<p>Data collected: Spring 2018 The assessments were conducted by all full-time faculty members.</p> <p>Target: ≥ 80% of all students assessed will achieve ≥ 80% (> 1.6 points) for each of the eleven topic areas.</p> <p>Results by In-Class, Online, Dual Enrollment:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Spring 2018</th> <th colspan="2">Previous Assessment Results</th> </tr> <tr> <th>Average Score</th> <th>Percent ≥ 80%</th> <th>Average Score</th> <th>Percent >Target</th> </tr> </thead> <tbody> <tr> <td>ME</td> <td style="text-align: center;">89.1%</td> <td style="text-align: center;">81.6%</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> </tbody> </table> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Results by Individual CLO Criteria/Question Topics</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>% of all students ≥ 80% (1.6 points)</th> </tr> </thead> <tbody> <tr><td>1</td><td style="text-align: center;">95.9% (1.9 points)</td><td style="text-align: center;">91.8% (44/49)</td></tr> <tr><td>2</td><td style="text-align: center;">88.8% (1.8 points)</td><td style="text-align: center;">77.6% (38/49)</td></tr> <tr><td>3</td><td style="text-align: center;">83.7% (1.7 points)</td><td style="text-align: center;">69.4% (34/49)</td></tr> <tr><td>4</td><td style="text-align: center;">98.0% (1.9 points)</td><td style="text-align: center;">95.9% (47/49)</td></tr> <tr><td>5</td><td style="text-align: center;">73.5% (1.5 points)</td><td style="text-align: center;">51.0% (25/49)</td></tr> <tr><td>6</td><td style="text-align: center;">83.7% (1.7 points)</td><td style="text-align: center;">69.4% (34/49)</td></tr> <tr><td>7</td><td style="text-align: center;">91.8% (1.8 points)</td><td style="text-align: center;">83.7% (41/49)</td></tr> <tr><td>8</td><td style="text-align: center;">95.9% (1.9 points)</td><td style="text-align: center;">91.8% (45/49)</td></tr> <tr><td>9</td><td style="text-align: center;">98.9% (1.9 points)</td><td style="text-align: center;">98.0% (48/49)</td></tr> <tr><td>10</td><td style="text-align: center;">91.8% (1.8 points)</td><td style="text-align: center;">83.7% (42/49)</td></tr> <tr><td>11</td><td style="text-align: center;">83.7% (1.7 points)</td><td style="text-align: center;">85.7% (42/49)</td></tr> <tr> <td>Totals</td> <td style="text-align: center;">89.1% (19.6/22)</td> <td style="text-align: center;">81.6% (440/539)</td> </tr> </tbody> </table>	Results by Campus/Modality	Spring 2018		Previous Assessment Results		Average Score	Percent ≥ 80%	Average Score	Percent >Target	ME	89.1%	81.6%	N/A	N/A	Results by Individual CLO Criteria/Question Topics	Spring 2018		Average Score	% of all students ≥ 80% (1.6 points)	1	95.9% (1.9 points)	91.8% (44/49)	2	88.8% (1.8 points)	77.6% (38/49)	3	83.7% (1.7 points)	69.4% (34/49)	4	98.0% (1.9 points)	95.9% (47/49)	5	73.5% (1.5 points)	51.0% (25/49)	6	83.7% (1.7 points)	69.4% (34/49)	7	91.8% (1.8 points)	83.7% (41/49)	8	95.9% (1.9 points)	91.8% (45/49)	9	98.9% (1.9 points)	98.0% (48/49)	10	91.8% (1.8 points)	83.7% (42/49)	11	83.7% (1.7 points)	85.7% (42/49)	Totals	89.1% (19.6/22)	81.6% (440/539)	<p>Previous action(s) to improve CLO if applicable: This is the first time assessing this CLO.</p> <p>Target Met: [] Yes [] No [x] Partially</p> <p>Based on recent results, areas needing improvement: This was our program’s first assessment of this CLO. It was noted that several areas (empathy, self-motivation, self-confidence, and communications) did not meet our ascribed target and will need to be addressed via the below prescribed action plan. It is believed that one reason for our not achieving our target specifically in the self-confidence topic area is likely related to the low scores received by students in our initial ALS classes who are just starting the advanced portion of the program and thus would expectedly have less self-confidence than their seasoned 200-paramedic level peers.</p> <p>Current action(s) to improve CLO, based on results: Starting with the Fall 2018 term all faculty will ensure that whenever a student’s affect (regarding any of the sub-target regions) begins to trend in a declining fashion, we will attempt to reverse the trend via a formal one on one meeting with the student to actively discuss the areas of potential concern.</p>
Results by Campus/Modality	Spring 2018			Previous Assessment Results																																																						
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Emergency Medical Services, A.A.S.

- 1 = Needs Improvement
- 0 = Not yet Competent

Assessment Tool Topics
1. INTEGRITY
2. EMPATHY
3. SELF- MOTIVATION
4. APPEARANCE and PERSONAL HYGIENE
5. SELF-CONFIDENCE
6. COMMUNICATIONS
7. TIME- MANAGEMENT
8. TEAMWORK AND DIPLOMACY
9. RESPECT
10. PATIENT ADVOCACY
11. CAREFUL DELIVERY OF SERVICE

Note: Expectations from the assessment tool topics is saved as attachment.

Sample Size (Write N/A where not offered):

Campus/ Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed
ME only	4	4	49
Online	N/A	N/A	N/A
DE*	N/A	N/A	N/A
Total	4	4	49

* Dual Enrollment

Current results improved: N/A - This is the first term that this CLO has been assessed and will serve as the benchmark for future assessments.

Strengths by Criterion/ Question/Topic: Our assessment results showed several regions that achieved or surpassed our target range. These areas included:

- 1-Integrity
- 4-Appearance & Personal Hygiene
- 7-Time Management
- 8-Teamwork and Diplomacy
- 9 –Respect
- 10-Patient Advocacy
- 11-Careful Delivery of Service

Weaknesses by Criterion/ Question/Topic: Our target score was not met in the following topic areas:

- 2- Empathy
- 3- Self Motivation
- 5- Self-Confidence
- 6- Communications

Also beginning with the Fall 2018 term the faculty will work with each student in order to determine if internal or external causative factors are at play. Utilizing this knowledge, the student and faculty member will collaborate to develop individualized strategies to assist the student. These could include program or college resources or the assigning of a fellow student as a peer mentor. The above prescribed collaborative faculty/student strategizing sessions will be documented (when legally/ethically permissible and adhering to all college policies) within our behavioral assessment tool. These processes are to be enacted by all program faculty starting Fall 2018.

Next assessment of this CLO: Fall 2018

Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 Engineering, A.S.

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.																																																													
Program Purpose Statement: The curriculum is designed to prepare the student to transfer into a baccalaureate degree program in engineering fields such as mechanical engineering, civil engineering, chemical engineering, aeronautical engineering, and naval architecture/marine engineering.																																																													
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																										
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Student will apply and demonstrate engineering problem solving methodology.</p> <p>[X] QL</p>	<p>Solid Mechanics – Statics EGR 240</p> <p>Direct Measure: Problem Solving Tests in EGR 240. See attached method.</p> <p>SLO Question 1 Part A: Defining vectors of forces in 3D Part B: Solving the problem using simultaneous equations of 3 unknowns and 3 equations.</p> <p>SLO Question 2 Solving 3 questions of vector cross product</p> <p>Sample Size (Specify N/A when not offered):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Campus/Modality</th> <th>Total # Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>AL</td> <td>1</td> <td>1</td> <td>35</td> </tr> <tr> <td>AN</td> <td>2</td> <td>**</td> <td>-</td> </tr> <tr> <td>MA</td> <td>2</td> <td>2</td> <td>27</td> </tr> <tr> <td>ME</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>LO</td> <td>1</td> <td>1</td> <td>11</td> </tr> <tr> <td>WO</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Total</td> <td>6</td> <td>4</td> <td>73</td> </tr> </tbody> </table> <p>*Dual Enrollment</p>	Campus/Modality	Total # Sections Offered	# Sections Assessed	# Students Assessed	AL	1	1	35	AN	2	**	-	MA	2	2	27	ME	N/A	N/A	N/A	LO	1	1	11	WO	N/A	N/A	N/A	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	Total	6	4	73	<p>Semester/year data collected: Spring 2018</p> <p>Target: Minimum acceptable success rate: 60%</p> <p>Success rate - % of students who scored 60% or above on their completed test questions.</p> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Results by CLO Criteria/ Question Topics</th> <th>Spring 2018</th> <th>Fall 2017</th> </tr> </thead> <tbody> <tr> <td>SLO Question 1 Part A</td> <td>54%</td> <td>60%</td> </tr> <tr> <td>SLO Question 1 Part B</td> <td>42%</td> <td>45%</td> </tr> <tr> <td>SLO Question 2 One Problem</td> <td>93%</td> <td>39%</td> </tr> <tr> <td>Two Problems</td> <td>73%</td> <td>42%</td> </tr> <tr> <td>Three Problems</td> <td>79%</td> <td>51%</td> </tr> </tbody> </table> <p>Current results improved: [] Yes [] No [X] Partially</p> <p>Strengths by Criterion/ Question/Topic: SLO Question 2 met the minimum acceptable success rate.</p> <p>Weaknesses by Criterion/ Question/Topic: SLO Question 1 failed to meet the minimum acceptable success rate.</p>	Results by CLO Criteria/ Question Topics	Spring 2018	Fall 2017	SLO Question 1 Part A	54%	60%	SLO Question 1 Part B	42%	45%	SLO Question 2 One Problem	93%	39%	Two Problems	73%	42%	Three Problems	79%	51%	<p>Previous action(s) to improve CLO if applicable: SLO Question 1: Engineering Mechanics instructors include additional exercises in viewing mechanics illustrations in order to properly identify vectors. Provide students additional practice problems in solving three equations simultaneously.</p> <p>SLO Question 2: Engineering Mechanics instructors will continue to provide additional mechanics problems in solving force couple system problems using Vector cross product.</p> <p>Target Met: [] Yes [] No [X] Partially</p> <p>Based on recent results, areas needing improvement: Students need to improve their ability: a) To define the vectors of forces in 3D; b) Solve simultaneous equation problems with 3 equations and 3 unknowns.</p> <p>Current actions to improve CLO based on the results: This is the first time that this SLO was used to determine core learning; however, the program has been tracking the student's ability in solving engineering problems and their Quantitative Literacy skills as an SLO before. Engineering Mechanics instructors include additional lectures which include exercises in viewing mechanics illustrations, extract the required information to develop the vectors. Providing these additional lectures in defining vectors from mechanics' problem illustrations, will identify whether the students' difficulty in completing the problem occurs in defining the vector equations as opposed to the solving the equations simultaneously.</p> <p>Further, to the extent possible, identify the students' math skills and their challenges in solving simultaneous equations. Additionally, provide students several practice exercises in solving three equations simultaneously.</p> <p>Continue prior recommendations: Engineering Mechanics instructors will provide additional mechanics problems in solving force couple system problems using Vector cross product. These recommendations though focused on engineering mechanics also address the student's Quantitative Literacy skills in solving complex problems. This recommendation will be implemented in Spring 2019.</p> <p>Engineering Discipline Dean and the Engineering Discipline Group will be responsible for the implementation of the recommendations.</p> <p>Next assessment: Fall 2018</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Engineering Technology, A.A.S.

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.																																											
Program Purpose Statement: This curriculum is designed to prepare students for employment in Civil Engineering, Mechanical Engineering, or Drafting Technology fields. The degree also prepares individuals to continue their education in advanced degrees for programs in these fields.																																											
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<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings. Operationalization: Students will be able to synthesize their knowledge of the fundamentals and practices of engineering technology.</p> <p>[X] QL</p>	<p>Automated Manufacturing Technology MEC 118</p> <p>Direct Measure: MEC 118 Final Examination. The final examination consisted of two questions: CNC Lathe and CNC Mill (rubric is attached)</p> <p>Sample Size (Specify N/A when not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Campus/Modality</th> <th rowspan="2">Total # Sections Offered</th> <th rowspan="2"># Sections Assessed</th> <th colspan="2">Students Assessed</th> </tr> <tr> <th>#</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>AN only</td> <td>1</td> <td>1</td> <td>12</td> <td>100</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr style="font-weight: bold;"> <td>Total</td> <td>1</td> <td>1</td> <td>12</td> <td>100</td> </tr> </tbody> </table> <p>*Dual Enrollment</p>	Campus/Modality	Total # Sections Offered	# Sections Assessed	Students Assessed		#	%	AN only	1	1	12	100	Online	N/A	N/A	N/A	N/A	DE*	N/A	N/A	N/A	N/A	Total	1	1	12	100	<p>Semester/year data collected: Spring 2018</p> <p>Target: Minimum acceptable success rate: 75%</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Spring 2018</th> <th>Spring 2016</th> </tr> </thead> <tbody> <tr> <td>No. of Students:</td> <td>12</td> <td>10</td> </tr> <tr> <td>Success rate: CNC Lathe</td> <td>93%</td> <td>60%</td> </tr> <tr> <td>Success rate: CNC Mill</td> <td>73%</td> <td>60%</td> </tr> </tbody> </table> <p>Current results improved: [X] Yes [] No [] Partially</p> <p>Strengths by Criterion/Question/Topic: Question 1- CNC Lathe question showed improvements and met the target.</p> <p>Weaknesses by Criterion/Question/Topic: Question 2 - CNC Mill question showed improvements; however, it did not meet the target.</p>		Spring 2018	Spring 2016	No. of Students:	12	10	Success rate: CNC Lathe	93%	60%	Success rate: CNC Mill	73%	60%	<p>Previous action(s) to improve CLO if applicable: This is the first time that the assessment focused on Quantitative Literacy. The activities of the course allow the students to combine their knowledge and experience acquired from the other Engineering Technology courses to create a part using Computer Numerical Control (CNC) machines (lathe and mill).</p> <p>The Fall 2016 recommendation stated in the report, the MEC 118 instructor emphasized the applications and benefits of using canned cycle codes to complete machining tasks in both lathe and mill is applicable to this outcome.</p> <p>Target Met: [X] Yes [] No [] Partially</p> <p>Based on recent results, areas needing improvement: The CNC mill still needs additional lectures. The complexity of working with the three axes and couple with the machines speed and feed when producing a part will need additional examples.</p> <p>It is recommended to continue the prior recommendation to emphasize the applications and benefits of using canned cycle codes to complete machining tasks in both lathe and mill. This will facilitate the creation of parts with a simpler set of machining instructions. The MEC 118 instructor will be responsible to implement the recommendation.</p> <p>Current actions to improve CLO based on the results: To improve the ability to synthesize their knowledge of the fundamentals and practices of engineering technology, instructors in their prior courses in Computer Aided Drafting and Design (CAD) course discussed the use of geometric coordinates beyond the traditional design and drawing applications. This initiative was implemented in Spring 2019. By providing this information, students will be able to use their CAD skills to solve various engineering applications using the existing numerical data base created in CAD and apply them in other engineering applications, i.e. machining, manufacturing and assembly, thus allowing them to synthesize their knowledge of the fundamentals and practices of engineering technology. This recommendation will be implemented in Spring 2020 or the next course offering.</p> <p>Next assessment of this CLO: The degree program which includes this course was restructured and its specializations discontinued. MEC 118 is not part of the new degree program.</p>	
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 General Studies, A.S.

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Program Purpose Statement: This program is a flexible associate degree. For students who plan to transfer, the degree can parallel the first two years of a four-year bachelor of science program if they choose courses that match the transfer institution's requirements. For those students who do not plan to transfer, the degree allows them to structure a program to suit their needs using accumulated credits from a variety of formal and experiential sources.

Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																																																															
<p>Quantitative Literacy</p> <p>Students will use numerical values to perform various calculations and draw reasonable conclusion.</p> <p>Operationalization: Students will use graphical methods to organize and interpret data.</p> <p>[x] QL</p>	<p>General Chemistry I & II CHM 111 and 112</p> <p>Direct Measure: Lab Report (pilot)</p> <p>Rubric Criteria - QL Rubric for Lab assignment: Five criteria presented on the Quantitative Literacy (QL) Rubric:</p> <p>I. Interprets Quantitatively: Explains the numerical information presented in mathematical forms (equations, formulas, graphs, diagrams and tables).</p> <p>II. Presents quantitatively: Converts the given information into mathematical forms such as tables, graphs, diagrams, and equations.</p> <p>III. Analyzes thoughtfully: Draws relevant conclusions from provided information and data, and predicts future trends.</p> <p>IV. Communicates qualitatively and persuasively: uses quantitative evidence to support the argument or purpose of the work (what evidence is used, how it is formatted and contextualized).</p> <p>V. Problem solving: Sets up a numerical problem and calculates the solution correctly</p> <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Campus/Modality</th> <th># of Total Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr><td>AL</td><td>10</td><td>1</td><td>23</td></tr> <tr><td>AN</td><td>18</td><td>1</td><td>25</td></tr> <tr><td>MA</td><td>8</td><td>3</td><td>52</td></tr> <tr><td>ME</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>LO</td><td>23</td><td>8</td><td>128</td></tr> <tr><td>WO</td><td>8</td><td>0</td><td>0</td></tr> <tr><td>Online</td><td>1</td><td>1</td><td>18</td></tr> <tr><td>DE*</td><td>8</td><td>8</td><td>78</td></tr> <tr><td>Total</td><td>76</td><td>22</td><td>324</td></tr> </tbody> </table>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	AL	10	1	23	AN	18	1	25	MA	8	3	52	ME	0	0	0	LO	23	8	128	WO	8	0	0	Online	1	1	18	DE*	8	8	78	Total	76	22	324	<p>Semester/year data collected: Spring 2018</p> <p>Target: The average score of students participating will be 70%. For itemized criteria, 70% of students will correctly answer each item.</p> <p>Results by In-Class, Online, and Dual Enrollment (Specify N/A where not offered):</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>% Earned</th> </tr> </thead> <tbody> <tr><td>AL</td><td>16.8</td><td>84.1</td></tr> <tr><td>AN</td><td>14.7</td><td>73.4</td></tr> <tr><td>MA</td><td>17.9</td><td>89.6</td></tr> <tr><td>ME</td><td>N/A</td><td>N/A</td></tr> <tr><td>LO</td><td>14.2</td><td>71.1</td></tr> <tr><td>WO</td><td>DNR</td><td>DNR</td></tr> <tr><td>Online</td><td>16.8</td><td>84.0</td></tr> <tr><td>DE*</td><td>15.6</td><td>78.0</td></tr> <tr><td>Total AVG</td><td>14.8</td><td>74</td></tr> </tbody> </table> <p>DNR= Did Not Report Data</p> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">Results by CLO Criteria/ Question Topics</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>% Earned on Questions</th> </tr> </thead> <tbody> <tr><td>I.</td><td>2.9</td><td>72.5</td></tr> <tr><td>II.</td><td>3.0</td><td>75.0</td></tr> <tr><td>III.</td><td>3.0</td><td>75.0</td></tr> <tr><td>IV.</td><td>3.0</td><td>75.0</td></tr> <tr><td>V.</td><td>2.9</td><td>72.5</td></tr> <tr><td>Total</td><td>3.0</td><td>74</td></tr> </tbody> </table> <p>Current results improved: [X] Yes [] No [X] Partially</p> <p>Four out of the five campuses offering in-person Chemistry courses contributed data for this report, in addition to Online and DE courses. Although the</p>	Results by Campus/Modality	Spring 2018		Average Score	% Earned	AL	16.8	84.1	AN	14.7	73.4	MA	17.9	89.6	ME	N/A	N/A	LO	14.2	71.1	WO	DNR	DNR	Online	16.8	84.0	DE*	15.6	78.0	Total AVG	14.8	74	Results by CLO Criteria/ Question Topics	Spring 2018		Average Score	% Earned on Questions	I.	2.9	72.5	II.	3.0	75.0	III.	3.0	75.0	IV.	3.0	75.0	V.	2.9	72.5	Total	3.0	74	<p>Previous action(s) to improve SLO: This was the second round of assessing the QL objectives. In the January 2018 cluster meeting, the discipline group discussed the previous assessment and ways to improve the faculty participation and the Core Learning Outcomes. There were some questions regarding interpreting the rubric that seemed to be the reason for insufficient faculty participation. After the meeting, on January 05, an informative follow up email was sent to the cluster to allow enough time to plan for the semester.</p> <p>The following changes were assumed:</p> <ul style="list-style-type: none"> • To improve the consistency of the assessments and hence the results, two laboratory experiments were selected and shared with the faculty to use for the evaluation. • To increase the students' Core Learning Outcomes, a handout with guidelines regarding analysis of data, thinking quantitatively, and writing analytically was developed and shared with the discipline to distribute among all students on all campuses. This was to ensure that all students have access to the same • information prior to their analytical writing and interpretation of data. • To maintain standardization of the collected data, a table for collecting information was developed and shared with the Assistant Deans. <p>Target Met: [X] Yes [] No [] Partially</p>
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General Studies, A.S.

	<p>*Dual-enrollment</p> <p>Assessment Results' Calculation: Average Score: Total Points in all courses ÷ Total Number of Students</p> <p>Maximum points available = 20 points #(15.2/20)x100=76% and (16.7/20)x100=84%</p>	<p>larger sample of students evaluated resulted in lower score in each criterion, the results for this assessment are considered more meaningful compared to Fall 2017. In spite of the overall decrease in the average, the targeted values for the evaluation were met by each campus and on each criterion.</p> <p>There was very little to no variations in the average score among criterion, which indicates students' overall preparation. Furthermore, students met the targeted goal for each item.</p> <p>Strengths by Criterion/ Question/Topic: Three of the criteria, "Presents quantitatively," "Analyzes thoughtfully," and "Communicates qualitatively and persuasively" were scored equally high.</p> <p>"Interprets Quantitatively" and "problem solving" were among the weaknesses of the students evaluated. Both of these criteria are math related and more students find these types of assessments challenging. This may improve by addition of some kind of math related activity to the curriculum during the first few weeks of school.</p>	<p>All campuses met and some exceeded the targeted value. WO did not participate in the assessment, and only one course from each of AL and AN participated. Compared to Fall 2017, the number courses participating increased from 10% to 29% participation in Spring 2018. The number of students participating in this assessment increased by over 200% compared to Fall 2017. Moreover, Online and DE courses have participated close to 100%.</p> <p>Future results may be improved by the addition of a lab activity at the beginning of the semester to familiarize students with some of the mathematical manipulation and graphical analysis that they would encounter throughout the course.</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Graphic Design, A.A.S.

<p>NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.</p>															
<p>Program Purpose Statement: Program Purpose Statement: The curriculum is designed for persons who seek full-time employment in the graphic design field. The occupational objectives include graphic and/or interactive designer in the graphic design marketplace.</p>															
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results												
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students were given a project in which the learning outcome was to represent mathematical information numerically, symbolically, and visually, using graphs and charts for a product brochure or presentation</p> <p>[X] QL</p>	<p>Graphic Design II ART 218</p> <p>Direct Measure: In Spring 2018, students were asked to design and develop an informational graphics project for ART 218. Students were given a project in which the learning outcome was to represent mathematical information numerically, symbolically, and visually, using graphs and charts for a product brochure or presentation. An assessment rubric is attached.</p> <p>The range for each sub-category score was as follows:</p> <ul style="list-style-type: none"> • Excellent – 5 • Good – 4 • Average – 3 • Poor— 2 <p>Sample: Number of Sections – One section in total was evaluated on the AL campus. No dual enrollment or Online courses are offered and are not part of this assessment. Total sample: 14</p>	<p>Semester/year data collected: Spring 2018</p> <p>Target: To have more students above the Average level, which would be in the 75% range = C.</p> <p>Results by SLO Criteria:</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Summary of Outcomes</th> <th style="text-align: center;">Spring 2018</th> </tr> </thead> <tbody> <tr> <td>Part 1: Investigation and research (1-5 pts)</td> <td style="text-align: center;">4.86 (97.3%)</td> </tr> <tr> <td>Part 2: Interpretation and Concept formulation (1-5 pts)</td> <td style="text-align: center;">4.82 (96.4%)</td> </tr> <tr> <td>Part 3: Mathematical Visualization Proficiency (1-5 pts)</td> <td style="text-align: center;">4.64 (92.7%)</td> </tr> <tr> <td>Part 4: Final infographic execution which captures the concluding stage of the process (1-10 pts)</td> <td style="text-align: center;">9.09 (90.9%)</td> </tr> <tr> <td>Overall (25 pts)</td> <td style="text-align: center;">23.41 Avg. (93.6%)</td> </tr> </tbody> </table> <p>Target Met: [X] Yes [] No [] Partially For this assessment all of students were at or above the average. The class assessed had a high degree of success for the project.</p> <p>We exceed our goal yet there is room for growth and understanding in the area of data visualization and informational graphics for both print and web / interactive applications. This was an exceptional high-achieving group of students.</p>	Summary of Outcomes	Spring 2018	Part 1: Investigation and research (1-5 pts)	4.86 (97.3%)	Part 2: Interpretation and Concept formulation (1-5 pts)	4.82 (96.4%)	Part 3: Mathematical Visualization Proficiency (1-5 pts)	4.64 (92.7%)	Part 4: Final infographic execution which captures the concluding stage of the process (1-10 pts)	9.09 (90.9%)	Overall (25 pts)	23.41 Avg. (93.6%)	<p>Previous action(s) to improve SLO: This Quantitative Literacy SLO is new and was implemented in the Spring of 2018 semester. Based on SCHEV and SACSCOC recommendations, assessment of General Education competencies was to rely primarily on direct measures, actual student work or student performance (course embedded assessments), similar to current SLO assessment methods. The Graphic Design Program chose the SLO that incorporated representing Quantitative Literacy visually as it closely relates to our field.</p> <p>Target Met: [X] Yes [] No [] Partially</p> <p>Current actions to improve based on recent results, areas needing improvement: Spring 2018 - From the results of this study, student results were excellent and met expectations. Design skills combined with Quantitative Literacy were evident, and students gained knowledge in producing informational graphics.</p> <p>ACTIONS TO BE TAKEN: Further strengthen students' abilities to represent mathematical information numerically, symbolically, and visually, using graphs and charts in relevant projects. Using informational graphics in annual reports or editorial designs should be considered. Teach graphing tools within Adobe Creative Suite Illustrator software. These actions are to be considered and adopted over the next few academic years to build expertise in this area.</p> <p>Next assessment of this SLO: Spring 2020</p>
Summary of Outcomes	Spring 2018														
Part 1: Investigation and research (1-5 pts)	4.86 (97.3%)														
Part 2: Interpretation and Concept formulation (1-5 pts)	4.82 (96.4%)														
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Information Systems Technology, A.A.S.

<p>NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.</p>													
<p>A.A.S. in Information Technology Program Purpose Statement: This curriculum is designed for those who seek employment in the field of information technology, for those who are presently in that field and who desire to increase their knowledge and update their skills, and for those who must augment their abilities in other fields with knowledge and skills in information technology.</p>													
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results										
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Five categories of QL problems: 1. Binary to Decimal Conversion 2. Hexadecimal to Decimal 3. Decimal to Binary 4. Hexadecimal to Binary 5. Two's Complement Notation [x] QL</p>	<p>PC Hardware and Operating System Architecture ITE 221 Direct Measure: The ITE 221 Core Learning Outcome Quantitative Literacy Assessment was a timed and proctored assessment. Students had 30-minutes in which to complete the assessment. Students with a documented Memorandum of Accommodation granting additional time for in-class assessments could take the assessment in the local campus Testing Center.</p> <p>Students could only use a simple four-function calculator. Students were not allowed to use any other type of calculator including, but not be limited to, advanced graphing calculators, smart phone calculators, internet-based calculators, operating system calculator utilities, etc. Instructors were required to verify the calculator being used by each student before the assessment.</p> <p>There were five categories of Quantitative Literacy problems, which made up the ITE 221 CLO Assessment. This was a paper-based assessment and not a computer-based assessment. Instructors were required to select one problem from each category:</p> <ol style="list-style-type: none"> 1. Binary-to-Decimal Conversion 2. Hexadecimal-to-Decimal Conversion 3. Decimal-to-Binary Conversion 4. Hexadecimal-to-Binary Conversion 5. Two's Complement Notation <p>Data collection – Results were provided by faculty of 10 sections received from Alexandria, Loudoun, Annandale Manassas and Woodbridge campuses. Online courses did not report. A separate Excel spreadsheet was used to record the results of the assessment. Instructors were required to provide the date of the report, their campus, the course section, and their name. Students remained anonymous, only identified as Student 1, Student 2, etc.</p> <p>Sample: Of these 10 reporting sections, a total of 253 students were assessed.</p>	<p>Semester/year data collected: Spring 2018 Target – Students should answer questions with a 70% accuracy rate. This is consistent with CompTIA exam standards.</p> <p>Results:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">CLO Grade</th> <th style="text-align: center;">PERCENTAGE OF STUDENTS RECEIVING GRADE – Spring 2018</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A (90-100)</td> <td style="text-align: center;">24.11%</td> </tr> <tr> <td style="text-align: center;">B (80-89)</td> <td style="text-align: center;">15.02%</td> </tr> <tr> <td style="text-align: center;">C (70-79)</td> <td style="text-align: center;">10.67%</td> </tr> <tr> <td style="text-align: center;">C or Better</td> <td style="text-align: center;">49.8%</td> </tr> </tbody> </table> <p>Students demonstrated an accuracy rate of 43.66% with the questions. Largely, this was due to the short answer nature of the exam, as compared to what are higher rates of success with multiple-choice answers.</p> <p>Due to the new project, we do not have past assessments to compare results.</p>	CLO Grade	PERCENTAGE OF STUDENTS RECEIVING GRADE – Spring 2018	A (90-100)	24.11%	B (80-89)	15.02%	C (70-79)	10.67%	C or Better	49.8%	<p>Spring 2018 results of this assessment revealed significant issues with this topic</p> <p>Actions for improvement: Because all instructors do not teach the above concepts the exact same way, a somewhat subjective grading rubric was used for evaluating the “correctness” of a student’s solution. It is proposed to require Online sections to report. These results need to be broken down by campus, to include Online and dual enrollment sections.</p> <p>When will the improvements take place: The improvements will take place during the Fall 2020 semester.</p> <p>Next Assessment: Fall 2020</p>
CLO Grade	PERCENTAGE OF STUDENTS RECEIVING GRADE – Spring 2018												
A (90-100)	24.11%												
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Information Technology, A.S.

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A.S. in Information Technology Program Purpose Statement: The Associate of Science degree curriculum in Information Technology is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in Information Technology.													
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results										
<p>CLO: Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization:</p> <p>Five categories of QL problems: 1. Binary to Decimal Conversion 2. Hexadecimal to Decimal 3. Decimal to Binary 4. Hexadecimal to Binary 5. Two's Complement Notation [x] QL</p>	<p>PC Hardware and Operating System Architecture ITE 221 Direct Measure: The ITE 221 Core Learning Outcome Quantitative Literacy Assessment was a timed and proctored assessment. Students had 30-minutes in which to complete the assessment. Students with a documented Memorandum of Accommodation granting additional time for in-class assessments could take the assessment in the local campus Testing Center. Students could only use a simple four-function calculator. Students were not allowed to use any other type of calculator including, but not be limited to, advanced graphing calculators, smart phone calculators, internet-based calculators, operating system calculator utilities, etc. Instructors were required to verify the calculator being used by each student before the assessment.</p> <p>There were five categories of quantitative literacy problems which made up the ITE 221 CLO Assessment. This was a paper-based assessment and not a computer-based assessment. Instructors were required to select one problem from each category: 1. Binary-to-Decimal Conversion 2. Hexadecimal-to-Decimal Conversion 3. Decimal-to-Binary Conversion 4. Hexadecimal-to-Binary Conversion 5. Two's Complement Notation Data collection: Results were provided by faculty of 10 sections received from Alexandria, Loudoun, Annandale, Manassas and Woodbridge campuses. Online courses did not report. A separate Excel spreadsheet was used to record the results of the assessment. Instructors were required to provide the date of the report, their campus, the course section, and their name. Students remained anonymous, only identified as Student 1, Student 2, etc.</p> <p>Sample: Of these 10 reporting sections, a total of 253 students were assessed.</p>	<p>Semester/year data collected: Spring 2018</p> <p>Target – Students should answer questions with a 70% accuracy rate. This is consistent with CompTIA exam standards.</p> <p>Results:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">CLO Grade</th> <th style="text-align: center;">PERCENTAGE OF STUDENTS RECEIVING GRADE – Spring 2018</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A (90-100)</td> <td style="text-align: center;">24.11</td> </tr> <tr> <td style="text-align: center;">B (80-89)</td> <td style="text-align: center;">15.02</td> </tr> <tr> <td style="text-align: center;">C (70-79)</td> <td style="text-align: center;">10.67</td> </tr> <tr> <td style="text-align: center;">C or Better</td> <td style="text-align: center;">49.8</td> </tr> </tbody> </table> <p>Students demonstrated an accuracy rate of 43.66% with the questions. Largely, this was due to the short answer nature of the exam, as compared to what are higher rates of success with multiple choice answers. Due to the new project, we do not have past assessments to compare results.</p>	CLO Grade	PERCENTAGE OF STUDENTS RECEIVING GRADE – Spring 2018	A (90-100)	24.11	B (80-89)	15.02	C (70-79)	10.67	C or Better	49.8	<p>Spring 2018 results of this assessment revealed significant issues with this topic</p> <p>Target Met: [] Yes [X] No [] Partially</p> <p>Actions for improvement: Faculty to come up with a better grading rubric for evaluating the "correctness" of a student's solution. Appoint dual enrollment coordinators and specify role of adding the SLO to dual enrollment classes. Results are to be broken down by question/topic in the next assessment. In addition, data will be divided for online and off-site dual enrolled sections.</p> <p>When will the improvements take place: The improvements will take place during the Fall 2021 semester.</p> <p>Next Assessment: Fall 2021</p>
CLO Grade	PERCENTAGE OF STUDENTS RECEIVING GRADE – Spring 2018												
A (90-100)	24.11												
B (80-89)	15.02												
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 Interior Design, A.A.S.

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.																																															
Program Purpose Statement: The Interior Design program provides quality education for students to prepare them for entry level employment in the interior design field or to transfer to an accredited university for further education. The curriculum provides a foundation education covering a broad range of topics in interior design, art history, furniture history, and basic design. Computer aided drafting, rendering and business practices round out the curriculum. Students become knowledgeable in both residential and contract design.																																															
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																												
<p>CLO: Pilot Quantitative Literacy: Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization:</p> <p>There were five questions on the test: Interprets Quantitatively Presents Quantitatively Analyzes Thoughtfully Communicates Qualitatively and Persuasively Problem Solving</p> <p>[x] QL</p>	<p>Lighting and Furnishings IDS 206, Loudoun Campus</p> <p>Direct Measure: Calculations Test There has not been a previous assessment of this CLO.</p> <p>Provided Rubric Criteria or Question Topics: NVCC Pilot Quantitative Literacy Rubric (Spring 2017) combined with Calculations Test. There were five questions on the test, each matched one of the points on the Quantitative Literacy Rubric. Interprets Quantitatively = question 1 Presents Quantitatively = question 5 Analyzes Thoughtfully = question 2 Communicates Qualitatively and Persuasively = question 3 Problem Solving = question 4</p> <p>Sample Size (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Campus/Modality</th> <th># of Total Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>LO</td> <td>1</td> <td>1</td> <td>16</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p><small>*Dual-enrollment</small></p>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	LO	1	1	16	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	<p>Semester/year data collected: Spring 2018</p> <p>Target: 50% of students will score 70% or higher on the Calculations Test.</p> <p>Results by In-Class, Online, Dual Enrollment:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>Percent \geq [Target]</th> </tr> </thead> <tbody> <tr> <td>LO</td> <td>76</td> <td>69</td> </tr> </tbody> </table> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by CLO Criteria/ Question Topics</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score (out of 4)</th> <th>% of Students \geq Target</th> </tr> </thead> <tbody> <tr> <td>1. Interprets Quant.</td> <td>3.3</td> <td>75</td> </tr> <tr> <td>2. Presents Quant.</td> <td>2.69</td> <td>56</td> </tr> <tr> <td>3. Analyzes Thoughtfully</td> <td>3.56</td> <td>75</td> </tr> <tr> <td>4. Communicates Qual.</td> <td>2.69</td> <td>56</td> </tr> <tr> <td>5. Problem Solving</td> <td>2.81</td> <td>69</td> </tr> </tbody> </table> <p>Current results improved: N/A: first assessment</p> <p>Strengths by Criterion/ Question/Topic: Students seem to do best at interpreting and analyzing data.</p> <p>Weaknesses by Criterion/ Question/Topic: Students appear to need to develop their problem solving and qualitative communications skills.</p>	Results by Campus/Modality	Spring 2018		Average Score	Percent \geq [Target]	LO	76	69	Results by CLO Criteria/ Question Topics	Spring 2018		Average Score (out of 4)	% of Students \geq Target	1. Interprets Quant.	3.3	75	2. Presents Quant.	2.69	56	3. Analyzes Thoughtfully	3.56	75	4. Communicates Qual.	2.69	56	5. Problem Solving	2.81	69	<p>Previous action(s) to improve CLO if applicable: This is the first time this CLO has been assessed, therefore there are no previous results.</p> <p>Target Met: [x] Yes [] No [] Partially</p> <p>Based on recent results, areas needing improvement: Interior Design students find it difficult to do math in any form, despite the fact that they use it daily in the business of design. For this course, Lighting and Furnishings, faculty designed a test in which students calculate the amount of light for a space, the number of fixtures needed, then apply it to a plan. The majority of students were able to do the simple formulas to determine the amount of light and the number of fixtures required, but had more trouble with what to do with that information.</p> <p>Current actions to improve CLO based on the results: Faculty will develop worksheets for students to practice calculations and lighting layouts. In addition, in order to remove the stress associated with taking a math test in a design course (though it's not new to this course), faculty will offer the test twice to allow students to learn from what errors they may have made the first time. This will be added to the course in Spring 2019.</p> <p>Next assessment of this CLO: Fall 2022</p>
Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed																																												
LO	1	1	16																																												
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 *Liberal Arts, A.A.*

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.

Program Purpose Statement: The Associate of Arts degree major in Liberal Arts is designed for persons who plan to transfer to a four-year institution to complete a Bachelor of Arts Degree (B.A.).

Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																																																															
<p>Quantitative Literacy Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will:</p> <ol style="list-style-type: none"> Interpret Quantitatively: Explains the numerical information presented in mathematical forms (equations, formulas, graphs, diagrams and tables). Present quantitatively: Converts the given information into mathematical forms such as tables, graphs, diagrams, and equations. Analyze thoughtfully: Draws relevant conclusions from provided information and data, and predicts future trends. Communicate qualitatively and persuasively: uses quantitative evidence to support the argument or purpose of the work (what evidence is used, how it is formatted and contextualized). Problem solving: Sets up a numerical problem and calculates the solution correctly <p>[x] QL</p>	<p>General Chemistry I & II CHM 111 and 112</p> <p>Direct Measure: Lab Report (pilot) Rubric Criteria: QL Rubric for Lab assignment: Five criteria presented on the Quantitative Literacy (QL) Rubric:</p> <ol style="list-style-type: none"> Interprets Quantitatively: Explains the numerical information presented in mathematical forms (equations, formulas, graphs, diagrams and tables). Presents quantitatively: Converts the given information into mathematical forms such as tables, graphs, diagrams, and equations. Analyzes thoughtfully: Draws relevant conclusions from provided information and data, and predicts future trends. Communicates qualitatively and persuasively: uses quantitative evidence to support the argument or purpose of the work (what evidence is used, how it is formatted and contextualized). Problem solving: Sets up a numerical problem and calculates the solution correctly <p>Sample Size (Specify N/A where not offered.)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Campus/Modality</th> <th># of Total Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr><td>AL</td><td>10</td><td>1</td><td>23</td></tr> <tr><td>AN</td><td>18</td><td>1</td><td>25</td></tr> <tr><td>MA</td><td>8</td><td>3</td><td>52</td></tr> <tr><td>ME</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>LO</td><td>23</td><td>8</td><td>128</td></tr> <tr><td>WO</td><td>8</td><td>0</td><td>0</td></tr> <tr><td>Online</td><td>1</td><td>1</td><td>18</td></tr> <tr><td>DE*</td><td>8</td><td>8</td><td>78</td></tr> <tr><td>Total</td><td>76</td><td>22</td><td>324</td></tr> </tbody> </table> <p>*Dual-enrollment</p> <p>Assessment Results' Calculation:</p>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	AL	10	1	23	AN	18	1	25	MA	8	3	52	ME	0	0	0	LO	23	8	128	WO	8	0	0	Online	1	1	18	DE*	8	8	78	Total	76	22	324	<p>Semester/year data collected: Spring 2018 Target: The average score of students participating will be 70%. For itemized criteria, 70% of students will correctly answer each item.</p> <p>Results by In-Class, Online, and Dual Enrollment:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>% Percent Earned</th> </tr> </thead> <tbody> <tr><td>AL</td><td>16.8</td><td>84.1</td></tr> <tr><td>AN</td><td>14.7</td><td>73.4</td></tr> <tr><td>MA</td><td>17.9</td><td>89.6</td></tr> <tr><td>ME</td><td>N/A</td><td>N/A</td></tr> <tr><td>LO</td><td>14.2</td><td>71.1</td></tr> <tr><td>WO</td><td>DNR</td><td>DNR</td></tr> <tr><td>Online</td><td>16.8</td><td>84.0</td></tr> <tr><td>DE*</td><td>15.6</td><td>78.0</td></tr> <tr><td>Total Average</td><td>14.8</td><td>74</td></tr> </tbody> </table> <p>DNR= Did Not Report Data</p> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Results by CLO Criteria/Question Topics</th> <th colspan="2">Spring 2018</th> </tr> <tr> <th>Average Score</th> <th>% Earned on Questions</th> </tr> </thead> <tbody> <tr><td>1.</td><td>2.9</td><td>72.5</td></tr> <tr><td>2.</td><td>3.0</td><td>75.0</td></tr> <tr><td>3.</td><td>3.0</td><td>75.0</td></tr> <tr><td>4.</td><td>3.0</td><td>75.0</td></tr> <tr><td>5.</td><td>2.9</td><td>72.5</td></tr> <tr><td>Total Average</td><td>3.0</td><td>74</td></tr> </tbody> </table> <p>Current results improved [X] Yes [] No [] Partially</p> <p>Four out of the five campuses offering in-person Chemistry courses contributed data for this report, in addition to Online and DE courses. Although the larger sample of</p>	Results by Campus/Modality	Spring 2018		Average Score	% Percent Earned	AL	16.8	84.1	AN	14.7	73.4	MA	17.9	89.6	ME	N/A	N/A	LO	14.2	71.1	WO	DNR	DNR	Online	16.8	84.0	DE*	15.6	78.0	Total Average	14.8	74	Results by CLO Criteria/Question Topics	Spring 2018		Average Score	% Earned on Questions	1.	2.9	72.5	2.	3.0	75.0	3.	3.0	75.0	4.	3.0	75.0	5.	2.9	72.5	Total Average	3.0	74	<p>Previous action(s) to improve SLO: This was the second round of assessing the QL objectives. In the January 2018 cluster meeting, the discipline group discussed the previous assessment in Fall 2017 and ways to improve the faculty participation and the Core Learning Outcomes. There were some questions regarding interpreting the rubric that seemed to be the reason for insufficient faculty participation. After the meeting, on January 05, an informative follow up email was sent to the cluster to allow enough time to plan for the semester. The following changes were assumed:</p> <ul style="list-style-type: none"> To improve the consistency of the assessments and hence the results, two laboratory experiments were selected and shared with the faculty to use for the evaluation. To increase the students Core Learning Outcomes, a handout with guidelines regarding analysis of data, thinking quantitatively, and writing analytically was developed and shared with the discipline to distribute among all students on all campuses. This was to ensure that all students have access to the same information prior to their analytical writing and interpretation of data. To maintain standardization of the collected data, a table for collecting information was
Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed																																																																																															
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WO	8	0	0																																																																																															
Online	1	1	18																																																																																															
DE*	8	8	78																																																																																															
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AN	14.7	73.4																																																																																																
MA	17.9	89.6																																																																																																
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Liberal Arts, A.A.

	<p>Average Score: Total Points in all courses ÷ Total Number of Students</p> <p>Maximum points available = 20 points $\#(15.2/20) \times 100 = 76\%$ and $(16.7/20) \times 100 = 84\%$</p>	<p>students evaluated resulted in lower score in each criterion, the results for this assessment are considered more meaningful compared to fall 2017. In spite of the overall decrease in the average, the targeted values for the evaluation were met by each campus and on each criterion.</p> <p>There was very little to no variations in the average score among criterion, which indicates students' overall preparation. Furthermore, students met the targeted goal for each item.</p> <p>Strengths by Criterion/ Question/Topic: Three of the criteria, "Presents quantitatively," "Analyzes thoughtfully," and "Communicates qualitatively and persuasively" were scored equally high.</p> <p>"Interprets Quantitatively" and "problem solving" were among the weaknesses of the students evaluated. Both of these criteria are math related and more students find these types of assessments challenging. This may improve by addition of some kind of math related activity to the curriculum during the first few weeks of school.</p>	<p>developed and shared with the Assistant Deans.</p> <p>Target Met: [X] Yes [] No [] Partially</p> <p>All campuses met and some exceeded the targeted value. WO did not participate in the assessment, and only one course from each of AL and AN participated.</p> <p>Compared to Fall 2017, the number courses participating increased from 10% to 29% participation in Spring 2018. The number of students participating in this assessment increased by over 200% compared to Fall 2017. Moreover, Online and DE courses have participated close to 100%.</p> <p>Future results may be improved by addition of a lab activity at the beginning of the semester to familiarize students with some of the mathematical manipulation and graphical analysis that they would encounter throughout the course.</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Marketing, A.A.S.

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.

Program Purpose Statement: The curriculum is designed for persons who seek full-time employment or advancement in areas involving marketing and marketing management. The career objectives include marketing assistant manager, store owner and department manager, sales supervisor, customer service representative, front-line supervisor, promotion and public relations assistant, advertising account associate, marketing communications assistant, international marketing intern, social media marketing specialist, brand ambassador, event marketing associate and e-commerce sales support for business, government and not-for-profit organizations.

Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																																		
<p>CLO: Quantitative Literacy</p> <p>Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will be able to apply basic business math to inventory planning and control, pricing strategies, budget calculations, stock turns, and inventory loss.</p> <p>[x] QL</p>	<p>Merchandise Buying & Control MKT 227</p> <p>Direct Measure: Comprehensive merchandising math exam used to evaluate CLO – selected as the General Education core competency evaluation of student math skills.</p> <p>Includes stock turnover, planned purchases, open-to-buy, vendor discounts, inventory shrinkage, pricing, mark ups and mark downs, etc. Math exam part of the final comprehensive class exam. Exam attached.</p> <p>Faculty member evaluated each math question. Students were rated as underperforming (0-44 points) or meeting and exceeding expectations (45-60 points)</p> <p>Sample size: 19 students</p> <ul style="list-style-type: none"> • Sections surveyed: 1 at Annandale • Total sections: 1 	<p>Semester/year data collected: Spring 2018</p> <p>Target: 75% of students will meet skill requirements indicating mastery of SLO.</p> <p>Results: 12 out of 14 students (85%) successfully achieved the target:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Semester</th> <th style="text-align: center;">0-44 pts.</th> <th style="text-align: center;">45-60 pts.</th> </tr> </thead> <tbody> <tr> <td>Spring 2018 (n=19)</td> <td style="text-align: center;">2</td> <td style="text-align: center;">17 (89%)</td> </tr> <tr> <td>Spring 2017 (n=11)</td> <td style="text-align: center;">2</td> <td style="text-align: center;">9 (81%)</td> </tr> <tr> <td>Spring 2016 (n=14)</td> <td style="text-align: center;">2</td> <td style="text-align: center;">12 (85%)</td> </tr> <tr> <td>Spring 2015 (n=12)</td> <td style="text-align: center;">2</td> <td style="text-align: center;">10 (83%)</td> </tr> <tr> <td>Spring 2014 (n=20)</td> <td style="text-align: center;">2</td> <td style="text-align: center;">19 (90%)</td> </tr> </tbody> </table> <p>CLO components evaluation Spring 2016 - 2018.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Questions</th> <th style="text-align: center;">2016</th> <th style="text-align: center;">2017</th> <th style="text-align: center;">2018</th> </tr> <tr> <th></th> <th colspan="3" style="text-align: center;">% correct</th> </tr> </thead> <tbody> <tr> <td>1. stock turnover</td> <td style="text-align: center;">73%</td> <td style="text-align: center;">71%</td> <td style="text-align: center;">78%</td> </tr> <tr> <td>2. 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P. reductions	90%	91%	92%	10. mark downs	86%	84%	89%	<p>Target Met: [X] Yes [] No [] Partially</p> <p>The target was met or exceeded expectations for this CLO and for individual SLO components (see column 3).</p> <p>This SLO was selected for the General Education Core Competency Assessment of student math skills. Eighty-nine percent of the students successfully achieved the overall CLO target of 75%. This is a positive trend. CLO components also showed overall improvements and especially in “stock turnover,” achieving the 75% target for the first time.</p> <p>A student merchandising math workbook developed by the faculty member is used to cover this information and to provide numerous practice problems. These problems cover basic high school math.</p> <p>Previous actions: Faculty will focus on additional student problems calculating “stock turnover” and “merchandise shrinkage” using group work to encourage students to help each other in class. Faculty will refer students struggling with math to the Math and Science Tutoring Center for assistance in Spring 2018.</p> <p>Current Action: Remove SLO #4 as a stand-alone program goal. MKT 227 has been removed from the Marketing Program curriculum. The College MTH requirement MTH 154: quantitative literacy will satisfy program MTH requirements in 2018.</p> <p>Next Assessment: This SLO will no longer be evaluated. The program SLO list will drop from five goals to four. This change appears in the 2018-19 Marketing Program Curriculum Map.</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Respiratory Therapy, A.A.S.

<p>NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.</p>																																																					
<p>Program Purpose Statement: The curriculum is designed to prepare students to be effective members of the healthcare team in assisting with diagnosis, treatment, management, and preventive care of patients with cardiopulmonary problems. Upon successful completion of the program, students are eligible to take the entry-level and advanced practitioner examinations leading to certification as a Certified Respiratory Therapist (CRT) and registration as a Registered Respiratory Therapist (RRT).</p>																																																					
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																		
<p>CLO: Quantitative Literacy</p> <p>Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will appropriately interpret graphic depictions of ventilator waveforms as it applies to the patient's clinical status</p> <p>[X] QL</p>	<p>Critical Care Monitoring RTH 236</p> <p>Direct Measure: RTH 236 - Cognitive Adult Ventilation, specifically pertaining Graphic Waveforms, is being assessed using the following test questions: #18,19,21, 24, 25, 26, 28, 31.</p> <p>Sample</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #e0e0e0;"> <th>Campus Modality</th> <th># of Total Sections Offered</th> <th># Sections Assessed</th> <th># Students Assessed</th> </tr> </thead> <tbody> <tr> <td>ME only</td> <td>1</td> <td>1</td> <td>15</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>DE*</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p>*Dual Enrollment</p>	Campus Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	ME only	1	1	15	Online	N/A	N/A	N/A	DE*	N/A	N/A	N/A	<p>Semester/year data collected: Fall 2017 (2018 grads)</p> <p>Target: 80% of students will score 75% or higher overall and on each criterion during an in-class assessment.</p> <p>Results:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #e0e0e0;"> <th>Results by Campus/Modality</th> <th>Fall 2017 Average Score</th> </tr> </thead> <tbody> <tr> <td>ME</td> <td>36%</td> </tr> </tbody> </table> <p>Results by CLO Criteria:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #e0e0e0;"> <th colspan="2">Results by CLO Criteria/ Question Topics</th> <th>Fall 2017 Average</th> </tr> </thead> <tbody> <tr><td>18</td><td>Appropriate action</td><td>53%</td></tr> <tr><td>19</td><td>Flow Curve</td><td>47%</td></tr> <tr><td>21</td><td>Airway Resistance</td><td>33%</td></tr> <tr><td>24</td><td>Flow Cycling</td><td>33%</td></tr> <tr><td>25</td><td>Static Compliance</td><td>26%</td></tr> <tr><td>26</td><td>Compliance & PV Loop</td><td>33%</td></tr> <tr><td>28</td><td>F—V Loop</td><td>53%</td></tr> <tr><td>31</td><td>Press Vol Loop & disease</td><td>7%</td></tr> <tr style="background-color: #e0e0e0;"><td colspan="2">Total AVG</td><td>36%</td></tr> </tbody> </table> <p>Current results improved: [] Yes [x] No [] Partially</p> <p>Strengths by Criterion/ Question/Topic: Students will feel more confident in interpreting ventilator waveforms with the addition of content back into the curriculum.</p> <p>Weaknesses by Criterion/ Question/Topic: This content had fallen through the cracks after some modifications in the program.</p>	Results by Campus/Modality	Fall 2017 Average Score	ME	36%	Results by CLO Criteria/ Question Topics		Fall 2017 Average	18	Appropriate action	53%	19	Flow Curve	47%	21	Airway Resistance	33%	24	Flow Cycling	33%	25	Static Compliance	26%	26	Compliance & PV Loop	33%	28	F—V Loop	53%	31	Press Vol Loop & disease	7%	Total AVG		36%	<p>Previous action(s) to improve CLO if applicable: There are no previous actions; this is the first-time this outcome has been monitored.</p> <p>Target Met: [] Yes [X] No [] Partially</p> <p>Based on recent results, areas needing improvement: Students are expected to identify graphic abnormalities, the problems and solutions as it relates to ventilator management. Overall performance in this area for these specific questions is poor. Where, when, and how this content is taught will be explored.</p> <p>Current actions to improve CLO based on the results: Because this content is very difficult to comprehend and difficult to cover in the limited class time, historically an outside speaker did an immersive workshop on this topic. This has not been done for the last several years, and in her absence the content has not been fully re-absorbed into any specific course.</p> <p>Curriculum mapping will have to be done in Fall 2018 to identify where this specific content is/should be taught. In addition, we will reach out to see if the workshops can be resumed in Summer 2019 and/or create similar content that can be taught utilizing the high-fidelity simulators.</p> <p>Next Assessment: Fall 2020</p>
Campus Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed																																																		
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 Science, A.S.

<p>NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community college is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.</p>			
<p>Program Purpose Statement: The curriculum is designed for persons who are interested in a professional or scientific program and who plan to transfer to a four-year college or university to complete a baccalaureate degree program with a major in one of the following fields: agriculture, biology, chemistry, pre-dentistry, forestry, geology, home economics, nursing, oceanography, pharmacy, physics, physical therapy, pre-medicine, science education, or mathematics.</p>			
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results
<p>CLO: Quantitative Literacy</p> <p>Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization:</p> <p>correctly answering the assigned problem:</p> <ol style="list-style-type: none"> 1.) identifying the correct formula 2.) utilizing the correct information/parameters 3.) using the correct algebra to solve the problem <p>[X] QL</p>	<p>General College Physics I PHY 201</p> <p>Direct Measure: A thermodynamics problem was used to assess whether students could identify the correct formula, insert the formula, and use algebra to solve the problem. The problem was the same for all sections of PHY 201 in the Spring 2018 assessment. The problem involved calculating the specific heat of a cup of water mass of water at a given temperature. A common proficiency rubric was used for scoring that involved a score of 0 to 2 for three criteria associated with correctly answering the assigned problem:</p> <ol style="list-style-type: none"> 4.) identifying the correct formula 5.) utilizing the correct information/parameters 6.) using the correct algebra to solve the problem <p>The question and rubric were approved by the Physics Cluster Meetings in the beginning of the 2016-2017 school year.</p> <p>Sample:</p> <p>Data was collected from 112 students in 7 out of 11 sections of PHY 201 from AL (10), AN (16), WO (29), MA (21), and LO (36). We did not include dual enrollment sections. This may be something to consider in future assessments if we can coordinate with the high school instructor. There was one section of Online but they did not report results. Of these 112 students, 78 were identified as A.S. Science students. This year, all physical campuses which offer Physics contributed to the results. Special care was taken this year to send multiple reminders via email and to stress the importance of completing the</p>	<p>Semester/year data collected: Spring 2018</p> <p>Achievement target: 70% average</p> <p>Results: In the following results, there are two percentages listed. The first percentage is for all students and the second percentage in (parentheses) is only for A.S. Science students.</p> <ul style="list-style-type: none"> • Results: 75% (76%) of students possessed the proficiency required. <ol style="list-style-type: none"> 1.) 76% (78%) identified the correct law/formula necessary for the solution of the problem 2.) 76% (78%) were able to insert correctly the given information into the context of the problem 3.) 75% (76%) performed the necessary algebra without mistakes 4.) Summary result is the lowest success percentage of the above 3 criteria, or 75% (76%) • Achievement assessment goal was achieved by 5% (6%). <p>Summary:</p> <ul style="list-style-type: none"> • Proficiency in the physics discipline is defined as the percentage of students who successfully perform all 3 criteria associated with the rubric. • There is very consistent result for all three criteria. • The results from this assessment indicate 75% of the PHY 201 students and 76% of A.S. Science students taking PHY 201 possessed the necessary proficiency to successfully accomplish each of the 3 criteria associated with this SLO. 	<p>In Spring 2018, the achievement target was met and increased slightly from the previous year. Unlike the previous year's assessments, there was no noticeable change from the first criteria of identifying the correct formula to the second and third criteria which involves actual numerical and algebraic manipulation. We have seen large decreases in this percentage in previous years. There is a math prerequisite for the course but students often come into the course having passed this class with a low grade and may still struggle with mathematical concepts, and the cluster believes that this was the major contribution to this decrease.</p> <p>In Fall 2017, the cluster created a mathematical pretest for our PHY 201 courses to assess our students' preparation in mathematics. This is a test that we give to the students on the first day of class. Most faculty do this and this early warning may help the students better prepare for the mathematical rigor required in the course. Also, faculty regularly point out the mathematical requirements of the course through covering the required material, and students can determine whether they need to review various mathematical concepts or not.</p> <p>The results for A.S. Science students are approximately the same when compared to all students.</p> <p>The faculty at the Physics Cluster meeting in August 2018 decided to continue to assess this SLO. Some talk was given to testing it with our PHY 231 class but there are very few</p>

Science, A.S.

	<p>assessment in order to collect as much data as possible; however, our compliance rate was very similar to last year when 8 out of 12 sections submitted data. Annandale seems to have the lowest contribution rate (as measured by fraction of sections contributing).</p>	<p>Previous Assessment Results: In the previous year's assessment, the results were as follows:</p> <ul style="list-style-type: none"> • Results: 73% (71%) of students possessed the proficiency required. <ol style="list-style-type: none"> 1.) 84% (81%) identified the correct law/formula necessary for the solution of the problem 2.) 73% (71%) were able to insert correctly the given information into the context of the problem 3.) 73% (74%) performed the necessary algebra without mistakes <p>Summary result is the lowest success percentage of the above 3 criteria, or 73% (71%).</p> <p>Current results improved: [X] Yes [] No [] Partially</p>	<p>A.S. Science students in this class as it is geared mainly towards Engineering majors. Therefore, the cluster decided to stick with PHY 201.</p> <p>The assessment methods and the proficiency rubric were all approved at the Physics Cluster meeting in August 2018. The assessment will be conducted on students that are program placed into the science program and also among all students in our courses. In addition, faculty are aware of the need for their continued focus and efforts in this area as well as allowing increased time for students to work on problems and examples to help them achieve our target. We plan to do all of this in Fall 2018.</p> <p>Next Assessment: The assessment and data collection will occur in the Fall 2018 semester with detailed data analysis occurring in the Spring 2019 semester. We will perform this assessment in the same way as last year.</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018 Social Sciences, A.S.

<p>NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.</p>																																																																																																		
<p>Program Purpose Statement: This program is designed for individuals who plan to transfer to a four-year college or university to complete a bachelor of science in one of the social sciences. It also prepares students for some teacher certification programs. Students from the A.S. program major in a wide variety of fields, including anthropology, economics, government/political science, history, mass communications, pre-law, psychology, public administration, social work, and sociology.</p>																																																																																																		
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																																																															
<p>CLO: Quantitative Literacy Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Five criteria presented on the Quantitative Literacy (QL) Rubric: Interprets Quantitatively: Explains the numerical information presented in mathematical forms (equations, formulas, graphs, diagrams and tables). Presents quantitatively: Converts the given information into mathematical forms such as tables, graphs, diagrams, and equations. Analyzes thoughtfully: Draws relevant conclusions from provided information and data, and predicts future trends. Communicates qualitatively and persuasively: uses quantitative evidence to support the argument or purpose of the work (what evidence is used, how it is formatted and contextualized). Problem solving: Sets up a numerical problem and calculates the solution correctly.</p> <p>[x] QL</p>	<p>General Chemistry I & II CHM 111 and 112</p> <p>Direct Measure: Lab Report (pilot)</p> <p>Rubric Criteria: QL Rubric for Lab assignment: Five criteria presented on the Quantitative Literacy (QL) Rubric: Interprets Quantitatively: Explains the numerical information presented in mathematical forms (equations, formulas, graphs, diagrams and tables). Presents quantitatively: Converts the given information into mathematical forms such as tables, graphs, diagrams, and equations. Analyzes thoughtfully: Draws relevant conclusions from provided information and data, and predicts future trends. Communicates qualitatively and persuasively: uses quantitative evidence to support the argument or purpose of the work (what evidence is used, how it is formatted and contextualized). 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Social Sciences, A.S.

	<p>Average Score: Total Points in all courses ÷ Total Number of Students</p> <p>Maximum points available = 20 points $\#(15.2/20) \times 100 = 76\%$ and $(16.7/20) \times 100 = 84\%$</p>	<p>courses. Although the larger sample of students evaluated resulted in lower score in each criterion, the results for this assessment are considered more meaningful compared to fall 2017. In spite of the overall decrease in the average, the targeted values for the evaluation were met by each campus and on each criterion.</p> <p>There was very little to no variations in the average score among criterion, which indicates students' overall preparation. Furthermore, students met the targeted goal for each item.</p> <p>Strengths by Criterion/ Question/Topic: Three of the criteria, "Presents quantitatively," "Analyzes thoughtfully," and "Communicates qualitatively and persuasively" were scored equally high.</p> <p>"Interprets Quantitatively" and "problem solving" were among the weaknesses of the students evaluated. Both of these criteria are math related and more students find these types of assessments challenging. This may improve by addition of some kind of math related activity to the curriculum during the first few weeks of school.</p>	<p>All campuses met and some exceeded the targeted value. WO did not participate in the assessment, and only one course from each of AL and AN participated.</p> <p>Compared to Fall 2017, the number courses participating increased from 10% to 29% participation in Spring 2018. The number of students participating in this assessment increased by over 200% compared to Fall 2017. Moreover, Online and DE courses have participated close to 100%.</p> <p>Future results may be improved by addition of a lab activity at the beginning of the semester to familiarize students with some of the mathematical manipulation and graphical analysis that they would encounter throughout the course.</p>
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Disciplines

Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Chemistry

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.

Discipline Purpose Statement (Discipline Mission): The mission of the chemistry discipline is to provide a world-class face-to-face, hybrid, and online education and prepare students for graduation, transfer, and entrance into a world of competitive workforce in science, engineering, or non-science fields. The discipline also provides the students with relevant knowledge to apply to other disciplines and the outside world.

Discipline Goals: The primary goal of the chemistry discipline is to enable the students to achieve proficiency in: Critical Thinking; Problem-Solving; Laboratory skills; Communication skills; Quantitative Literacy; Scientific Literacy.

Core Learning Outcomes	Evaluation Methods	Assessment Results	Use of Results																																																																																															
<p>CLO: Quantitative Literacy Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Five criteria presented on the Quantitative Literacy (QL) Rubric</p> <p>I. Interprets Quantitatively: Explains the numerical information presented in mathematical forms (equations, formulas, graphs, diagrams and tables).</p> <p>II. Presents Quantitatively: Converts the given information into mathematical forms such as tables, graphs, diagrams, and equations.</p> <p>III. Analyzes Thoughtfully: Draws relevant conclusions from provided information and data, and predicts future trends.</p> <p>IV. Communicates Qualitatively and Persuasively: Uses quantitative evidence to support the argument or purpose of the work (what evidence is used, how it is formatted and contextualized).</p> <p>V. Problem Solving: Sets up a numerical problem and calculates the solution correctly</p>	<p>Course(s) Assessed: General Chemistry I and II (CHM 111 and CHM 112)</p> <p>Direct Measure: Lab Report (pilot)</p> <p>Rubric Criteria: QL Rubric for Lab assignment: I. Interprets Quantitatively, II. Presents quantitatively, III. Analyzes thoughtfully, IV. Communicates qualitatively and persuasively, and V. 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Chemistry

<p>SLO: <i>Criteria presented in the Discipline Review Report (2011-2014)</i> for Student Learning Outcome (SLO). Students will use numerical values to perform various calculations and draw reasonable conclusion numbers 8, 9, 10, 11, 13, 14, 15 and 16. SLO 22: Students will use graphical methods to organize and interpret data.</p>		<p>Current results improved <input type="checkbox"/> * <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Partially Four out of the five campuses offering in-person Chemistry courses contributed data for this report, in addition to NOVA Online and DE courses. Although the larger sample of students evaluated resulted in lower score in each criterion, the results for this assessment are considered more meaningful compared to Fall 2017. In spite of the overall decrease in the average, the targeted values for the evaluation were met by each campus and on each criterion. There was very little-to-no variations in the average score among criterion, which indicates students' overall preparation. Furthermore, students met the targeted goal for each item.</p> <p>Strengths by Criterion/ Question/Topic: Three of the criteria, "Presents Quantitatively", "Analyzes Thoughtfully", and "Communicates Qualitatively And Persuasively" were scored equally high. "Interprets Quantitatively" and "Problem Solving" were among the weaknesses of the students evaluated. Both of these criteria are math related and more students find these types of assessments challenging. This may improve by adding some kind of math related activity to the curriculum during the first few weeks of school.</p>	<p>analytical writing and interpretation of data.</p> <p>To maintain standardization of the collected data, a table for collecting information was developed and shared with the Assistant Deans.</p> <p>Target Met: <input checked="" type="checkbox"/> * <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partially</p> <p>Based on recent results, areas needing improvement: All campuses met and some exceeded the targeted value. WO did not participate in the assessment, and only one course from each of AL and AN participated. Compared to Fall 2017, the number of participating courses increased from 10% to 29% in Spring 2018. The number of students participating in this assessment increased by over 200% compared to Fall 2017.</p> <p>Current action(s) to improve CLO, based on results: Future results may be improved by adding a lab activity at the beginning of the semester to familiarize students with some of the mathematical manipulation and graphical analysis that they would encounter throughout the course.</p>
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Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Geology

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.

Discipline Purpose Statement:

Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																													
<p>CLO: Quantitative Literacy</p> <p>Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Students will use graphical methods to organize and interpret quantitative data</p> <p>[x] QL</p>	<p>Course: Physical Geology GOL 105</p> <p>Measure Used: Seismic wave analysis exercise. Assessment of SLO #3 (used to assess QL), utilized a laboratory assignment designed to demonstrate the process of finding earthquake epicenters. This task required students to create a graph using seismic wave data and then use the graph to determine distances of various recording stations from earthquake epicenters. From this information, students were then asked to triangulate an earthquake epicenter and indicate its location on a map. Success on this SLO was based on a point scale for the entire exercise.</p> <p>Students enrolled in GOL 105 courses at the AN, AL, LO, WO, and NOVA Online campuses took part in this assessment and results were determined for A.S. Science degree students as well as those students seeking non-science degrees. No data was provided from MA campus courses at this time. (MA campus DNR).</p> <p>Data was collected from 13 of 17 in-class sections and 1 of 1 NOVA Online section of GOL 105 offered during the Fall 2017 semester. No DE (Dual-enrollment) courses were offered this semester.</p> <p>SLO #3 Assessment Method Example attached.</p> <p>Sample Size (Specify N/A where not offered)</p>	<p>Semester/year data collected: Fall 2017</p> <p>Target: 70% of students will score 70% or higher on assignment Out of 18 sections taught on all campuses, data was collected from 13 standard sections on the AN, AL, LO, and WO campuses and 1 section of NOVA Online for this assessment. Of the 374 students, 20 were program placed A.S. Science majors. The Instructor graded the student results and provided a score of successful or not successful.</p> <p>Results by In-Class, Online, Dual Enrollment: (Specify N/A where not offered)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Results by Campus/Modality</th> <th colspan="2">Assessment Results All Students 2017-18</th> <th colspan="2">Assessment Results Science Students 2017-18</th> </tr> <tr> <th>Average Score</th> <th>Percent > Target</th> <th>Average Score</th> <th>Percent > Target</th> </tr> </thead> <tbody> <tr> <td>Campus</td> <td>N/A</td> <td>89.6</td> <td>N/A</td> <td>89%</td> </tr> <tr> <td>Online</td> <td>N/A</td> <td>100</td> <td>N/A</td> <td>100%</td> </tr> <tr> <td>DE*</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td>87%</td> <td></td> <td>90%</td> </tr> </tbody> </table> <p>*Dual-enrollment</p> <p>Target: An accumulation of 70% of possible points was considered successful for non-science majors and 90% for science majors.</p> <p>Non-science majors scored well above their 70% successful completion target in both NOVA Online and standard courses. Overall, science majors achieved their target of 90%, however, the specific breakdown of the total data showed that NOVA Online achieved 10% above target and standard 1% below.</p> <p>Results for 2016-17 academic year:</p> <ul style="list-style-type: none"> • 83% of students were successful • 88 % of the science majors were successful 	Results by Campus/Modality	Assessment Results All Students 2017-18		Assessment Results Science Students 2017-18		Average Score	Percent > Target	Average Score	Percent > Target	Campus	N/A	89.6	N/A	89%	Online	N/A	100	N/A	100%	DE*					Total		87%		90%	<p>Previous action(s) to improve CLO: During the Fall 2017 semester, the GOL discipline continued to work on the improvement of SLO data focusing on faculty/adjunct communication and clarity of SLO assessment methods. All actions were intended to increase the number of sections reporting data. Actions were taken in two forms: discussions at discipline meeting and email discussions between discipline SLO liaison and faculty as well as faculty and adjunct faculty on each campus. Results of these current efforts offered little change from the previous semester in terms of the number of sections reporting data. However, the discipline succeeded in our first separate reporting of delineated data between standard, NOVA Online, and DE courses. The discipline must keep working on improving the communication aspect of assessment, especially from adjunct faculty.</p> <p>Based on recent results, areas needing improvement: The Fall 2017 assessment overall results met the 90% passing goal for science majors established by the A.S. Science Program SLO committee and geology discipline. While standard courses fell short by 1%, the discipline considers this result within acceptable range as it represents an improvement from last assessment. NOVA Online results exceeded their targets for both major and non-majors by a considerable margin; a success in the view of the</p>
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Geology

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			#	%
Campus	13	12	280	100
Online	1	1	31	100
DE*	N/A	N/A		
Total	14	13	311	100

*Dual-enrollment

Results for overall students enrolled in the 2017-18 academic year rose three percentage points above those of the previous year for the non-science major population and science majors rose by 2% from the previous year

discipline. The current data reflects that the success of our students completing SLO #3 related tasks rose, although not significantly. This was the first semester GOL separated NOVA Online from the overall data, so no comparison can be made to past results for this course type. While GOL courses met their overall objectives, the increase in the percentage of successful students was small. Therefore, we can consider our results stable when compared with previous semesters. Although our goals were met or exceeded, the GOL discipline should continue discussions for improving student success during future meetings, perhaps with a focus on student interpretational skills when extracting meaning from graphs. The Spring 2018 discipline meeting will be the first chance to discuss the path forward.

The established target goal of assessing 70% of all GOL 105 sections taught at NOVA was met this semester with an unchanged 76% of all sections reporting from Fall 2016. The discipline must continue to work on improving communications in an effort to increase the reporting percentage during our next assessment. Topic will be further discussed at next discipline meeting.

Target Met:

Yes No Partially

Based on recent results, areas needing improvement: Students generally need more explanation for interpreting graphs drawn from collected data.

Next assessment of this CLO:

Spring 2020?

Quantitative Literacy Core Learning Competency Assessment Report: 2017-2018

Math

NOVA Mission Statement: With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class in-person and online post-secondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and globally competitive workforce.																																																																																																													
Program Purpose Statement: The curriculum is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree. This curriculum is designed to prepare students to major in one of the following fields: mathematics, mathematics education, statistics, operations research, applied mathematics or computer science.																																																																																																													
Core Learning Outcome	Evaluation Methods	Assessment Results	Use of Results																																																																																																										
<p>CLO: Quantitative Literacy</p> <p>Students will calculate, interpret, and use numerical and quantitative information in a variety of settings.</p> <p>Operationalization: Grade on Final Exam in MTH 173.</p>	<p>Calculus I MTH 173</p> <p>Direct Measure: Grade on Final Exam in MTH 173.</p> <p>Sample:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;">Campus/Modality</th> <th style="width: 15%;"># of Total Sections Offered</th> <th style="width: 15%;"># Sections Assessed</th> <th style="width: 15%;"># Students Assessed</th> </tr> </thead> <tbody> <tr><td>AL</td><td>5</td><td>1</td><td>25</td></tr> <tr><td>AN</td><td>11</td><td>1</td><td>13</td></tr> <tr><td>MA</td><td>7</td><td>1</td><td>25</td></tr> <tr><td>LO</td><td>6</td><td>0</td><td>0</td></tr> <tr><td>WO</td><td>3</td><td>1</td><td>23</td></tr> <tr><td>Online</td><td>7</td><td>0</td><td>0</td></tr> <tr><td>DE*</td><td>1</td><td>0</td><td>0</td></tr> <tr><td>Total</td><td>40</td><td>4</td><td>86</td></tr> </tbody> </table> <p><small>*Dual-enrollment</small></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Results by Program Placement</th> <th style="width: 40%;"># of Students in Spring 2018</th> </tr> </thead> <tbody> <tr><td>AAS-Architecture</td><td>2</td></tr> <tr><td>AS-Computer Science</td><td>21</td></tr> <tr><td>AS-Engineering</td><td>32</td></tr> <tr><td>AS-General Studies</td><td>2</td></tr> <tr><td>AS-Science</td><td>24</td></tr> <tr><td>AS-Science/Mathematics</td><td>4</td></tr> <tr><td>Career Exploration</td><td>1</td></tr> <tr><td>Total</td><td>86</td></tr> </tbody> </table>	Campus/Modality	# of Total Sections Offered	# Sections Assessed	# Students Assessed	AL	5	1	25	AN	11	1	13	MA	7	1	25	LO	6	0	0	WO	3	1	23	Online	7	0	0	DE*	1	0	0	Total	40	4	86	Results by Program Placement	# of Students in Spring 2018	AAS-Architecture	2	AS-Computer Science	21	AS-Engineering	32	AS-General Studies	2	AS-Science	24	AS-Science/Mathematics	4	Career Exploration	1	Total	86	<p>Semester/year data collected: Spring 2018 Target: 50% of students will score at least a 70% on the final exam Results: Since most campuses used results from one section, the results have great variability. In addition, a common assessment was not used.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th rowspan="2" style="width: 30%;">Results by Campus/Modality</th> <th colspan="2" style="text-align: center;">Spring 2018</th> </tr> <tr> <th style="width: 20%;">Average Score</th> <th style="width: 20%;">Percent \geq Target</th> </tr> </thead> <tbody> <tr><td>AL</td><td>75.36</td><td>64%</td></tr> <tr><td>AN</td><td>56.65</td><td>31%</td></tr> <tr><td>MA</td><td>61.16</td><td>32%</td></tr> <tr><td>LO</td><td>DNR</td><td>DNR</td></tr> <tr><td>WO</td><td>48.37</td><td>22%</td></tr> <tr><td>Online</td><td>DNR</td><td>DNR</td></tr> <tr><td>Total</td><td>61.18</td><td>38%</td></tr> </tbody> </table> <p>DNR: Did Not Report Data</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 30%;">Results by Program Placement</th> <th colspan="2" style="text-align: center;">Spring 2018</th> </tr> <tr> <th style="width: 20%;">Average Score</th> <th style="width: 20%;">Percent \geq Target</th> </tr> </thead> <tbody> <tr><td>AAS-Architecture</td><td>44.75</td><td>50%</td></tr> <tr><td>AS-Computer Science</td><td>58.16</td><td>38%</td></tr> <tr><td>AS-Engineering</td><td>64.83</td><td>41%</td></tr> <tr><td>AS-General Studies</td><td>56.20</td><td>50%</td></tr> <tr><td>AS-Science</td><td>59.98</td><td>33%</td></tr> <tr><td>AS-Science/Mathematics</td><td>72.10</td><td>50%</td></tr> <tr><td>Career Exploration</td><td>36.20</td><td>0%</td></tr> </tbody> </table>	Results by Campus/Modality	Spring 2018		Average Score	Percent \geq Target	AL	75.36	64%	AN	56.65	31%	MA	61.16	32%	LO	DNR	DNR	WO	48.37	22%	Online	DNR	DNR	Total	61.18	38%	Results by Program Placement	Spring 2018		Average Score	Percent \geq Target	AAS-Architecture	44.75	50%	AS-Computer Science	58.16	38%	AS-Engineering	64.83	41%	AS-General Studies	56.20	50%	AS-Science	59.98	33%	AS-Science/Mathematics	72.10	50%	Career Exploration	36.20	0%	<p>Target Met: [] Yes [] No [X] Partially Only one campus (AL) met the target. Two programs met the target.</p> <p>Based on recent results, areas needing improvement: Previously determined SLO questions were not used to assess 2017-18 SLOs. A temporary change in leadership and lack of an SLO lead for the 2017-18 academic year have been resolved for the 2018-19 year. Further SLO collection is being done using common questions instead of collecting final exam scores. Due to the collection of final exam scores as data, the areas needing improvement are unclear. Further, collection of data did not include an adequate number of campuses/modalities or sections. Collection of data is the key area needing improvement to make results meaningful.</p> <p>Current actions to improve CLO based on the results: This CLO will be reassessed in a more meaningful way according to the CLO assessment schedule. The CLO Quantitative Literacy will be assessed in the new MTH 154 Quantitative Literacy course.</p>
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PATHWAY TO THE AMERICAN DREAM—NOVA'S STRATEGIC PLAN 2017-2023

THE NOVA COMMITMENT

As its primary contributions to meeting the needs of the Commonwealth of Virginia, the Northern Virginia Community College pledges to advance the social and economic mobility of its students while producing an educated citizenry for the 21st Century.

THE STRATEGIC PLAN GOALS AND OBJECTIVES

To deliver on this commitment NOVA will focus its creativity and talent, its effort and energy, and its resources and persistence, on achieving three overarching goals—success, achievement, and prosperity. It will strive to enable **Every Student to Succeed, Every Program to Achieve, and Every Community to Prosper.**

To advance the completion agenda described above, thereby promoting students' success and enhancing their social mobility, ensuring that programs achieve, and producing an educated citizenry for the 21st Century, the following goals and objectives are adopted:

GOAL 1: Every Student Succeeds

- **Objective 1:** Develop a College-wide approach to advising that ensures all students are advised and have access to support throughout their time at NOVA
- **Objective 2:** Implement VIP-PASS System as the foundational technology based on NOVA Informed Pathways for student self-advising, assignment and coordination of advisors, and course registration

GOAL 2: Every Program Achieves

- **Objective 3:** Develop comprehensive, fully integrated Informed Pathways for every program to ensure seamless transitions from high school and other entry points to NOVA, and from NOVA to four-year transfer institutions or the workforce
- **Objective 4:** Develop effective processes and protocols for programmatic College-wide collective decisions that include consistent, accountable leadership and oversight of each academic program with designated "owners," active advisory committees, clear student learning outcomes and assessments, and program reviews in all modalities of instruction
- **Objective 5:** Align NOVA's organizational structures, position descriptions, and expectations for accountability with its overarching mission to support student engagement, learning, success and institutional effectiveness

GOAL 3: Every Community Prospers

- **Objective 6:** Enhance the prosperity of every community in Northern Virginia by refocusing and prioritizing NOVA's workforce development efforts
- **Objective 7:** Further develop NOVA's IT and Cybersecurity programs to support regional job demand and position NOVA as the leading IT community college in the nation
- **Objective 8:** Re-envision workforce strategies and integrate workforce development into a NOVA core focus
- **Objective 9:** Plan to expand the breadth and reach of NOVA's healthcare and biotechnology programs, and prioritize future programs to support regional economic development goals

NOVA

**Northern Virginia
Community College**

703-323-3000 | www.nvcc.edu