Assessment of Student Learning in General Education: Annual Report 2018-2019

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Division of General Education
Nebraska College of Technical Agriculture
University of Nebraska
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Part I – General Education Outcomes

Upon completion of the Associate of Applied Science degree students should be able to demonstrate the following skills and abilities (as defined within the Association of American Colleges & Universities VALUE Rubrics):

1. **Written Communication.** Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum.

2. **Oral Communication.** Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

3. **Quantitative Literacy.** Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – is a “habit of mind,” competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

4. **Problem Solving.** Problem solving is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal.

5. **Civic Engagement.** Civic engagement is "working to make a difference in the civic life of our communities and developing the combination of knowledge, skills, values and motivation to make that difference. It means promoting the quality of life in a community, through both political and non-political processes." (Excerpted from Civic Responsibility and Higher Education, edited by Thomas Ehrlich, published by Oryx Press, 2000, Preface, page vi.) In addition, civic engagement encompasses actions wherein individuals participate in activities of personal and public concern that are both individually life enriching and socially beneficial to the community.

6. **Critical Thinking.** Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

7. **Information Literacy.** The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively and responsibly use and share that information for the problem at hand. – Adopted from the National Forum on Information Literacy.

Part II – Assessment Results

Students develop their General Education Outcome skills, knowledge, and abilities within the following courses and according to the following course outcomes:

Criterion One: Written Communication

1. **ENG 1503: Technical Communication I**
   a. Properly format letters, e-mails, memos, and reports
   b. Demonstrate sufficient skills in grammar, mechanics and usage
   c. Organize ideas logically
   d. Compose and revise writing for specific audiences
   e. Identify logical fallacies and assumptions in the arguments of others
   f. Use reason and evidence to support claims
   g. Use stages of the writing process (brainstorming, outlining/drafting, writing, revising & editing) to compose documents
   h. Create a new media website using WordPress

2. **ENG 1903: Writing & Inquiry**
   a. Write an effective thesis statement.
   b. Compose and revise writing for specific audiences
   c. Identify logical fallacies and assumptions
   d. Use reason and evidence to support claims
   e. Organize ideas logically in writing
   f. Format essays and cite sources according to APA guidelines
   g. Use stages of the writing process (brainstorming, outlining/drafting, writing, revising & editing) to compose documents
   h. Summarize articles and chapters in the form of a précis
   i. Practice reading scholarly essays and articles
   j. Create a new media website using a professional website builder
   k. Demonstrate sufficient skills in grammar mechanics, and usage

3. **ENG 2203: Writing & Argument**
   a. Organize ideas logically in writing.
   b. Use good reasoning to support claims.
   c. Use appropriate and relevant sources to support claims.
   d. Format essays and papers according to APA-style guidelines.
   e. Write essays and papers with attention to language and style.

<table>
<thead>
<tr>
<th></th>
<th>ENG 1503 Technical Communication I</th>
<th>ENG 1903 Writing &amp; Inquiry</th>
<th>ENG 2203 Writing &amp; Argument</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Outcomes assessed</td>
<td>141</td>
<td>137</td>
<td>40</td>
</tr>
<tr>
<td># of Outcomes met</td>
<td>123</td>
<td>127</td>
<td>37</td>
</tr>
<tr>
<td>% of Outcomes met</td>
<td>87</td>
<td>93</td>
<td>95</td>
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</tbody>
</table>
Criterion Two: Oral Communication

1. **SPC 1103: Sales Communication**
   a. Become familiar with the steps of the sales process.
   b. Work together to present group sales presentations
   c. Develop oral communication skills

2. **SPC 1113: Public Speaking**
   a. Write and deliver speeches that inform and persuade.
   b. Create and use appropriate visual support, such as PowerPoint, for your presentations.
   c. Organize ideas and arguments logically.
   d. Adapt information and arguments to a specific audience
   e. List or identify various aspects of good delivery (a strong conversational speaking style, the importance of eye contact, vocal variety, natural gestures, etc.)
   f. Use appropriate language choice depending on the audience (e.g., clear, persuasive, direct, etc.)
   g. State that you feel more confident about speaking in public.

### Direct Assessment Results from Previous Semester Taught

<table>
<thead>
<tr>
<th></th>
<th>SPC 1103: Sales Communications</th>
<th>SPC 1113: Public Speaking</th>
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<tbody>
<tr>
<td># of Outcomes assessed</td>
<td>102</td>
<td>101</td>
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<tr>
<td># of Outcomes met</td>
<td>87</td>
<td>101</td>
</tr>
<tr>
<td>% of Outcomes met</td>
<td>85</td>
<td>100</td>
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</tbody>
</table>
Criterion Three: Quantitative Literacy

1. **ECN 1803: Statistics**
   a. Show an understanding of the difference of types of data and data sources
   b. Summarize and interpret data in a tabular format using frequency distributions and appropriate graphs
   c. Define and apply an understanding of the concept of a random variable and differentiate the population from a sample
   d. Work with statistical data in a spreadsheet environment to apply a hypothesis test for probability or trend setting.

2. **MTH 1403: Agricultural Math**
   e. Calculate basic equations with proper and improper fractions.
   f. Calculate sales tax amounts when given the rate and purchase price.
   g. Calculate equations with positive and negative numbers.
   h. Solve problems using basic geometric formulas
   i. Solve for unknowns in basic algebraic equations

3. **MTH 1503: College Algebra**
   a. Compute the solutions to equations and inequalities
   b. Produce and analyze the graphs of functions in two-dimensional coordinates
   c. Apply the properties of algebra to functions
   d. Compute the zeros of polynomial functions
   e. Analyze and graph a rational function
   f. Use mathematical equations to model real life situations
   g. Apply the properties of exponential and logarithmic functions to simplify expressions
   h. Compute the solutions to exponential and logarithmic equations
   i. Analyze and graph the equations of the conic sections
   j. Compute the solutions to linear and nonlinear systems of equations

4. **MTH 2203: Introduction to Statistics**
   a. Construct frequency distributions and graphs
   b. State appropriate null and alternative hypotheses
   c. Determine the probability of an event
   d. Find the number of permutations and/or combinations of an event
   e. Calculate the mathematical expectation of a discrete random variable
   f. Calculate mean, media, range, variance, and standard deviation of a data set
   g. Analyze a set of data using percentiles and z-scores
   h. Construct confidence intervals for the population mean
   i. Solve problems involving binomial and normal distributions
   j. Solve problems involving a distribution of the same means of a population

5. **MTH 2253: Trigonometry**
   a. Demonstrate the direction of a directed line segment
   b. Generate points on the rectangular coordinate system
   c. Convert radian measure to degree measure and conversely
   d. Write the general definitions of the trig function of any angle
   e. List the exact value of the trig functions of certain special angles
   f. Compute the approximate value of the trig functions of any angle
   g. Solve problems involving right angles
   h. Recognize the association between directed angle and real numbers
   i. Solve problems involving trigonometric functions of real numbers
   j. Evaluate trig identities using the eight fundamental identities
k. Graph variations of the trig functions
l. Solve problems involving logarithmic computation
m. Solve problems involving oblique triangles and trig functions
n. Apply the law of cosines and law of sines
o. Apply the inverse trig functions
p. Solve problems involving complex numbers

6. VTS: 1313: Math for Veterinary Technicians
   a. Calculate arithmetic operations using fractions, decimals, percents, ratios and proportions.
   b. Analyze and solve application problems using fundamental arithmetic operations using fractions, decimals, percents, ratios, and proportions.
   c. Apply the basic principles of algebra, geometry, statistics, and graphs to the solution of applications in veterinary care.
   d. Convert within and between Metric and Standard measurement systems.
   e. Solve single and multi-step dosage problems and the dilution of stock solutions to desired concentrations.

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<tr>
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<tbody>
<tr>
<td>EPN 1803: Statistics</td>
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<tr>
<td># of Outcomes assessed</td>
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<tr>
<td># of Outcomes met</td>
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<td>% of Outcomes met</td>
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Criterion Four: Problem Solving

1. **BIO 1313: Plant Science (and Plant Science Lab)**
   a. Students will be able to describe seed, root, stem, leaf and flower structure and function.
   b. Students will be able to describe seed, root, stem, leaf and flower structure and function.
   c. Students will examine water uptake and transpiration including why transpiration is critical for plant growth.
   d. Students will be able to describe the major photosynthetic pathways and factors that influence the efficiency of plant photosynthesis.
   e. Students will be able to recognize how plants obtain stored energy for growth including source-sink relationships during plant growth and development.
   f. Students will be able to explain how light, temperature and stress affects plant growth and reproduction.
   g. Students will identify the major plant hormones and be able to describe their role in plant growth and development.
   h. Students will distinguish how genetics affects plant characteristics and describe methods of genetic engineering.

2. **ASI 1024: Fundamentals of Animal Biology**
   a. Identify parts of a cell.
   b. Students will be able to effectively communicate in written form.
   c. Students will be able to gather, assimilate and process information to reach sound logical conclusions.
   d. Students will be able to exhibit required knowledge and skills consistent with their chosen field of study.

3. **CHEM 1014: Chemistry in Context I**
   a. Recognize the various groups of elements on the periodic table.
   b. Describe the structure of an atom.
   c. Balance chemical equations.
   d. Solve stoichiometric problems.
   e. Describe the electron orbitals of an atom.

4. **SCI 1204: Technical Science**
   a. Describe the basic structure of atoms and molecules
   b. Identify the forms and properties of matter
   c. Diagram the basic metabolic processes and their chemical reactions
   d. Compare/contrast plant and animal cells
   e. Describe cell division
   f. Solve Punnett Squares and genetic problems
   g. Recognize the various forms of diverse life
   h. Explain the soil/erosion cycle, water cycle, and food webs
   i. Describe the role of macro/micronutrients in these cycles and living organisms
   j. Examine force, motion, energy, and momentum
   k. Recognize light and sound waves and their functions
## Direct Assessment Results from Previous Semester Taught

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<td>319</td>
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<td># of Outcomes met</td>
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<td>168</td>
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<tr>
<td>% of Outcomes met</td>
<td>83</td>
<td>84</td>
<td>89</td>
<td>84</td>
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Criterion Five: Civic Engagement

1. AED 1023: Interpersonal Skills for Leadership
   a. Practice effective communication and listening skills
   b. Describe personal values, ethics, strengths, and weaknesses and be able to search
      for constructive ways to enhance those traits
   c. Describe and recognize effective leadership and have a sense of their own
      leadership style
   d. Compare/contrast personal ideals on diversity and the benefits a diverse society can
      provide
   e. Summarize the service learning project and the impacts it had on the community
      and the individuals involved

Direct Assessment Results from Previous Semester Taught

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<th><strong>AED 1023: Interpersonal Skills for Leadership</strong></th>
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<td>% of Outcomes met</td>
<td>88</td>
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Criterion Six: Critical Thinking

1. **ENG 1503: Technical Communication I**
   a. Identify logical fallacies and assumptions in the arguments of others
   b. Use reason and evidence to support claims

2. **ENG 1903: Writing & Inquiry**
   a. Identify logical fallacies and assumptions.
   b. Use reason and evidence to support claims.

3. **ENG 2203: Writing & Argument**
   a. Use good reasoning to support claims.
   b. Use appropriate and relevant sources to support claims.

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<tbody>
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<td># of Outcomes assessed</td>
<td>36</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td># of Outcomes met</td>
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<tr>
<td>% of Outcomes met</td>
<td>78</td>
<td>88</td>
<td>94</td>
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Criterion Seven: Information Literacy

1. *PSY 1011: Learning Communities*
   a. Students will be able to identify, locate, evaluate and effectively and responsibly use and share information.

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<th>PSY 1011: Learning Communities*</th>
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<tbody>
<tr>
<td># of Outcomes assessed</td>
<td>95</td>
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<tr>
<td># of Outcomes met</td>
<td>83</td>
</tr>
<tr>
<td>% of Outcomes met</td>
<td>87</td>
</tr>
</tbody>
</table>

*One Division appears not to have assessed the outcome in 2018-2019.
Criterion Eight: Intercultural Knowledge and Competence.

1. Learning Communities
   a. Students will demonstrate a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts.

   Direct Assessment Results from Previous Semester Taught

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<tr>
<th>PSY 1011: Learning Communities*</th>
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<tr>
<td># of Outcomes assessed</td>
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<tr>
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</tbody>
</table>

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Part III – Analysis & Recommendations

Analysis

- Overall student attainment of SLOs appears to have improved or remained about the same for Written Communication, Quantitative Literacy, Problem Solving, Critical Thinking, and Intercultural Knowledge & Competence.
- Overall student attainment of SLOs appears to have declined for Oral Communication, Civic Engagement, and Information Literacy.

2018-2019 Recommendation Results

- SLOs were successfully implemented and assessed for new courses in the Gen Ed program (ECN 1803 and SCI 1204).
- All divisions are now listing the correct definition of Intercultural Knowledge and Competence in their Learning Communities Syllabi.
- New assessment measures (i.e., fallacies quizzes & essay rubrics) were developed or revised to assess students’ attainment of “Critical Thinking” in English courses.

2019-2020  Recommendations

- Follow through with faculty plans to improve student learning as listed in individual SLO reports in order to increase student attainment of SLOs, especially in Oral Communication, Civic Engagement, and Information Literacy.
- Since 100 percent reporting results have not yet been obtained in Learning Communities: Work with faculty to reach 100 percent reporting of Intercultural Knowledge & Competence and Information Literacy in division orientation courses.
- Continue to inform non-Gen Ed faculty about the resources available to help them define and assess any Gen Ed outcomes that may appear in their courses (see AAC&U Value Rubrics).
- With the advice of Academic Council: Continue to evaluate Gen Ed mission, program outcomes, courses, course outcomes, and assessment measures in regard to their appropriateness and effectiveness in preparing students for coursework and in pursuit of personal and career goals as citizens and leaders in agriculture.