Assessment of Student Learning in the General Education Division
2015 – 2016 Academic Year

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 – General Education Outcomes – Classroom SLOs, Results, and Analyses

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

1. **Criterion One: Written Communication**
   a. *Business & Technical Writing*
      i. *Properly format letters, e-mails, and reports*
      ii. *Organize ideas logically in writing*
      iii. *Demonstrate an awareness of audience and purpose in written texts*
      iv. *Use evidence and reasons to support claims*
      v. *Demonstrate improved skills in grammar, punctuation, and mechanics*
      vi. *Compose a document using speech recognition software*
   b. *College Composition*
      i. *Write an effective thesis statement*
      ii. *Organize ideas logically in writing*
      iii. *Demonstrate an awareness of audience and purpose in written texts*
      iv. *Use evidence and reasons to support claims*
      v. *Demonstrate improved skills in grammar, punctuation, and mechanics.*
   c. *Advanced Composition*
      i. *Organize ideas logically in writing.*
      ii. *Use evidence and reasons to support claims.*
      iii. *Demonstrate proper grammar and mechanics in writing.*
      iv. *Write essays and papers with attention to language and style.*
      v. *Format essays and papers according to APA-style guidelines.*
      vi. *Compose an academic research essay containing the major parts of a scholarly article (abstract, introduction, methods, results, etc.) .*

Results

	ENG 1503 Business & Technical Writing	**ENG 1903 College Composition**	**ENG 2203 Advanced Composition**
# of Students	31	23	6
% of outcomes met	90%	90%	100%

Analysis

Most students in required written communications courses are meeting minimum expectations of "D" or passing. However, it would be helpful to have data showing the various levels at which students are achieving effective writing skills. In the future, writing evaluation software will be used to more consistently quantify writing quality in terms of organization, grammar, mechanics, and usage.

2. **Criterion Two: Oral Communication**
   a. *Sales Communication*
      i. Develop skills in oral communication by becoming involved in the sales process by participating in an actual sales presentation.
      ii. Develop skills in written communication by developing expression of ideas through writing assignments and a written final project.
   b. *Speech*
      i. Compose and deliver speeches for various settings and purposes
      ii. Use appropriate visual support for oral presentations
      iii. Organize ideas logically in writing and speaking
      iv. Demonstrate good delivery techniques
      v. Demonstrate good language choice (more imaginative, compelling, and appropriate language)
      vi. Deliver a presentation in front of a formal audience

Results

	SPC 1103: Sales Communications	**SPC 1113: Speech**
# of Students	35	26
% of outcomes met	100%	85%

Analysis

Most students in required oral communications courses are meeting minimum expectations of "D" or passing.

3. **Criterion Three: Quantitative Literacy**
   a. *Math for Veterinary Technicians*
      i. Obtain an understanding of and perform arithmetic operations using fractions, decimals, percents, ratios and proportions.
      ii. Analyze and solve application problems using fundamental arithmetic operations using fractions, decimals, percents, ratios, and proportions.
      iii. Apply the basic principles of algebra, geometry, statistics, and graphs to the solution of applications in veterinary care.
      iv. Recognize Roman numerals and be able to translate to ordinary numbers.
      v. Perform conversions within and between Metric and Standard measurement systems.
      vi. Solve single and multi-step dosage problems and the dilution of stock solutions to desired concentrations.
   b. *Agricultural Math*
      i. Add, subtract, multiply and divide proper and improper fractions.
      ii. Calculate sales tax amounts when given the rate and purchase price.
      iii. Do calculations with positive and negative numbers.
      iv. Solve problems using basic geometric formulas
      v. Solve for unknowns in basic algebraic equations.
   c. *College Algebra*
      i. To compute the solutions to equations and inequalities.
      ii. To produce and analyze the graphs of functions in two-dimensional coordinates.
      iii. To apply the properties of algebra to functions.
      iv. To compute the zeros of polynomial functions.
      v. To analyze and graph a rational function.
      vi. To use mathematical equations to model real life situations.
      vii. To apply the properties of exponential and logarithmic functions to simplify expressions.
      viii. To compute the solutions to exponential and logarithmic equations.
      ix. To analyze and graph the equations of the conic sections.
   d. *Elements of Statistics*
      i. Construct frequency distributions & graphs
      ii. State appropriate null and alternative hypotheses
      iii. Determine the probability of an event
      iv. Find the number of permutations and/or combinations of an event
      v. Calculate the mathematical expectation of a discrete random variable
      vi. Calculate mean, median, mode, range, variance & standard deviation of a set of data
      vii. Analyze a set of data using percentiles & z-scores
      viii. Construct confidence intervals for the population mean
      ix. Solve problems involving binomial & normal distributions
      x. Solve problems involving a distribution of the sample means of a population
      xi. Solve statistical application problems with the Central Limit Theorem
      xii. Describe the relationship between two variables using linear correlation.
   e. *Trigonometry*
      i. Determine the direction of a direct line segment
      ii. Position points on the rectangular coordinate system
      iii. Convert radian measure to degree measure and conversely
      iv. Write the general definitions of the trig functions of any angle
      v. Computer the approximate value of the trig functions of any angle
      vi. Solve problems involving trigonometric functions of real numbers

vii. Verify trig identities using the eight fundamental identities
viii. Graph variations of the trig functions
ix. Solve problems involving logarithmic computation
x. Solve problems involving oblique triangles and trig functions
xi. Apply the law of cosines and law of sines
xii. Apply the inverse trig functions
xiii. Solve problems involving complex numbers.

Results

	MTH 1203 Math for Vet Techs	**MTH 1403 Agricultural Math**	**MTH 1503 College Algebra**	**MTH 2203 Elements of Statistics***	**MTH 2253 Trigonometry**
# of Students	39	39	3	19	6
% of course outcomes met	64%	77%	70%	88%	82%

*Includes dual credit

Analysis

Most students are meeting minimum expectations of "D" or passing. In Math for Vet Techs 41 percent of students failed to the first two outcomes (obtain an understanding of and perform arithmetic operations using fractions, decimals, percents, ratios, and proportions; and analyze and solve application problems using fundamental arithmetic operations using fractions, decimals, percents, ratios, and proportions). Students will receive more opportunities in the future to practice and achieve these outcomes.

4. **Criterion Four: Problem Solving**
   a. *Introduction to Spreadsheets*
      i. Demonstrate problem solving skills using Microsoft Excel 2010.
      ii. Gain a basic working knowledge of Microsoft Excel 2010.
      iii. Clearly demonstrate proficiencies developed when using Microsoft Excel 2010.
   b. *Plant Science (and Plant Science Lab or Horticulture Science Lab)*
      i. Students will be able to describe the mechanisms involved in seed germination, crop emergence, vegetative growth, and reproductive growth.
      ii. Students will examine water uptake and transpiration including why transpiration is critical for plant growth.
      iii. Students will be able to describe the major photosynthetic pathways and factors that influence the efficiency of plant photosynthesis.
      iv. Students will be able recognize how plants obtain stored energy for growth including source-sink relationships during plant growth and development.
      v. Students will differentiate how light, temperature and stress affects plant growth and reproduction.
      vi. Students will recognize the major plant hormones and be able to describe their role in plant growth and development.
      vii. Students will distinguish how genetics affects plant characteristics and methods of genetic engineering.
   c. *Fundamentals of Animal Biology*
      i. Identify parts of a cell.
      ii. Explain the action of a cell.
      iii. Describe cell division and heredity.
      iv. Explain the physiological processes of a system
      v. Use a binocular microscope.
      vi. Identify basic anatomical parts of a prepared specimen.
   d. *General Biology*
      i. Describe the basic causes and effects of evolution.
      ii. Discuss the taxonomic system used in classifying living things.
      iii. Explain the process of DNA replication, RNA production, and Protein synthesis.
      iv. Write a scientific paper correctly including all of the required parts.
      v. Complete work in the laboratory using the proper safety procedures.
   e. *Introduction to Chemistry I*
      i. Recognize the various groups of elements on the periodic table
      ii. Describe the structure of an atom
      iii. Balance chemical equations
      iv. Solve stoichiometric problems
      v. Describe the electron orbitals of an atom
   f. *Introduction to Chemistry II*
      i. Identify the states of matter
      ii. Determine the effects of volume and temperature changes on the pressure of gas
      iii. Identify and determine products of redox reactions
      iv. Solve solution chemistry problems
      v. Describe how nuclear reactions effect the nucleus of an atom
      vi. Describe the uniqueness of carbon bonding and how it results in many organic compounds

Results

	AIT 1092: Intro to Spread-sheets*	ASI 1024: Fundamentals of Animal Biology*	BIO 1313: Plant Science (Lecture & Lab)	BIO 1104: General Biology (Lecture)	CHM 1014: Intro to Chem-istry*	CHM 1024: Intro to Chem-istry II	CHM 1104: General Chem-istry*
# of Students	145	52	16	13	12	6	32
% of outcomes met	72%	86%	93%	80%	84%	78%	92%

*Includes dual credit

Analysis

Most students are meeting minimum expectations of “D” or passing. In the fall, 85 percent of dual credit students in AIT 1092 failed to meet course outcomes. That number was significantly reduced in the spring by requiring high school students to use certification testing. Next fall, this course will be replaced with a different computer applications and software course.

5. **Criterion Five: Civic Engagement**
   a. *Learning Communities*
      i. SLO 2: Students will participate in activities of personal and public concern that are both individually life enriching and socially beneficial to the community.
   b. *Human Relations*
      i. By the end of the course, students will identify and describe the core principles of Civic engagement to at least a 70% accuracy level. (Test Question)
      ii. Students will demonstrate effective and professional communication while interacting with others in a classroom during a group presentation, achieving at least a grade of 70%. (Rubric)
      iii. As part of their term paper, students will describe the growth they have experienced in understanding themselves and others after reading "Now, Discover Your Strengths" and having completed the StrengthsFinder assessment. (Rubric)

Results

	PSY 1011: Learning Communities	**PSY 1103: Human Relations**
# of Students	110	53
% of course outcomes met	75%	72%

Analysis

Most students are meeting minimum expectations of "D" or passing.

6. **Criterion Six: Critical Thinking**
   a. *Business & Technical Writing*
      i. *Read texts at a critical level*
      ii. *Identify and explain common logical fallacies.*
      vii. *Use evidence and reasons to support claims*
   b. *College Composition*
      i. *Read texts at a critical level*
      ii. *Identify and explain common logical fallacies.*
      iii. *Use evidence and reasons to support claims*
   c. *Advanced Composition*
      i. *Use evidence and reasons to support claims*

Results

	ENG 1503: Business and Technical Writing	**ENG 1903: College Composition**	**ENG 2203: Advanced Composition**
# of Students	31	23	6
% of course outcomes met	85%	87%	100%

Analysis

This was the first year the Division attempted to measure and report critical thinking skills. New outcomes and assignments will be added to English 1503 and English 1903 to measure this outcome more precisely in the future.

7. **Criterion Seven: Information Literacy**
   a. *Learning Communities*
      i. SLO 3: Students will be able to identify, locate, evaluate and effectively and responsibly use and share information.

Results

	PSY 1011: Learning Communities
# of Students	102
% of course outcomes met	92%

Analysis

Most students are meeting minimum expectations of “D” or passing.

Part III – General Education Outcomes – Other Recommendations

In addition to the recommendations above, the Division should pursue the following goals:

1. The Division should implement a system for determining how many students need remediation before completing the required Written Communication courses.
2. The Division should consider adding "Intercultural Knowledge and Competence" as a program outcome, per a Higher Learning Commission suggestion.
    a. This outcome could be added to the Learning Communications course. The Civic Engagement outcome could be dropped from Learning Communications to make room for this outcome. Civic engagement should remain an outcome in the new Leadership course.
3. An additional activity should be created to measure "Critical Thinking" in writing courses.
4. The Division should review the appropriateness and validity of specific course outcomes in meeting program outcomes.
5. The Division should require faculty to match course outcomes to specific criteria for assessment in syllabi.
6. The Division should continue to encourage faculty to conduct pre- as well as post-test measures of all outcomes.
7. The Division should continue to encourage faculty to submit raw data along with their SLO reports.
8. The Division should continue to seek training opportunities to ensure faculty members are using valid, reliable, and precise methods.

Part IV – General Education Outcomes – Results of Previous Recommendations

1. Creative Thinking was reconsidered as a program-level outcome and dropped from the General Education program
2. Critical Thinking was added to the General Education program