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| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** LS 101 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Follow a plan for finding information using a variety of electronic and print tools. | 2. Select appropriate sources based upon information need and context. | COK, CRT, IIT |
| 2. Employ strategic processes of inquiry to guide and refine information needs and search strategies. | 1. Employ strategic processes of inquiry to guide and refine information needs and search strategies. | COK, IIT |
| 3. Demonstrate basic use of electronic search strategies. | 5. Demonstrate the effective use of electronic search strategies. | COK, IIT |
| 4. Describe the purpose of and collect the elements necessary for a citation in a standard style. | 3. Use information ethically by citing sources in a standard citation style, with minimal errors. | COK, IIT, RES |
| 5. Develop familiarity with sources of evidence, methods, and modes of discourse. | 4. Practice synthesizing information from more than one source into a new information product. | COK, COM, CRT, IIT, LWC, RES |
| 6. Identify and explain the differences between major types of information resources (e.g., books, lay periodicals, scholarly journals, wikis, etc.)and when and how to use them. | 2. Select appropriate sources based upon information need and context. | COK, CRT, IIT |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** MATH 095 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Use function notation. | 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM |
| 2. Use linear functions to model situations and solve problems algebraically, graphically, and numerically. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information  2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions  4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, COM, CRT  COK, CRT  COK, COM |
| 3. Solve and graph systems of linear equations and inequalities in two unknowns. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, CRT  COK, COM |
| 4. Use integer and rational exponents and scientific notation. | 3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas  5. Use technology to analyze and solve mathematical problems and to effectively communicate solutions to problems, particularly those that cannot be solved efficiently by other means | COK, CRT  COK, COM  COK, COM, CRT, IIT |
| 5. Demonstrate an understanding of quadratic, exponential, and logarithmic functions from algebraic, graphical, and numerical perspectives. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, CRT  COK, COM, CRT  COK, COM |
| 6. Use the algebra of radical expressions. | 3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions  4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, CRT  COK, COM |
| 7. Use and interpret the above concepts in real world applications. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information  2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions  4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas  5. Use technology to analyze and solve mathematical problems and to effectively communicate solutions to problems, particularly those that cannot be solved efficiently by other means | COK, COM, CRT  COK, COM, CRT  COK, CRT  COK, COM  COK, COM, CRT, IIT |
| 8. Write clear and complete solutions to mathematical problems, including correct notation and written explanations when appropriate. | 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM |
| 9. Use a scientific calculator appropriately. | 5. Use technology to analyze and solve mathematical problems and to effectively communicate solutions to problems, particularly those that cannot be solved efficiently by other means | COK, COM, CRT, IIT |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** ABE 070 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Evaluate information scientifically in the context of his/her own life. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  2. Recognize themselves as learners and citizens capable of accomplishing their academic and professional goals and contributing to the larger community.  3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments. | COK, COM, CRT  COM, CRT, LWC, RES  COM, IIT, LWC |
| 2. Perform scientific investigations in a lab setting, gather, analyze and critically evaluate scientific data, and communicate scientific results according to appropriate academic standards. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  5. Use interpersonal skills and strategies in a multicultural context to work collaboratively, solve problems, and perform tasks. | COK, COM, CRT  LWC, RES |
| 3. Evaluate the dimensions of health, including the basic principles of genetics and hereditary, and relate it to personal health behaviors. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments. | COK, COM, CRT  COM, IIT, LWC |
| 4. Identify basic body systems and use basic medical terminology. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 5. Evaluate nutritional and environmental factors affecting growth, development, and wellness. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  2. Recognize themselves as learners and citizens capable of accomplishing their academic and professional goals and contributing to the larger community. | COK, COM, CRT  COM, CRT, LWC, RES |
| 6. Evaluate health risks associated with certain occupational, residential, and recreational choices. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 7. Identify community health resources. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments. | COK, COM, CRT  COM, IIT, LWC |
| 8. Interpret and explain basic data represented in graphs and charts. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 9. Utilize academic research skills; such as evaluate the quality/credibility of information from various kinds of sources, narrow topics and discern the most important information from texts. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments. 4. Demonstrate an increase in computer literacy and proficiency in using technology for academic and professional purposes. | COK, COM, CRT  COM, IIT, LWC  IIT |
| 10. Employ strategies to build and retain vocabulary. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 11. Identify how authors organize text both written and oral and use vocabulary for specific purposes and audiences, and apply these strategies to their own academic writing and speaking. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 12. Utilize the writing process to write academic paragraphs building towards academic essays and lab reports. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 13. Improve sentence clarity and structure by addressing errors in the context of their own writing. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 14. Use computer skills/programs for academic purposes such as word processing, email, and learning management systems as well as applying information technology to increase background knowledge, access new information and enhance scholarship. | 3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments.  4. Demonstrate an increase in computer literacy and proficiency in using technology for academic and professional purposes. | COM, IIT, LWC  IIT |
| 15. Compile evidence through a reflective portfolio assessment process which documents academic growth, increased proficiency in, and knowledge of content area skills. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies.  2. Recognize themselves as learners and citizens capable of accomplishing their academic and professional goals and contributing to the larger community.  3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments. | COK, COM, CRT  COM, CRT, LWC, RES  COM, IIT, LWC |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** ABE 082 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Identify place value system to millions and decimals to thousandths. (5.NBT.3) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 2. Represent and solve problems involving addition, subtraction, multiplication and division of whole numbers. (2.OA.1, 3.OA.1) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 3. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. (3.OA.8) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 4. Add, subtract, multiply and divide decimals to the hundredths including applications involving financial literacy. (5.NBT.7) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 5. Evaluate fractions by reading, writing, reducing, and comparing benchmark fractions. Change mixed numbers to improper and vice versa and find equivalent fractions. (3.NF.2, 3.NF.3) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 6. Add and subtract fractions and mixed numbers with like denominators and apply to real life applications. (4.NF.3c, 4.NF.3d) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 7. Multiply and divide benchmark fractions by fractions, whole numbers and mixed numbers and solve related real life application problems. (5.NF.3, 5.NF.4, 5.NF.5, 5.NF.6, 5.NF.7) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 8. Solve real world and mathematical problems involving area and perimeter of squares, rectangles and triangles.(6.G.1, 3.MD.7, 3.MD.8) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 9. Represent and interpret data including mean, median, mode, and range using a line and bar graph. (5.MD.2) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 10. Apply arithmetic to algebraic expressions by writing, interpreting and evaluating numerical expressions involving whole number exponents and order of operations. (5.OA.1, 6.EE.2) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 11. Evaluate positive and negative numbers. Use positive and negative numbers to represent quantities in real world contexts.(6.NS.6a) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 12. Solve whole number single variable equations using the four operations. Use substitution to determine whether a given number makes an equation true.(6.EE.5) | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| 13. Use a scientific calculator appropriately. | 4. Demonstrate an increase in computer literacy and proficiency in using technology for academic and professional purposes. | IIT |
| 14. Access additional math resources through the Internet, campus tutoring services, faculty office hours, and/or study groups to facilitate learning. | 3. Engage in campus activities, utilize campus resources, and demonstrate the ability to transition to and navigate academic and professional environments. 4. Demonstrate an increase in computer literacy and proficiency in using technology for academic and professional purposes.  5. Use interpersonal skills and strategies in a multicultural context to work collaboratively, solve problems, and perform tasks. | COM, IIT, LWC  IIT  LWC, RES |
| 15. Write clear and complete solutions to mathematical problems, including correct notation and written explanations when appropriate. | 1. Demonstrate academic reading, math, and written and oral communication skills through metacognition and the development of critical thinking and comprehension strategies. | COK, COM, CRT |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** ASTR& 101 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Explain the Earth?s motions through space. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 2. Summarize a brief history of Astronomy, including the Copernican revolution. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 3. Explain the nature of light, including light spectra and how the uses of spectra enable us to understand the universe. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 4. Describe the different types of telescopes used for different regions of the electromagnetic spectrum. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 5. Summarize the motions and appearance of the nighttime sky. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 6. Explain the current theories of formation and characteristics of the solar system, including the planets, moons, asteroids, and comets. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 7. Classify the properties of stars, including star types and the Hertzprung-Russell Diagram. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 8. Explain the current theories of star formation and stellar evolution. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 9. Classify the different types and outcomes of star death, including the mass dependence. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 10. Demonstrate understanding of the scientific method and its use in the field of Astronomy. | 2. Explain the importance of observation and hypothesis testing in the scientific process, and distinguish between the scientific process and other human endeavors | COK, COM, CRT |
| 11. Explain the theories of the composition, structure, and behavior of the universe. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos)  4. Perform and effectively communicate the results of scientific investigations, and explain how research is done in science | COK, COM, CRT  COK, COM, CRT, IIT, LWC |
| 12. Analyze astronomical data and use it to draw scientific conclusions. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos)  4. Perform and effectively communicate the results of scientific investigations, and explain how research is done in science | COK, COM, CRT  COK, COM, CRT, IIT, LWC |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** CMST 110 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Recognize the significance of engaging in a cultural study. | 3. Read critically and research effectively to support thesis | COK, CRT, IIT |
| 2. Explain the characteristics of cultural communication patterns. | 1. Craft, develop, and support a specific, debatable thesis  3. Read critically and research effectively to support thesis | COK, COM, CRT  COK, CRT, IIT |
| 3. Identify and describe characteristics of cultural communication patterns. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 4. Recognize factors that shape local, regional, national, and international cultures. | 3. Read critically and research effectively to support thesis  4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions | COK, CRT, IIT  COK, COM |
| 5. Explain how public and private organizations function as cultures in the U.S. and abroad. | 2. Draft and refine a well-organized essay, speech, or other forms of communication appropriate to context and audience  3. Read critically and research effectively to support thesis  4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions 5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, COM, CRT  COK, CRT, IIT  COK, COM  LWC, RES |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** ENGL& 235 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Develop an understanding of the nature and substance of technical reports. | 1. Craft, develop, and support a specific, debatable thesis  3. Read critically and research effectively to support thesis  4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions 5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES  COK, COM, CRT |
| 2. Develop an understanding of the qualities and elements that go into good business and science reports. | 2. Draft and refine a well-organized essay, speech, or other forms of communication appropriate to context and audience  3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions | COK, COM, CRT  COK, CRT, IIT  COK, COM |
| 3. Organize and prepare various types of technical writing, including reports, technical descriptions, proposals, and feasibility studies. | 1. Craft, develop, and support a specific, debatable thesis  4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, COM, CRT  COK, COM  LWC, RES |
| 4. Use current technology to gather, evaluate, and analyze information. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 5. Write clearly, effectively, and concisely. | 1. Craft, develop, and support a specific, debatable thesis  2. Draft and refine a well-organized essay, speech, or other forms of communication appropriate to context and audience | COK, COM, CRT  COK, COM, CRT |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** BIOL& 175 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Identify the organs and basic functions of the following organ systems: integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, immune, respiratory, digestive, urinary and reproductive. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 2. Describe the levels of biological organization (including the chemical, cellular, tissue, organ and systems levels) as they apply to the structure and function of the human body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 3. Define homeostasis and recognize examples in the human body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 4. State anatomical relationships in scientific terms. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 5. Discuss the biomolecules and cell structures involved in membrane transport, protein production and storage/transfer of genetic information. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 6. Match the four major tissue types to their general function and to examples within the human body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 7. Identify major bones and muscles. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 8. Relate how bones and muscles interact to cause body movement. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 9. Identify the key aspects of muscle contraction. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 10. Anatomically locate the major structures of the nervous, endocrine, cardiovascular, respiratory, digestive and urinary systems. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 11. Explain how nerve cells transmit signals in the human body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 12. Match major structures of the nervous system to their function. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 13. Describe negative feedback control of hormone release and give examples from the human body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 14. Identify hormones secreted by the major endocrine glands and their functions. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 15. Summarize the composition and how the different components facilitate the roles of blood in the body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 16. Describe the pathway of blood flow through the heart, lungs and body. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 17. Outline the electrical and physical events in the cardiac cycle. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 18. Define blood pressure and recognize factors that affect it. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 19. Describe the respiratory processes of ventilation and respiration. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 20. Explain how the digestive system breaks down food and absorbs nutrients. | 3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT |
| 21. Identify necessary components of a balanced diet. | 1. Evaluate information scientifically in the context of his/her own life  3. Communicate the primary principles and processes underlying at least one natural system (for example: atoms and molecules, cells and organisms, the oceans and atmosphere, the solid earth, or the cosmos) | COK, COM, CRT, IIT, RES  COK, COM, CRT |
| 22. Critically evaluate health information presented in the news and other media sources. | 1. Evaluate information scientifically in the context of his/her own life  2. Explain the importance of observation and hypothesis testing in the scientific process, and distinguish between the scientific process and other human endeavors | COK, COM, CRT, IIT, RES  COK, COM, CRT |
| 23. Practice scientific methods to evaluate human health. | 2. Explain the importance of observation and hypothesis testing in the scientific process, and distinguish between the scientific process and other human endeavors  4. Perform and effectively communicate the results of scientific investigations, and explain how research is done in science  5. Demonstrate the safe and proper use of scientific instrumentation, measuring devices, chemical reagents, media, and/or other tools of science in a laboratory or field setting relevant to specific disciplines of science | COK, COM, CRT  COK, COM, CRT, IIT, LWC  COK, COM, CRT, IIT, LWC |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** CMST& 210 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Differentiate interpersonal communication from other communication forms. | 3. Read critically and research effectively to support thesis  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | LWC, RES  COK, CRT, IIT |
| 2. Describe the process of communicating. | 3. Read critically and research effectively to support thesis  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  LWC, RES |
| 3. Explain how the process of communication can be affected. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 4. Deconstruct the elements of self-concept and attribute their effect on interpersonal communication. | 3. Read critically and research effectively to support thesis  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  LWC, RES |
| 5. Explain how the perceptual process is affected. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 6. Appraise how the perceptual process affects emotional states. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 7. Explain the effects of one's emotional state on interpersonal communication. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 8. Explain the effects of language on interpersonal communication. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 9. Explain the effects of nonverbal cues on interpersonal communication. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, COM  LWC, RES  COK, CRT, IIT |
| 10. Describe the stages of listening. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 11. Appraise the importance of active listening in the communication process. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 12. Identify effective strategies to manage conflict. | 3. Read critically and research effectively to support thesis 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  COK, COM  LWC, RES |
| 13. Explain the role of interpersonal communication in relationship forming and maintenance. | 3. Read critically and research effectively to support thesis  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, CRT, IIT  LWC, RES |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** ENGL& 101 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Craft, develop, and support a clear thesis; organize essays logically. | 1. Craft, develop, and support a specific, debatable thesis | COK, COM, CRT |
| 2. Use writing strategies appropriate to audience, purpose and occasion. | 2. Draft and refine a well-organized essay, speech, or other forms of communication appropriate to context and audience 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions | COK, COM, CRT  COK, COM |
| 3. Use expository essays to express original ideas. | 1. Craft, develop, and support a specific, debatable thesis  2. Draft and refine a well-organized essay, speech, or other forms of communication appropriate to context and audience | COK, COM, CRT  COK, COM, CRT |
| 4. Read critically. | 3. Read critically and research effectively to support thesis | COK, CRT, IIT |
| 5. Conduct research as needed, use authoritative resources, and follow documentation rules. | 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, COM  LWC, RES |
| 6. Use standard grammar and academic writing conventions. | 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions | COK, COM |
| 7. Use a writing process of pre-writing, drafting and revision. | 1. Craft, develop, and support a specific, debatable thesis  2. Draft and refine a well-organized essay, speech, or other forms of communication appropriate to context and audience | COK, COM, CRT  COK, COM, CRT |
| 8. Use academically accepted collaboration to improve writing and understanding. | 4. Use appropriate writing and/or communication strategies, standard grammar, and academic documentation conventions  5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | COK, COM  LWC, RES |
| 9. Take responsibility for own learning and ethical behavior in academic course-work. | 5. Demonstrate ethical standards in all phases of the writing and/or communication process to include using collaboration within academically appropriate guidelines | LWC, RES |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** MATH& 142 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Demonstrate an understanding of the unit circle definition of sine, cosine, and tangent. | 2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, COM |
| 2. Create and analyze the graphs of trigonometric functions. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information  2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world | COK, COM, CRT  COK, COM, CRT |
| 3. Use the unit circle, point in the plane, and right triangle descriptions to evaluate trigonometric functions and solve problems. | 2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, COM |
| 4. Use trigonometric functions to model numeric relationships expressed graphically, verbally, or in tables of values. | 2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, CRT  COK, COM |
| 5. Use trigonometric identities to simplify an expression or solve an equation. | 3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions  4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, CRT  COK, COM |
| 6. Demonstrate an understanding of the inverse trigonometric functions. | 2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, COM |
| 7. Solve trigonometric equations both graphically and analytically. | 3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas  5. Use technology to analyze and solve mathematical problems and to effectively communicate solutions to problems, particularly those that cannot be solved efficiently by other means | COK, CRT  COK, COM  COK, COM, CRT, IIT |
| 8. Determine the standard equations of ellipses, hyperbolas, and parabolas and use the equations to graph conic sections. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, CRT  COK, COM |
| 9. Use the geometric properties of the conic sections in applications. | 2. Determine, create, and use appropriate and reasonable mathematical constructs to model, understand, and explain phenomena encountered in the world  3. Determine and carry out an appropriate algorithm to solve problems that are amenable to mathematical solutions 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM, CRT  COK, CRT  COK, COM |
| 10. Apply parametric equations and graph the associated plane curve. | 1. Interpret, analyze, and create graphs and charts that communicate quantitative or relational information | COK, COM, CRT |
| 11. Write clear and complete solutions to mathematical problems, including correct notation and written explanations when appropriate. | 4. Communicate mathematical information formally, using appropriate math notation and terminology, and informally by using everyday language to express ideas | COK, COM |
| 12. Use a graphing calculator and/or computer software as appropriate. | 5. Use technology to analyze and solve mathematical problems and to effectively communicate solutions to problems, particularly those that cannot be solved efficiently by other means | COK, COM, CRT, IIT |
| **TACOMA COMMUNITY COLLEGE Outcome Map**  **Course:** SPAN& 221 | | |
| **Course Outcomes** | **PLO** | **DLO** |
| 1. Recognize oral communication when presented in simple sentences. | 1. Know and recall important ideas and facts relating to Humanities Program subject areas (Art, Creative Writing, World Languages, Humanities, Literature, Music, and Philosophy)  2. Apply critical thinking skills to explore and interpret the human diversity of the experience  3. Utilizing various media, create and communicate content understanding  4. Demonstrate empathy and understanding based on recognition of historical and cultural contexts in more than one Humanities subject area | COK  CRT, IIT  COM  LWC, RES |
| 2. Interpret a variety of topics including personal information and social situations. | 1. Know and recall important ideas and facts relating to Humanities Program subject areas (Art, Creative Writing, World Languages, Humanities, Literature, Music, and Philosophy)  2. Apply critical thinking skills to explore and interpret the human diversity of the experience  3. Utilizing various media, create and communicate content understanding  4. Demonstrate empathy and understanding based on recognition of historical and cultural contexts in more than one Humanities subject area | COK  CRT, IIT  COM  LWC, RES |
| 3. Explain about themselves and about social events in short, simple compositions. | 1. Know and recall important ideas and facts relating to Humanities Program subject areas (Art, Creative Writing, World Languages, Humanities, Literature, Music, and Philosophy)  2. Apply critical thinking skills to explore and interpret the human diversity of the experience  3. Utilizing various media, create and communicate content understanding  4. Demonstrate empathy and understanding based on recognition of historical and cultural contexts in more than one Humanities subject area | COK  CRT, IIT  COM  LWC, RES |
| 4. Report an understanding of simple short texts of familiar topics. | 1. Know and recall important ideas and facts relating to Humanities Program subject areas (Art, Creative Writing, World Languages, Humanities, Literature, Music, and Philosophy)  2. Apply critical thinking skills to explore and interpret the human diversity of the experience  3. Utilizing various media, create and communicate content understanding  4. Demonstrate empathy and understanding based on recognition of historical and cultural contexts in more than one Humanities subject area | COK  CRT, IIT  COM  LWC, RES |
| 5. Relate Spanish speaking cultures and the nature of the Spanish language to the student's culture. | 1. Know and recall important ideas and facts relating to Humanities Program subject areas (Art, Creative Writing, World Languages, Humanities, Literature, Music, and Philosophy)  2. Apply critical thinking skills to explore and interpret the human diversity of the experience  3. Utilizing various media, create and communicate content understanding  4. Demonstrate empathy and understanding based on recognition of historical and cultural contexts in more than one Humanities subject area | COK  CRT, IIT  COM  LWC, RES |
| 6. Recognize distinctive viewpoints through the Spanish language and the culture of Spanish speaking countries. | 1. Know and recall important ideas and facts relating to Humanities Program subject areas (Art, Creative Writing, World Languages, Humanities, Literature, Music, and Philosophy)  2. Apply critical thinking skills to explore and interpret the human diversity of the experience  3. Utilizing various media, create and communicate content understanding  4. Demonstrate empathy and understanding based on recognition of historical and cultural contexts in more than one Humanities subject area | COK  CRT, IIT  COM  LWC, RES |