

Outcomes Assessment for Core Competencies

Student _____

Date _____

I. Communication Skills – the ability to listen, speak, and write effectively to convey information and ideas -- evaluated through the student’s questions & responses, lab reports, exams, presentations, papers, or projects.

A. Listening (understands and applies directions and information)

Novice (1)

- Requires constant repetition of instructions to execute tasks.
- Follows verbal directions inaccurately.

Partially Proficient (2)

- Requires frequent repetition of instructions, and asks inappropriate questions.

Proficient (3)

- Executes prescribed tasks according to instructions.
- Asks clarifying questions, and adjusts task performance based on verbal information.

Advanced (4)

- Executes prescribed tasks quickly and efficiently.
- Evaluates the verbal information/directions for accuracy.

B. Speaking (verbally expresses ideas or information)

Score _____

Novice (1)

- Uses vague vocabulary or slang, makes frequent grammatical errors.
- Has difficulty communicating ideas.

Partially Proficient (2)

- Uses basic vocabulary, makes infrequent grammatical errors.
- Communicates clearly.

Proficient (3)

- Uses effective vocabulary.
- Communicates accurately and clearly.
- Uses appropriate gestures, tone, and body language.

Advanced (4)

- Uses interesting and precise vocabulary.
- Presents well-organized arguments.

C. Writing (writes to convey information or express ideas)

Score _____

Novice (1)

- Uses incorrect grammar & punctuation, sentence structure is poor.
- Partially conveys ideas.

Partially Proficient (2)

- Generally uses correct grammar & punctuation; conveys ideas or information fairly clearly.
- Attempts to support with information, but not appropriately or accurately.

Proficient (3)

- Uses correct grammar and punctuation, presents information clearly.
- Uses effective vocabulary and organization to support idea or argument with appropriate evidence.

Advanced (4)

- Uses interesting and precise vocabulary, uses all language conventions correctly.
- Powerfully conveys idea through exemplary organization and compelling evidence.

Score _____

COMMUNICATIONS SKILLS COMPOSITE SCORE _____

II. Analytical and Quantitative Reasoning – the ability to collect, analyze and interpret data, and think critically – evaluated in lab reports, homework assignments, and test answers

A. Basic Operations (whole numbers, fractions, decimals, and percents)

Novice (1)

- Performs single-step calculations with frequent errors in computation.
- Fails to recognize erroneous results from calculator.

Partially Proficient (2)

- Performs single-step calculations with only occasional errors in computation.
- Can recognize calculator errors (bogus values).

Proficient (3)

- Performs calculations requiring two steps.
- Consistently and accurately completes calculations.

Advanced (4)

- Performs calculations requiring more than two steps and checks for reasonableness of results.
- Completes calculations with high degree of precision.

B. Measurement (tools, conversions)

Score _____

Novice (1)

- Demonstrates incomplete understanding of relationship between standard and metric systems.
- Finds lengths, weights, temperatures, but cannot determine area or volume with accuracy.

Partially Proficient (2)

- Demonstrates working knowledge of the relationship between standard and metric systems.
- Selects appropriate measurement tools for accuracy.

Proficient (3)

- Measures accurately within tolerance necessary for a given task.
- Makes occasional errors converting between standard and metric units.

Advanced (4)

- Converts accurately between standard and metric units using dimensional analysis.

C. Data Representations (applies data to support decision making)

Score _____

Novice (1)

- Reads graphs, charts, and tables of data to gain literal information.

Partially Proficient (2)

- Creates graphs, charts, and tables, but misrepresents some data.

Proficient (3)

- Reads graphs, charts, and tables of data to gain information needed to complete a task.
- Creates graphs, charts, and tables to accurately represent data.

Advanced (4)

- Interprets graphs, charts, and tables to gain information needed to complete a task.
- Analyzes data to make accurate decisions based on inferences drawn from the data.

D. Advanced Math (employs algebraic and geometric reasoning)

Score _____

Novice (1)

- Attempts to solve algebra problems with frequent errors.

Partially Proficient (2)

- Solves word problems containing one unknown.

Proficient (3)

- Understands algebraic rules to set up and solve two-step word problems.
- Utilizes exponents (scientific notation).

Advanced (4)

- Sets up and solves multi-step algebraic problems containing several unknowns and distractors.
- Accurately performs calculations in with exponential forms.

Score _____

E. Critical Thinking/Problem Solving

Novice (1)

- Recognizes problem, but relies on assistance solving problem.
- Does not distinguish between relevant and irrelevant information

Partially Proficient (2)

- Identifies criteria needed to solve problem.
- Identifies errors in information but cannot explain why they are errors.
- Self corrects with direction

Proficient (3)

- Selects a viable solution to solve problem.
- Integrates information from several sources for application to a new situation.
- Distinguishes relevant from irrelevant information
- Monitors for errors and self corrects without assistance

Advanced (4)

- Applies information and logic to problem solving
- Identifies creative methods for overcoming obstacles
- Evaluates and integrates information.
- Thinks outside the obvious

Score _____

ANALYTICAL AND QUANTITATIVE REASONING SKILLS COMPOSITE SCORE _____

III. Technology Skills – the ability to use basic lab tools and equipment, and to demonstrate basic computer skills - evaluated by performance in labs, in computer based labs, homework assignments, and internet searches

A.. Lab skills – the use of basic tools and equipment (scales, measuring devices, microscopes, pH meters, spectrometers, etc.)

Novice (1)

- Cannot/does not use tools.

Partially Proficient (2)

- Can use, but needs significant help.

Proficient (3)

- Uses effectively with only minimal help.

Advanced (4)

- Uses effectively without help.

Score _____

B. Computer Skills (uses email, basic software for intended purpose – e.g. word processors, spread sheets, or course specific software for Chem, Bio, Stats, etc., and performs internet searches)

Novice (1)

- Cannot/does not use email, basic software, or internet.

Partially Proficient (2)

- Can use, but needs significant help.

Proficient (3)

- Uses effectively with only minimal help.

Advanced (4)

- Uses effectively without help.

Score _____

TECHNOLOGY SKILLS COMPOSITE SCORE _____

V. Social Awareness -- the ability to work with others, to demonstrate professionalism, and to be show awareness of social and ethical issues associated with scientific developments -- evaluated by observation of interpersonal skills, professional conduct/work ethic, and discussion or writings concerning contemporary scientific developments

A. Cooperation/interpersonal skills (evidenced in group efforts in lab & classroom)

Novice (1)

- Creates conflict within groups or Isolates self from group efforts.
- Parasitizes group effort.

Partially Proficient (2)

- Contributes to group efforts occasionally.
- Works cooperatively occasionally.

Proficient (3)

- Consistently and actively contributes to the group effort
- Works cooperatively, often assists others in completing tasks.

Advanced (4)

- Often organizes and directs group tasks, shows leadership skills.
- Often resolves conflicts between group members objectively.

B. Professional conduct/work ethic

Score _____

Novice (1)

- Fails to complete tasks, is not prepared for lecture or lab.
- Frequently absent or tardy.
- Uses inappropriate/non-professional language in class or lab.
- Does not respond well to constructive criticism, consistently blames others for shortcomings.

Partially Proficient (2)

- Completes tasks, but not always on time, is only partially prepared for class or lab.
- Occasionally absent or tardy..
- Accepts constructive criticism, but occasionally blames others.

Proficient (3)

- Completes and submits assignments on time, is consistently prepared for class or lab
- Works to meet expectations and do tasks well at all times.
- Regards sensitivities of others when speaking in class or lab.
- Accepts constructive criticism and makes an attempt to modify behavior accordingly.

Advanced (4)

- Works beyond expectations and is well prepared for lecture or lab.
- Works to achieve excellence on all tasks.
- Interacts professionally with instructor and others in class or lab.
- Flexible in thinking, and flexible in responding to changes in schedule or syllabus.
- Accepts constructive criticism and works to modify behavior accordingly.

C. Awareness of Societal and Ethical Issues in Science

Score _____

Novice (1)

- Unaware of societal or ethical issues related to scientific developments.

Partially Proficient (2)

- Vaguely aware of societal or ethical issues related to scientific developments.

Proficient (3)

- Aware of both sides of issues related to scientific developments.
- Has begun to formulate personal judgment concerning issues.

Advanced (4)

- Interested in and informed about issues related to science.
- Integrating knowledge and making informed judgments about issues.

Score _____

SOCIAL AWARENESS COMPOSITE SCORE _____

V. Information Literacy – the ability to access, evaluate, and use sources of information
- evaluated by performance in assignments requiring information gathering

A..

A. Accessing information:

Novice (1)

- Cannot/does not access information.

Partially Proficient (2)

- Can only find limited information, not able to refine search.

Proficient (3)

- Finds information, but could do better targeting .

Advanced (4)

- Finds targeted information.

Score _____

B. Evaluation of information

Novice (1)

- Cannot/does not evaluate sources.

Partially Proficient (2)

- Can recognize and eliminate obviously bogus sources.

Proficient (3)

- Does fairly well at evaluating sources and eliminating those which are not valid .

Advanced (4)

- Effectively evaluates sources..

Score _____

C. Use of information

Novice (1)

- Cannot/does not use information correctly.

Partially Proficient (2)

- Uses information somewhat correctly.

Proficient (3)

- Does fairly well at utilizing accessed information.

Advanced (4)

- Appropriately and effectively uses gathered information.

Score _____

INFORMATION LITERACY COMPOSITE SCORE _____