

# Guidelines for Writing Effective, Measurable Program Learning Outcomes (PLOs)

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## EFFECTIVE LEARNING OUTCOMES

- Expected student behaviour
- Specific conditions and standards of performance

 IPLO

# EXPECTED STUDENTS BEHAVIOUR



Observable  
behavioural  
outcome



Clear, targeted verb



A description of  
what the students  
will be able to do



Choose a verb that is  
focused and targets  
a level of  
performance  
appropriate for the  
program



Effective action verb

# STUDENT CENTRED

Focus on the student

Explain expectations  
for student behavior,  
performance, or  
understanding

The student will...

# SPECIFIC CONDITION



SPECIFIC AND  
TARGET ONE  
EXPECTATION OR  
ASPECT OF  
UNDERSTANDING



HIGHLIGHT THE  
CONDITIONS  
UNDER WHICH  
THE STUDENT IS  
EXPECTED TO  
PERFORM THE  
TASK



CONDITIONS OF  
THE OUTCOME  
SHOULD  
COMMUNICATE  
THE SITUATION,  
TOOLS,  
REFERENCES, OR  
AIDS THAT WILL  
BE PROVIDED  
FOR THE  
STUDENT.

# SPECIFIC STANDARDS OF PERFORMANCE



Measurable and include the criteria for evaluating student performance



Degree of accuracy to the requirements of the Standard



Use of specific terminology that has limited interpretations

# TIPS FOR DEVELOPING EFFECTIVE, MEASURABLE PROGRAM LEARNING OUTCOMES

Action verb + content area. Action verb to specify the desired student performance followed by a specific description of the program-specific content target

Keep statements short and focused on a single outcome (Allows to determine whether an objective has been met without having to distinguish between partial completion or complete success)

Avoid using verbs that are vague or cannot be objectively assessed (use active verbs that describe what a student will be able to do once learning has occurred)

SMART (specific, measurable, acceptable to the instructor, realistic to achieve, and time-bound with a deadline)

Include complex or higher-order learning outcomes when they are appropriate

VERY HARD TO MEASURE	STILL TOO HARD TO MEASURE	RELATIVELY EASY TO MEASURE
Students will be able to	Students will be able to	Students will be able to
<i>appreciate the benefits of exercise.</i>	<i>value exercise as a stress reduction tool</i>	<i>explain how exercise affects stress.</i>
<i>access resources in the college library database.</i>	<i>recognize problem solving skills that would enable one to adequately navigate through the proper resources within the college.</i>	<i>evaluate the most appropriate resource that is pertinent to their college concern.</i>
<i>develop problem-solving skills and conflict resolution.</i>	<i>understand how to resolve personal conflicts and assist others in resolving conflicts.</i>	<i>demonstrate to classmates how to resolve conflicts by helping them negotiate agreements.</i>
<i>have more confidence in their abilities.</i>	<i>identify critical thinking skills, such as problem solving as it relates to social issues.</i>	<i>demonstrate the ability to analyze and respond to arguments about racial discrimination.</i>

# USING THE BEST ACTION VERBS FOR PROGRAM LEARNING OUTCOMES

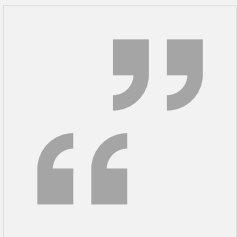


### BEGIN WITH AN ACTION VERB



Begin with an action verb that denotes the level of learning expected. Terms such as *know, understand, learn, appreciate* are generally **not** specific enough to be measurable.

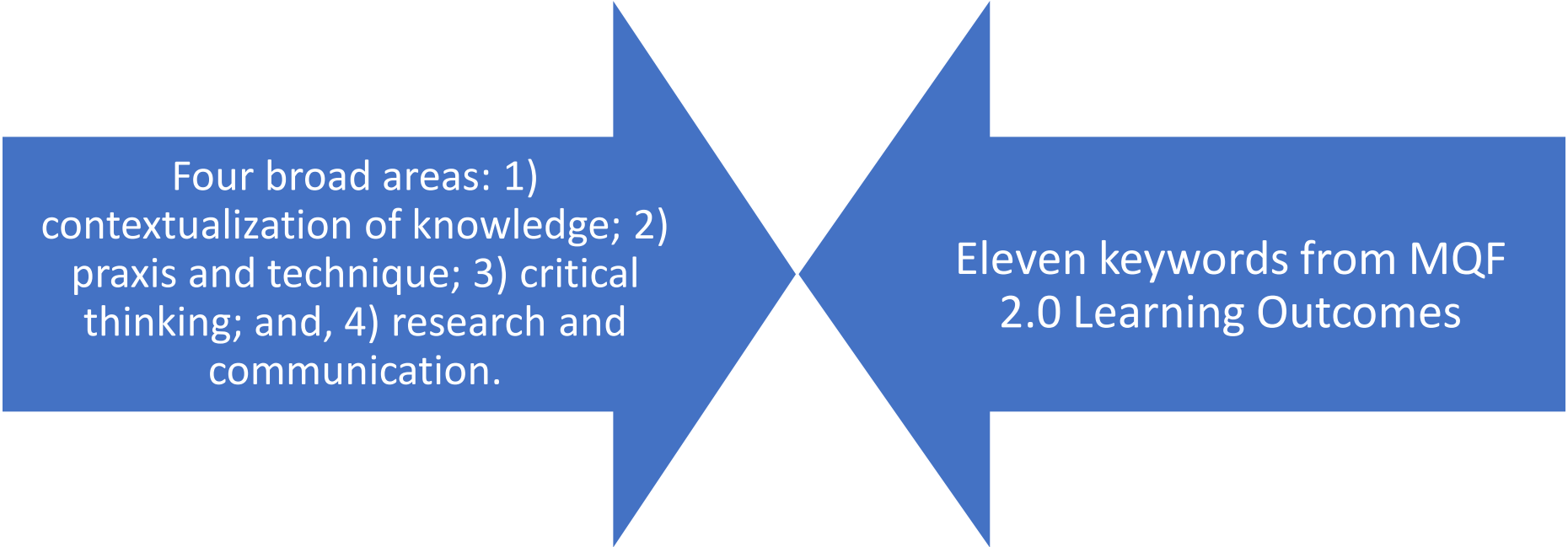
### FOLLOW WITH A STATEMENT



The statement should describe the knowledge and abilities to be demonstrated (limit the number of characters)

# STEPS FOR WRITING OUTCOMES

# WRITING PROGRAM LEARNING OUTCOMES



Four broad areas: 1) contextualization of knowledge; 2) praxis and technique; 3) critical thinking; and, 4) research and communication.

Eleven keywords from MQF 2.0 Learning Outcomes



# WRITING PROGRAM LEARNING OUTCOMES

## CONTEXTUALIZATION OF KNOWLEDGE

Students will...

- solve problems using appropriate information and approaches
- apply knowledge of mathematics, chemistry, physics, and materials science and engineering principles to materials and materials systems



# WRITING PROGRAM LEARNING OUTCOMES

## PRAXIS AND TECHNIQUE

Students will...

- utilize the techniques, skills and modern tools necessary for practice
- demonstrate professional and ethical responsibility
- appropriately apply laws, codes, regulations, architectural and interiors standards that protect the health and safety of the public



# WRITING PROGRAM LEARNING OUTCOMES

## CRITICAL THINKING

Students will...

- analyze systems behavior
- evaluate evidence to determine and implement best practice
- examine technical literature, resolve ambiguity and develop conclusions
- synthesize knowledge and use insight and creativity to improve systems



# WRITING PROGRAM LEARNING OUTCOMES

## RESEARCH AND COMMUNICATION

Students will...

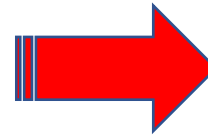
- Interpret the professional and lay literature providing information to both professionals and the public.
- propose original research which includes outlining a plan, assembling the necessary protocol, and performing the research.
- write clear and concise technical reports and research articles.
- communicate effectively through written reports, oral presentations and discussion.
- guide, mentor and support peers to achieve excellence in practice of the discipline.
- work in multi-disciplinary teams and provide leadership on materials-related problems that arise in multi-disciplinary work.



# WRITING PROGRAM LEARNING OUTCOMES

## **KNOWLEDGE & UNDERSTANDING**

Demonstrate originality and independence in undertaking analytical and critical evaluation, and synthesis of complex information, specialized concepts, theories, methods and practice in a field(s) of study/practice as a basis for research



Students will ..

Synthesize complex information, specialized concepts, theories, methods and practice independently in the field of .... (as a basis for research)

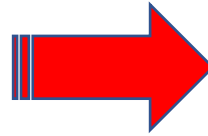


# WRITING PROGRAM LEARNING OUTCOMES

## COGNITIVE SKILLS

Apply knowledge critically and integratively to manage and resolve complex problems/issues in a field(s) of study/practice **through research**, using advance techniques, tools, skills or by a range of approaches or (integrative) combination of approaches for decision making and producing new ideas, and/or innovative solutions or practice.

Exemplify capacity to solve and manage complex problems or issues in a field(s) of study/practice.



Students will ..

Construct solutions to complex problems or issues in the field of ... through research.

Construct solutions to complex problems or issues in the filed of ...

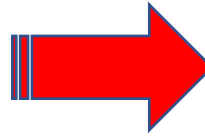




# WRITING PROGRAM LEARNING OUTCOMES

## PRACTICAL SKILLS

Conduct standard and specialized research methods/ approaches and/or apply practical skills, tools or investigative techniques which are informed by knowledge at its forefront and the latest development in the subject /discipline.



Students will ..

Apply practical skills and tools that are based on the forefront knowledge and the latest development in the field of ...

Utilize standard and specialized research methods or approaches that are based on the forefront knowledge and the latest development in the field of ...

Apply investigative techniques that are based on the forefront knowledge and the latest development in the field of ...



# WRITING PROGRAM LEARNING OUTCOMES

## FOR PLO ADDRESSING GENERIC SKILLS

- Use verbs related to affective and psychomotor if applicable
- Refer to the given operational definition (OD) for each PLO as provided in MQF 2.0 (according to levels)



*Thank You!*



Q&A



California State University, Bakersfield,  
PACT Outcomes Assessment Handbook  
(1999).

<https://assessment.provost.wisc.edu/student-learning-outcomes/writing-student-learning-outcomes/>