

Foundations—Symbolic Reasoning (FS)

FS Student Learning Outcomes

- A. Solve a real world problem making appropriate use of symbolic representation and manipulation.
- B. Evaluate a line of reasoning for correctness.
- C. Illustrate the power or limitations of a symbolic technique

Assessment Plan

SLO A in 2008
SLO B in 2009
SLO C in 2010

One group of students will be assessed using the math placement exam. It may be necessary to hire a consultant to modify that placement exam to incorporate questions that align with the three outcomes.

Alignment question: Are students prepared for FS courses? Use ACT's COMPASS test to evaluate all students in FS courses that currently do not require the math placement exam. This diagnostic test can help UHM address the high rate of students who do not successfully complete FS courses.

Plan for SLO A:

Artifacts: Multiple-choice questions, specially written questions embedded into final exam. This will need a consultant to help construct the questions. Assess MATH 100 and NREM 203 first; consult with department chairs about construction of multiple-choice questions. Other courses use open-ended exam questions and these will be assessed later.

Rubric for Open-ended Exam Questions

1-Not meeting	2-Approaching	3-Meeting	4-Exceeding
<ul style="list-style-type: none">• Cannot create an appropriate symbolic representation.• Cannot create an accurate symbolic representation.	Can create some representation but unable to solve most of the problem	Can create an appropriate representation and can solve most of the problem	Can create an appropriate representation and solve the problem

Plan for SLO B: Evaluate a line of reasoning for correctness

More classes will be included in this round, e.g. PHIL and ICS

Rubric for Open-ended Exam Questions

1-Not meeting	2-Approaching	3-Meeting	4-Exceeding
<ul style="list-style-type: none"> • Cannot distinguish between having false premises and having incorrect reasoning. • Highly unreliable judgments of correctness. • Cannot explain the basis of judgments 	<ul style="list-style-type: none"> • Cannot reliably distinguish correct from incorrect reasoning. • Can sometimes explain the basis of their judgments. 	<ul style="list-style-type: none"> • Can reliably distinguish most of the time. • Can correctly explain the basis of their judgments 	<ul style="list-style-type: none"> • Can make sophisticated discriminations and justify them

Plan for SLO C: Illustrate the power or limitations of a symbolic technique

Rubric for Open-ended Exam Questions

1-Not meeting	2-Approaching	3-Meeting	4-Exceeding
<ul style="list-style-type: none"> • Cannot illustrate the power and is not aware of limitations 	<ul style="list-style-type: none"> • Recognizes some limitations • Can identify one important application of a symbolic technique 	<ul style="list-style-type: none"> • Recognizes most limitations • Can identify several important applications of one or more symbolic technique. 	<ul style="list-style-type: none"> • Understanding which limitations are important and which are not. • Can rank applications of symbolic techniques for impact or significance.