Course Outcomes Guide (COG)

Directions: Please complete this form to document your progress toward improving student learning. For each item, indicate your progress and your anticipated next steps. Thank you!

Course Title: **PHS104** **Date: July 2017**
General Physical Science
Course Team: Bruce Tepke, Adjuncts

Expected Learning Outcomes
During the completion of General Physical Science, students will:

1. **Discuss and understand the lature of science, the scientific method, and the historical development of some of the laws of nature;**
2. **Apply the most basic laws of nature, e.g. Newton's Laws of Motion, laws of thermodynamics, electricity and magnetism, atomic structure to elementary problems in class and in the laboratory;**
3. **Relate the universality of the conservation of energy to classical physics and chemistry;**
4. **Access, process, analyze, and synthesize scientific information.**

Assessment (How do or will students demonstrate achievement of each outcome? Please attach a copy of your assessment electronically.)

1. **Exams with combination of multiple choice, short answer, and problem solving.**
2. **Written laboratory worksheets with a grading rubric.**
3. **Homework questions and problems from textbook author and/or workbook.**
4. **Laboratory quizzes.**

Validation (What methods have you used or will you use to validate your assessment?)

A comprehensive final and set of general education assessment was given. A common final and general education assessment will be re-established.

Results (What do your assessment data show? If you have not yet assessed student achievement of your learning outcomes, when is assessment planned?)

The following table presents the mean for the common final (not common in Sp. 2017) for each semester (combining all sections). If a percent sign is not seen, the score is out of 50.

Semester	n	mean	section	Combined Mean	n_{total}
09/FA	**19** **17**	**30.0** **35.7**	**01** **02**	**32.7**	**36**
10/SP	**15** **18**	**28.9** **35.6**	**01** **02**	**32.5**	**33**
10/FA	**17** **17** **15**	**27.1** **36.5** **31.5**	**01** **02** **03**	**31.7**	**49**
11/SP	**21** **22**	**30.6** **39.2**	**01** **02**	**35.0**	**43**
11/FA	**20** **20**	**39.8** **39.4**	**01** **02**	**39.6**	**40**
12/SP	**19** **9**	**38.9** **39.8**	**01** **02**	**39.2**	**28**
12/FA					
13/SP	**18** **18**	**34.7** **34.1**	**01** **02**	**34.4**	**36**
13/FA	**20** **18**	**?** **?**	**01** **03**	**36.5**	**38**
14/SP	**21** **20**	**37** **38.5**	**01** **03**	**38**	**41**
14/FA	**?**				
15/SP	**19** **11**	**74.2%** **75.6%**	**01** **02**	**74.7%**	**30**
15/FA	**16**	**68.3%**	**02**	**68.3%**	**16**
16/SP	**4**	**80.3%**	**02**	**80.3%**	**4**
16/FA	**22** **9**	**78.1%** **77.7%**	**01** **02**	**78%**	**31**
17/SP	**19** **10**	**70.1%** **72.4%**	**01** **02**	**70.9%**	**29**

Follow-up (How have you used or how will you use the data to improve student learning?)
Individual instructors will receive analysis of exam results to see areas of weakness and determine the best way to emphasize those areas. Resources to help students learn fundamental definitions and units will be researched.

Budget Justification (What resources are necessary to improve student learning?)
Laboratory resources to teach concepts of temperature vs heat will be investigated.