

2016-17 Report of the Assessment of the General Education Program

Contents

Introduction	1
Fall 2016: Assessment of Fine Arts (GFA), Literature (GLT), and Philosophical, Religious, & Ethical Principles (GPR)	1
GFA results	2
GLT results.....	3
GPR results	5
Spring 2017 Assessment of Natural Sciences (GNS)	9
Assessment processes.....	9
Assessment results.....	9

Introduction

The following report, which details the assessment of UNCG’s General Education Program for the 2016-17 academic year, was developed by the General Education Assessment Coordinator in conjunction with the General Education Council.

Information on the General Education Program’s mission and goals, assessment process, and assessment results from prior academic years may be found on the Office of Assessment and Accreditation’s website at <http://assessment.uncg.edu/academic/GenEd/>. The current General Education student learning outcomes may be found at <http://utlc.uncg.edu/genedu/slos>.

Questions about the assessment of the General Education Program may be directed to David Carlone (david_carlone@uncg.edu), the Chair of the General Education Council, Jodi Pettazoni, the Director of Assessment and Accreditation (jepettaz@uncg.edu), or Teresa Brumfield (tebrumfi@uncg.edu), the General Education Assessment Coordinator.

For the 2016-17 academic year, four of eight General Education categories were scheduled for assessment (see http://assessment.uncg.edu/curriculum/GEC/GEC_Assessment.html for the Program’s three-year assessment plan). Fine Arts (GFA), Literature (GLT), and Philosophical, Religious, and Ethical Principles (GPR) were assessed in fall 2016, and Natural Sciences (GNS) was assessed in spring 2017. This was the first cycle of assessment for each of these four categories using their recently revised student learning outcomes and recertified courses.

Fall 2016: Assessment of Fine Arts (GFA), Literature (GLT), and Philosophical, Religious, & Ethical Principles (GPR)

GFA, GLT, and GPR were assessed using the course faculty assessment with peer faculty validation process (see the three-year assessment plan, cited above, for details). Both faculty groups used a three-point scale—Highly Proficient (HP), Proficient (P), and Not Proficient (NP)—to score students’ work products.

2016-17 Report of the Assessment of the General Education Program

GFA results

Out of 50 GFA sections, 11 were selected to participate in the GEP assessment. Of these 11 sections:

- seven submitted 42 student work products (SWP) for the January workshop,
- one used selected-response questions to assess the GFA SLOs (so no student work products), and
- three did not respond.

Figure 1 provides a comparison of course and workshop faculty ratings of GFA student work products (CF: n=356 SWPs and WF: n=42 total SWPs).

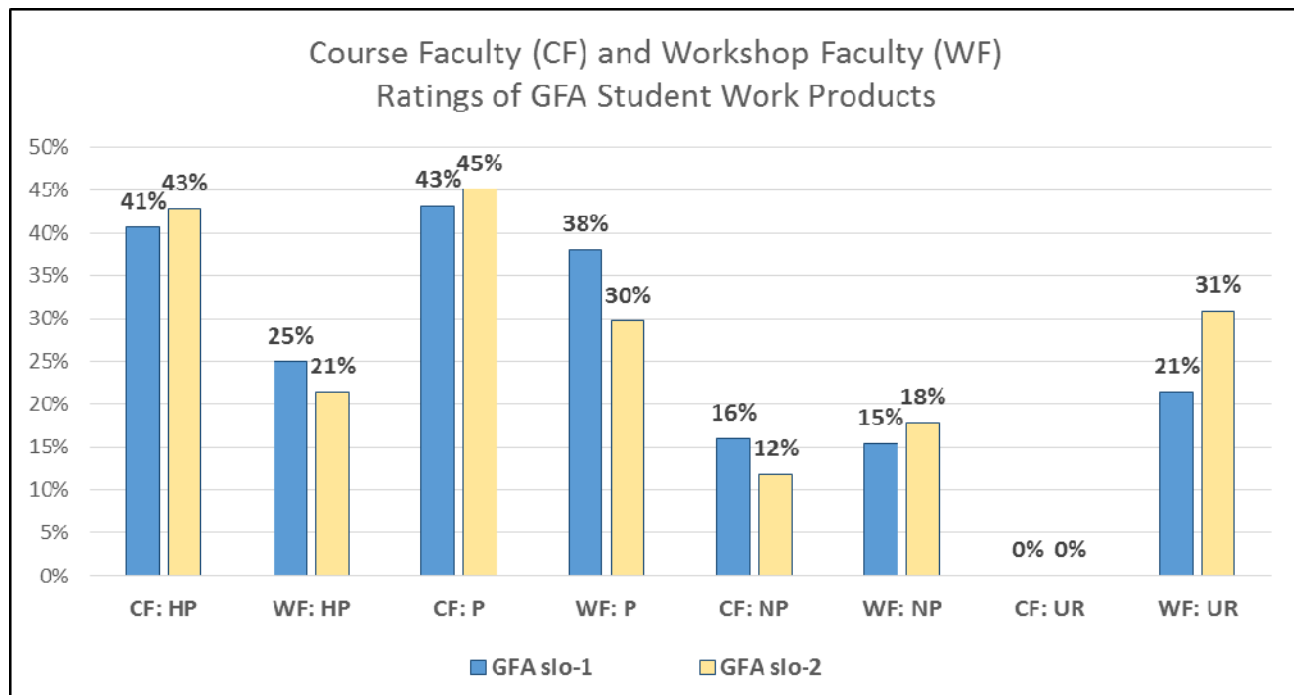


Figure 1. Comparison of course and workshop ratings for the GFA student learning outcomes (SLOs):

1. SLO-1: Describe and interpret art forms in relation to cultural values. (LG1, LG3)
2. SLO-2: Identify the fundamental roles of artistic expression in personal or collective experience. (LG5)

For GFA slo-1 and slo-2:

- Course faculty scored 84% and 88%, respectively, of student work as proficient and above.
- Workshop faculty scored 68% and 49%, respectively, of total student work as proficient and above. Of students' ratable work products, 80% for slo-1 and 74% for slo-2 were rated proficient and above.

Out of 42 total student work products, workshop faculty were unable to rate 21% for slo-1 and 31% for slo-2, stating that the assignments did not address the particular GFA student learning outcomes. Raters found that students were asked for their personal opinions or preferences without grounding those opinions/preferences to cultural values or to an explanation of the artist's personal expression.

Defining "proficient" student work

GFA course faculty individually defined "proficient" student work based on the selected assignments. Faculty used one or more of the following:

- a grading scheme (e.g., at least 20 out of 60 total points from a rubric),

2016-17 Report of the Assessment of the General Education Program

- technical quality of a student's writing (e.g., few grammatical errors, few spelling errors, etc.),
- student's ability to follow assignment directions (e.g., clearly articulate personal feelings or likes/dislikes), and
- how well a student's work product met the student learning outcome.

GFA workshop faculty collectively defined "proficient" student work:

- for GFA slo-1 as "students should be able to describe and interpret how art forms reflect social/historical/cultural issues and events;" and
- for GFA slo-2 as "students should be able to identify artists' language, tools and resources and explain how they are used for personal or collective expression."

Workshop faculty designated an assignment as a "model" assignment when it appeared to have been designed with the GFA student learning outcomes in mind.

Discussion of Results

GFA instructors' were asked to respond to the question, *what did the data tell you about how well students are achieving the GFA learning outcomes and whether the results were as expected.*

Overall, instructors indicated that results were as expected, with the majority of students achieving proficiency. In a few instances, instructors commented on how students' scores were lower on SLO 1 "because it requires learning and applying a specific technical nomenclature."

In response to the question, *how will you use this evidence in your GE course to improve student learning,* instructors responded with a variety of improvements, e.g.:

- refining the assignment to include in-class discussions,
- incorporating additional review and practice questions, along with utilizing instant audience response systems to gauge student comprehension,
- providing examples of proficient student work,
- emphasizing appropriate terminology,
- incorporating more of both learning outcomes in journal questions to ensure that students are achieving the learning outcomes, and
- simplifying the assignment design, which proved to be confusing to students.

GLT results

Out of 64 GLT sections, 15 were selected to participate in the GEP assessment. Of these 15 sections:

- 13 submitted 80 SWPs for the workshop,
- one used selected response questions to assess the GLT SLOs, and
- one did not respond.

Figure 2 provides a comparison of course and workshop faculty ratings of GLT student work products (CF: n=620 SWPs and WF: n=80 total SWPs).

2016-17 Report of the Assessment of the General Education Program

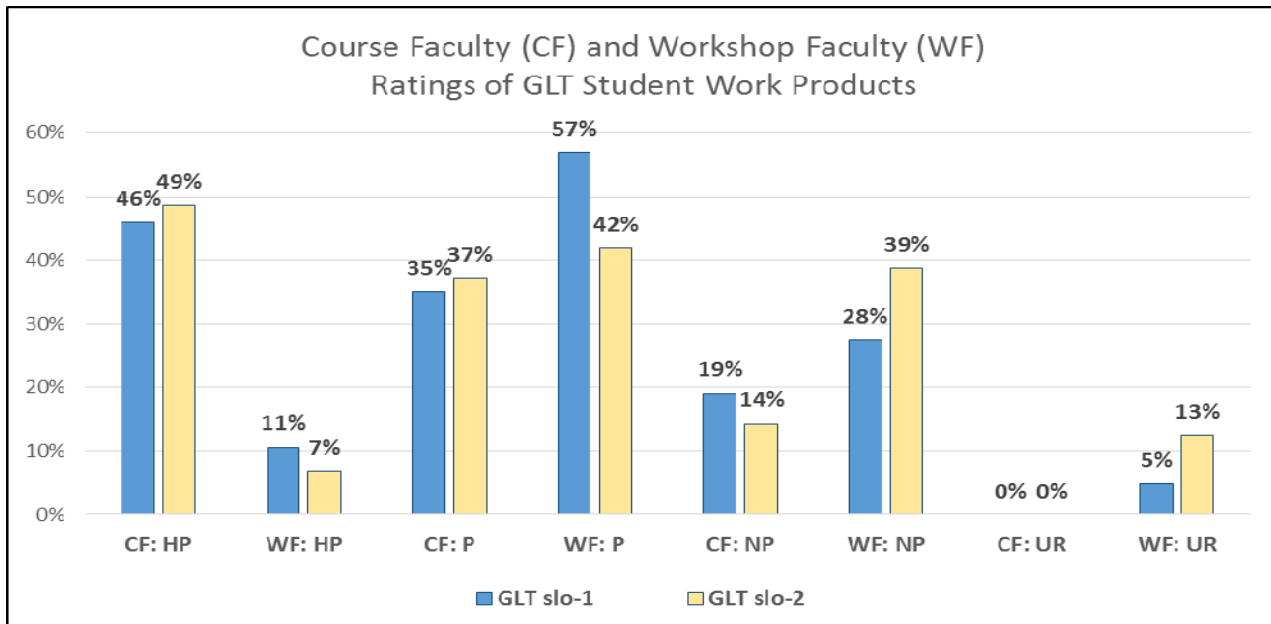


Figure 2. Comparison of course and workshop ratings for the GLT student learning outcomes:

1. SLO-1: Demonstrate orally, in writing, or by some other means a fundamental ability to use some of the techniques and/or methods of literary analysis. (LG1, LG3)
2. SLO-2: Identify and/or describe some of the various social, historical, cultural, and/or theoretical contexts in which literary texts have been written and interpreted. (LG3)

For GLT slo-1 and slo-2:

- Course faculty scored 81% and 86%, respectively, of student work as proficient and above.
- Workshop faculty scored 68% and 49%, respectively, of student work as proficient and above. Of students' ratable work products, 71% for slo-1 and 56% for slo-2 were rated proficient and above.

Of the 80 total student work products, workshop faculty were unable to rate 5% of student work for slo-1 and 12% for slo-2. GLT raters indicated that either the assignment focused on only *one* of the student learning outcomes, when it was intended to assess both of them, or the assignment was not reflective of a GLT course.

Defining "proficient" student work

GLT course faculty individually defined "proficient" student work based on the selected assignments. Faculty used:

- grading schemes (e.g., at least 80 out of 100 total points from a rubric),
- how well students completed the assignment based on the given rubric, or
- how well a student's work product met the student learning outcome.

GLT workshop faculty collectively defined "proficient" student work:

- for GLT SLO-1 as student work that should indicate a substantive identification *and* analysis of literary elements, rather than a plot summary or discussion of personal likes/dislikes; and
- for GLT SLO-2 as student work that should reflect how a text's social, cultural, historical, and/or theoretical dimensions inform it and give it meaning, rather than merely noting that such contexts are present.

2016-17 Report of the Assessment of the General Education Program

Workshop faculty designated an assignment as a “model” assignment when it appeared to have been designed with the GLT student learning outcomes in mind.

Discussion of Results

GLT instructors’ were asked to respond to the question, *what did the data tell you about how well students are achieving the GLT learning outcomes and whether the results were as expected.*

Overall, instructors indicated that results were as expected, with the majority of students achieving proficiency. A few instructors commented on the difference in student achievement between the two SLOs. That is, some students found it more difficult to apply literary analysis techniques than to identify/describe the contexts of literary texts; other students found the contextualization of literary texts to be more difficult. In addition, a few instructors commented on the benefit to students of rehearsing concepts throughout the semester.

In response to the question, *how will you use this evidence in your GE course to improve student learning,* instructors responded with a variety of improvements, e.g.:

- placing more emphasis on context so that students “better connect literary texts to outside forces”,
- modeling “the application of these SLOs and their connection to creating a firm literary analysis paper”,
- clarifying the importance of the social and cultural influences on a text,
- introducing students to scholarly articles more frequently and having them apply them to their reading more often,
- using more explicit instruction and modeling of the SLOs,
- “providing language more specifically linked to the SLOs in the syllabus to more effectively prompt underperforming students,” and
- providing more practice opportunities for students to perform analytical techniques as well as contextualization.

GPR results

Out of 58 GPR sections, 13 were selected to participate in the GEP assessment. Of these 13 sections:

- nine submitted 66 SWPs for the workshop,
- three used selected response questions to assess the GPR SLOs, and
- one did not respond.

Figure 2 provides a comparison of course and workshop faculty ratings of GPR student work products (CF: n=750 SWPs and WF: n=66 total SWPs).

2016-17 Report of the Assessment of the General Education Program

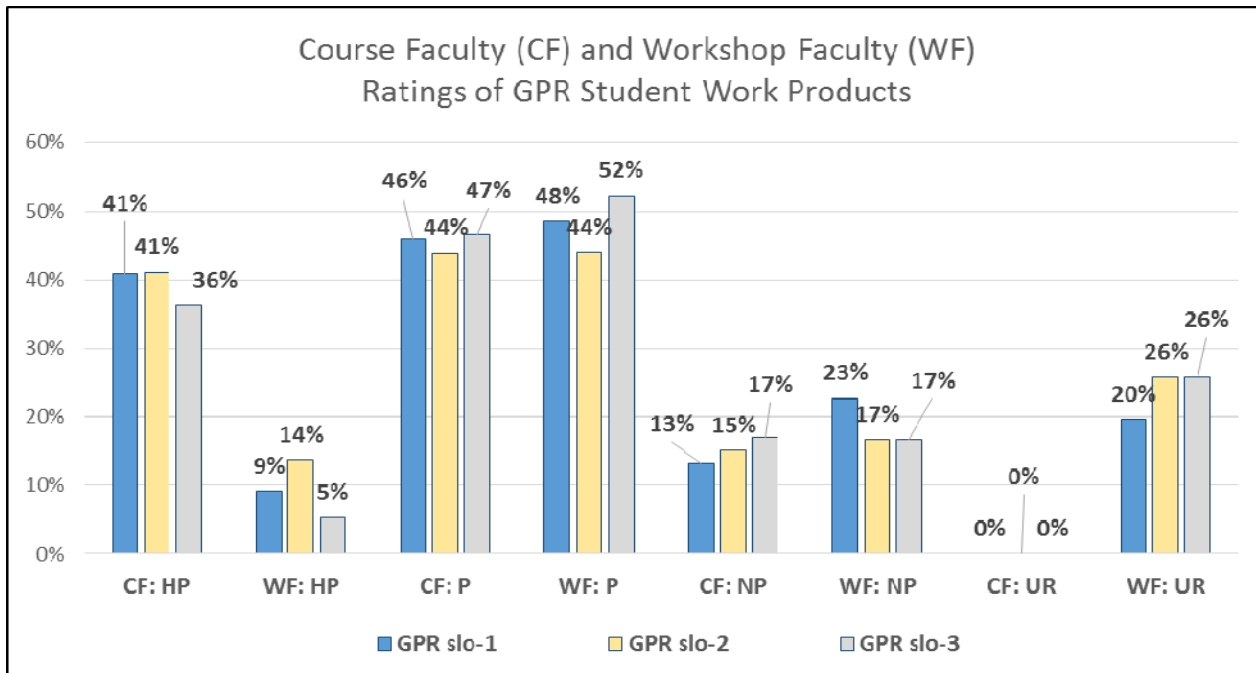


Figure 3. Comparison of course and workshop ratings for the GLT student learning outcomes:

1. SLO-1: Describe and analyze at least two significant philosophical, religious, and/or ethical theories or traditions. (LG1, LG3, LG5)
2. SLO-2: Compare and contrast the assumptions, arguments, beliefs and/or practices of two or more theories or traditions. (LG1, LG3)
3. SLO-3: Apply the general description of at least two theories and/or traditions to specific instances. (LG1, LG3)

For GPR slo-1, slo-2, and slo-3:

- Course faculty scored 87%, 85% and 83%, respectively, of student work as proficient and above.
- Workshop faculty scored 57% of total student work for each student learning outcome as proficient and above. Of students' ratable work products, 72% for slo-1, 77% for slo-2, and 77% for slo-3 were rated proficient and above.

Of the 66 total student work products, workshop faculty were unable to rate 20% of student work for slo-1, 26% for slo-2, and 26% for slo-3. GPR faculty raters found that either the assignment was not designed with the GPR student learning outcomes in mind, that students were not asked to critically compare multiple ethical theories (GPR slo-1 and slo-2), or that students were not asked to provide examples (GPR slo-3).

Defining "proficient" student work

GPR course faculty individually defined "proficient" student work based on the selected assignments. Faculty used:

- grading schemes (e.g., scoring 70 to 89 of 100 total points),
- a student's ability to follow the assignment's directions, or
- how well a student's work product met the GPR student learning outcome.

GPR workshop faculty collectively defined "proficient" student work:

- for GPR slo-1 as: the description is mostly accurate and addresses key features of the theories/traditions in question;

2016-17 Report of the Assessment of the General Education Program

- for GPR slo-2 as: similarities and differences between the theories/traditions in question should be meaningful and relevant to what makes these theories/traditions noteworthy and distinct; and
- for GPR slo-3 as: at least one example should be provided that illustrates one or more theory/tradition or demonstrates how a theory/tradition would describe/address the particular case.

Workshop faculty designated an assignment as a “model” assignment when it appeared to have been designed with the GPR student learning outcomes in mind.

Discussion of Results

GPR instructors’ were asked to respond to the question, *what do the data tell you about how well students are achieving the GPR learning outcomes and whether the results were as expected.*

Overall, instructors indicated that results were as expected, with the majority of students demonstrating proficiency “in reading, analyzing, and comparing philosophical arguments.”

In response to the question, *how will you use this evidence in your GE course to improve student learning,* instructors responded with a variety of improvements, e.g.:

- building “more intentional discussions applying philosophical arguments to current educational debates,”
- implementing study groups and incentives for low-performing students,
- providing additional study questions in preparation for the assessments,
- revising tests to more effectively assess the SLOs,
- revising rubrics and assignment instructions “to more precisely evaluate GEC SLOs,”
- modifying the assignment to increase consistency of student work products,
- providing more opportunities for students “to practice applying ethical theories to cases,”
- using ethical case scenarios for students “to identify what they see as the right and wrong things going on ... before introducing theory,” and
- providing “lessons on how to critically read texts.”

Workshop large group discussion

Following the rating of all student work products, there was a large-group discussion which included the peer faculty raters and a few of the course faculty who participated in the assessment.

Faculty were asked to comment on:

1. the current *process* of rating student work products.

Faculty commented about:

- the student learning outcomes:
 - GFA SLOs are unclear, e.g., SLO-2 needs to be simplified. This resulted in numerous “unable to rate” student work products.
 - GLT SLOs need to account for basic writing skills.
 - GPR SLOs were problematic—four out of nine assignments had at least one SLO that resulted in raters being unable to rate student work.

2016-17 Report of the Assessment of the General Education Program

- the “black box” nature of the process:
 - Course faculty need feedback and examples of “good” and “bad” assignments.
 - the need to understand the content area:
 - Raters commented that they needed to understand the content area of the prompt, and that those raters who knew the content area found it easier to rate the student work products.
 - the need for exemplary responses:
 - Raters thought that course faculty would be asked to provide an exemplary response to their assignments.
 - the three-point rating scale:
 - Raters thought that the “Proficient” level should be divided into two levels.
2. where they thought student learning in the General Education Program stood based on their evaluation of the student work products.

Faculty commented that the quality of student work depended on the assignment:

- Essays were better than “bullet point assignments” at eliciting the student learning outcomes.
- Large enrollment classes impacted the assignments.
- Some assignments were too short to assess the SLOs properly.
- In those instances where the assignment clearly aligned with the SLOs, most of the student work products were proficient.
- Assignments need to be designed with the SLOs in mind.

3. how this process has affected, or will affect, the way you teach your General education course.

Faculty indicated that they would reconsider their course assignment instructions.

Faculty also commented on:

- the need for examples of assignments, maybe as part of the recertification process;
- considering direct assessment of students; and
- how we can integrate contingent faculty into the program and process.

Future actions suggested by the faculty included:

- Getting category faculty together to discuss course assignments;
- Targeting invitations to forums for the assessed GEC categories (e.g., GFA, GLT, GPR);
- Providing aggregated feedback on assignments to department heads;
- Providing individual feedback to participating course faculty;
- Providing feedback to recertification committees;
- Setting a repository of “model” assignments by category and informing course faculty about them;
- Communicating to students the *why* of General Education—maybe asking recertification subcommittees to write a short paragraph about why the category is important.

2016-17 Report of the Assessment of the General Education Program

Spring 2017 Assessment of Natural Sciences (GNS)

Assessment processes

Prior to 2015-16, GNS had been assessed using a standardized test, which was later determined to be unsuitable for assessing the revised GNS student learning outcomes (SLOs). In spring 2016, three GNS departments volunteered to pilot a non-standardized *Test of Scientific Literacy*. Based on results from the pilot, faculty concluded that this instrument was inadequate to assess the GNS SLOs and that a course-embedded process should be used.

In early January 2017, the Council Chair requested the help of the GNS department heads to plan and implement the spring 2017 assessment of the GNS category. When presented with three options—two across-departments and one within-department, the department heads unanimously selected the within-department assessment process.

The within-department process included three parts:

- First, the course level:
GNS course instructors selected to participate in the assessment of GNS were instructed to:
 - a. select an assignment(s) to assess *each* GNS student learning outcome (SLO);
 - b. document how the selected assignment met the individual SLO;
 - c. document his/her definition of “proficient” student work for each selected assignment;
 - d. for each GNS SLO, use his/her definition of “proficient” to score students’ work on the assignment (from step 1) on a three-point scale—Highly Proficient, Proficient, Not Proficient; and
 - e. aggregate the results by GNS SLO.
(A *Course Results Report* was provided to course instructors to facilitate their data collection.)
- Next, the department level:
GNS faculty were instructed to meet within their departments to share and discuss their course results. Afterwards, they would complete a *Departmental GNS Assessment Report*, which would include—for each GNS SLO:
 - a. a “Findings” section (i.e., a summary of data),
 - b. a “Discussion” section (i.e., analysis of findings), and
 - c. a “Recommendations” section (i.e., action plans).They were requested to submit completed *Departmental GNS Assessment Reports* to the GEC Chair (David Carlone) and to the General Education Assessment Coordinator (Terry Brumfield) by May 31, 2017.
- Last, the General Education Council level:
The Council’s Assessment Subcommittee would then review the departmental reports and approve an overall GNS summary of these reports.

For spring 2017 assessment of GNS, 14 sections were selected across all eight GNS departments.

Assessment results

The Council’s Assessment Subcommittee approved the following summary of the eight GNS departmental assessment reports.

2016-17 Report of the Assessment of the General Education Program

The participating faculty used a variety of assignments to assess the GNS student learning outcomes. Most used selected-response questions; some were included on course exams; some were based on in-course assignments (e.g., lab practical, case study, empirical study); and some came from standardized exams. In a few instances, written assignments were used, in response to an empirical study or a scientific paper. The Geography sections used multiple student work products (e.g., portions of lab exercises, homework assignments, and specific exam questions) throughout the semester to assess the SLOs. Table 1 provides the course-embedded assignments used by each department.

Table 1. Course-embedded assignments used by GNS departments

Department	Course-embedded assignments used to assess GNS SLOs 1, 2, and 3
ATY	used sets of questions, one set for each SLO, selected from different multi-part “lab practicals”
BIO	used a case study approach; for each SLO, 3 selected-response Qs (different for BIO 111 and BIO 112) were included on the final exam
CHE	used final exam questions: <ul style="list-style-type: none"> • for CHE 111 (General Chemistry), pools of Qs from the standardized exam were used to assess SLOs 2 and 3; several questions were added to the exam to assess SLO-1 • for CHE 101, pools of questions that assessed SLOs 1, 2, and 3 were identified and used
GEO	used multiple student work products (e.g., portions of lab exercises, homework assignments, and specific exam questions) throughout the semester to assess each of the SLOs
KIN	used sets of in-class exam questions, one set for each SLO
NTR	used 8 multiple choice questions (MCQs) on exam 1 to assess SLO-1; used a standardized 20-Q assignment for Ch. 4 material to assess SLO-2; and used a Personal Nutrition Assessment Project to assess SLO-3
PHY	<ul style="list-style-type: none"> • PHY 205 used an online report “in the format of a scientific paper” to assess SLO-1; used a set of questions on the mid-term exam to assess SLO-2; and used a written report “in the form of a scientific paper” to assess SLO-3 • PHY 211 used a lab on conservation of energy to assess SLO-1; used Q. 16 on test 2 on force and acceleration to assess SLO-2; and used Q. 16 on test 5 on heat engines to assess SLO-3.
PSY	used an empirical study about the Zika virus and microcephaly to assess each of the three SLOs: <ul style="list-style-type: none"> • for SLO-1, students’ summary of the study had to include the rationale for the study, the hypotheses, and the independent and dependent variables; • for SLO-2, a particular question was used on exams 1 -4; and • for SLO-3, students’ summary of the study had to include the results, conclusions, and relevance to a specific stage of brain development

2016-17 Report of the Assessment of the General Education Program

Figure 1 presents the results, by department for GNS SLO-1.

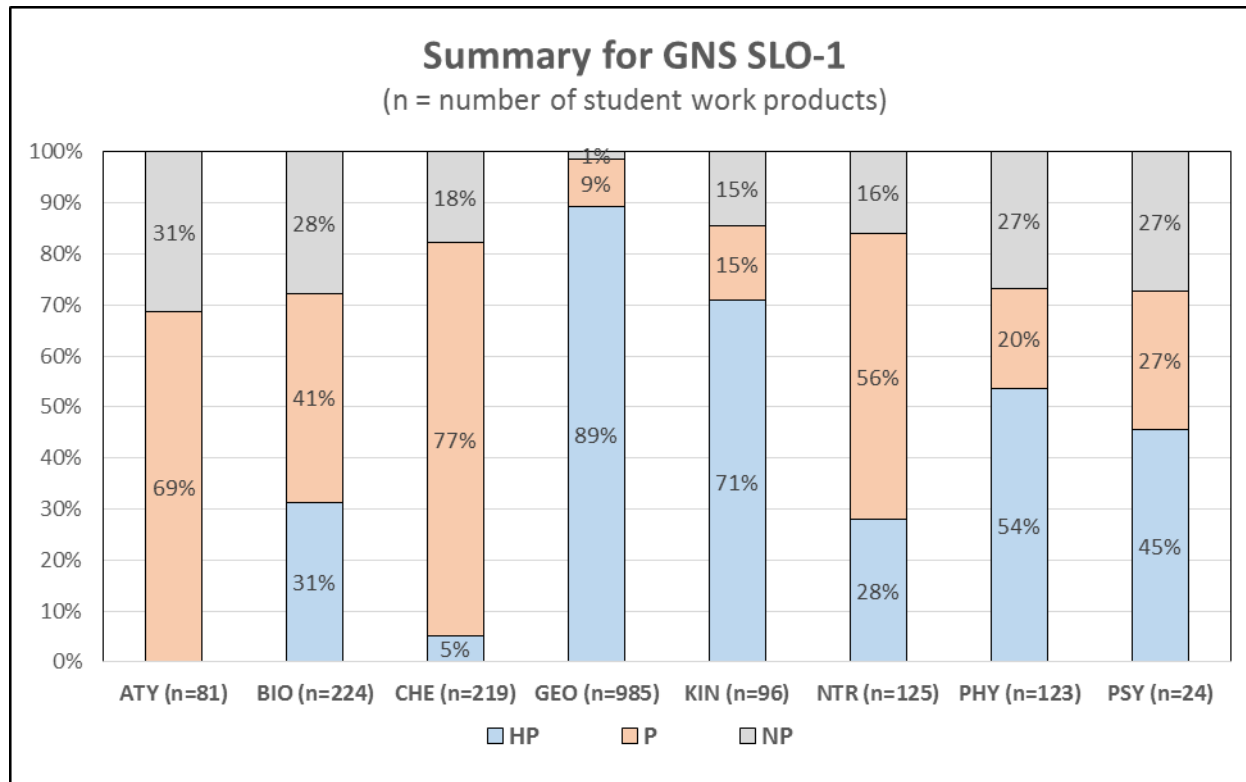


Figure 1. GNS SLO-1: Demonstrate an understanding of the process of scientific inquiry (i.e., the “scientific method”). (LG1, LG2)

Faculty comments, by department, are reported in Table 2.

Table 2. Faculty comments regarding GNS SLO-1

Department	Faculty Comments – GNS SLO-1 (process of scientific inquiry)
ATY	Faculty reported that “students appear to have trouble interpreting spatial data and/or an incomplete understanding of natural selection. Both of these concepts could perhaps be covered in more detail.”
BIO	<ul style="list-style-type: none"> Faculty commented that “... 26-28% are not proficient, in spite of repeated exposure to the scientific method.” Both faculty did find “increases in understanding of this SLO ... suggesting that repeated exposure is very important.” Faculty stated that they would continue to use case studies (as defined) in lecture and lab, throughout the semester. “All of us teaching these courses will share case students. We will incorporate this SLO in homework, in class work, discussions, assignments, and exams. We will also encourage the use of these case studies in SIP sessions.”
CHE	Faculty concluded from their results that “performance was good.” Even so, they also concluded “that more attention needs to be paid to the application of the scientific method and inquiry within the lecture courses. Although the scientific method is introduced early in the courses, intentionally revisiting that issue throughout the courses would be valuable for student learning.”

2016-17 Report of the Assessment of the General Education Program

<i>Department</i>	<i>Faculty Comments – GNS SLO-1 (process of scientific inquiry)</i>
GEO	<ul style="list-style-type: none"> • Faculty commented that their results were higher than they expected. “Some of the SWPs involved lab exercises which allow students to ask questions of the TA and work with their peers in arriving at their answers. That approach most likely inflated the scores over what might have been if students were not allowed help. The same was true for some of the homework assignments. They allowed students ‘hints’ and a second chance at multiple choice questions. We feel that having students gain understanding and arrive at the correct answer in this fashion is better than a ‘one strike your [sic] out’ examination setting, and better reflects more complete learning assessment.” • Faculty concluded that they would “continue to use a variety of SWPs to help students learn in various ways, rather than depending solely on large lecture examinations.”
KIN	<ul style="list-style-type: none"> ○ Faculty commented that “results were better than expected for SLO-1. ... The results indicate success in achieving GNS SLO-1; however, we cannot rule out the possibility that important skills relevant to SLO-1 were not thoroughly tested.” ○ Faculty concluded that “the results provide evidence that the new ‘scientific method’ course supplement added to KIN 220 was effective and should be continued. “Consider added questions contextualized around real-world issues to assess the student’s ability to recognize what qualifies as scientific evidence and when scientific evidence supports a hypothesis. This skill is valuable for identifying a valid scientific argument and having the ability to link claims with evidence.”
NTR	<ul style="list-style-type: none"> • Faculty commented that their results “show that we are meeting our target of >75% proficient and are not surprising based on historical performance for this class.” • Faculty concluded that “one change ... we will implement in the future is to integrate standardized questions to assess SLO-1 into the chapter quizzes which are standardized across all sections, instead of assessing via exams, which are customized per instructor. This will create a consistent way of measuring SLO-1 outcomes across all sections of NTR 213.”
PHY	<ul style="list-style-type: none"> • PHY 205: <ul style="list-style-type: none"> ○ Faculty commented that “the results were both surprising and frustrating; even with several reminders and emails, there were 8 students that failed to turn in an assignment. This means that 13 students who attempted the assignment either did not achieve proficiency or did not attempt to make an honest effort.” ○ Faculty recommendations included adding to, and emphasizing, early material specific to topics related to SLO-1. In addition, include an assignment earlier in the semester to provide more specific feedback to students. “Actively look for means to separate non-effort from misunderstanding so that assessments are more meaningful and informative for course design.” • PHY 211: <ul style="list-style-type: none"> ○ Faculty commented that “the data shows that 16% of students are not benefiting from the laboratory. Historically, this is not a surprise. However, we have met the target for this SLO.” ○ Faculty recommendations included: “We will monitor performance. The results are not likely to improve.”

2016-17 Report of the Assessment of the General Education Program

Department	Faculty Comments – GNS SLO-1 (process of scientific inquiry)
PSY	<ul style="list-style-type: none"> Faculty commented that “with repetition, students are achieving this SLO. Additional student facilitated empirical study discussions occurred in the last half of the semester, which appeared to be very helpful as reflected on Exam 4.” Faculty concluded with: “I found the GNS assessment process to be instructive in terms of stimulating ideas for future semesters for this course, and I plan to incorporate similar assessment planning for future courses. It was also <u>very helpful</u> that folks in the Biology Department shared their strategies with me since PSY 230 is the only GNS course in the Psychology Department.”

Figure 2 present the results, by department, for GNS SLO-2.

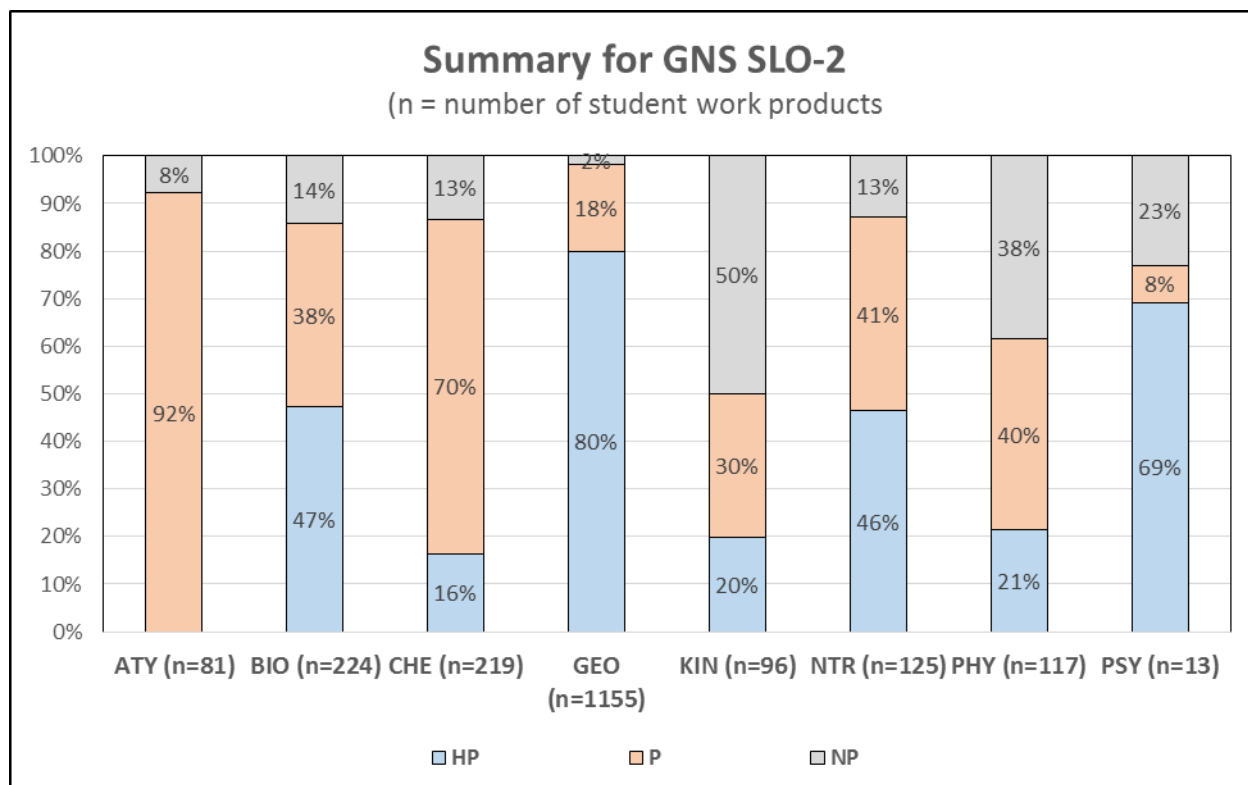


Figure 2. GNS SLO-2: Demonstrate knowledge of basic scientific principles. (LG2)

Faculty comments, by department, are reported in Table 3.

Table 3. Faculty comments regarding GNS SLO-2

Department	Faculty Comments – GNS SLO-2 (basic scientific principles)
ATY	<ul style="list-style-type: none"> The faculty summed up the results for this SLO as: “... all the traits were placed into an easily readable format before student analysis, <i>which may inflate the numbers without showing a true understanding of how to analyze traits cladistically.</i>” (Italics added.)

2016-17 Report of the Assessment of the General Education Program

<i>Department</i>	<i>Faculty Comments – GNS SLO-2 (basic scientific principles)</i>
	<ul style="list-style-type: none"> • The faculty stated that “future assignments may ask students to create and format the data tables themselves.”
BIO	Faculty were gratified that “roughly 85% of our students in these courses have knowledge of foundational scientific principles.” Both found increases in understanding “suggesting that repeated exposure is very important. It is also important to note that these were very difficult experiments to understand so repeated exposure to complex experiments is important.”
CHE	Based on their results, faculty concluded that student proficiency was highest on this SLO. They stated: “This is not surprising. The courses are highly concentrated on scientific principles. The course objectives are largely focused on providing an understanding of scientific principles and preparing students to be able to use these principles in future courses or in their career.”
GEO	<ul style="list-style-type: none"> • “There were more SWPs that addressed this SLO, but the results essentially matched GNS SLO-1. The results were higher than we expected for the same reasons as those discussed in SLO-1.” • Faculty concluded that they would “continue to use a variety of SWPs to help students learn in various ways, rather than depending solely on large lecture examinations.”
KIN	<ul style="list-style-type: none"> • Faculty commented that “50% of students were judged as ‘Not Proficient’ using the above definition indicating modest success in achieving GNS SLO-2. This was lower than expected based on results of the 2016 GNS pilot assessment of a GNS pilot assessment of a Gen Ed biology course.” • Faculty recommendations included the following: <ul style="list-style-type: none"> ○ “Re-evaluate the assessment questions used for their relevance to SLO-2. ○ “Consider adding a Pretest given on the first or second day of class. ○ “Suggest including more exam questions (perhaps to 30 total) to assure good representation of the large content of scientific information covered in this course. This change would be consistent with the 2016 GNS pilot assessment of chemistry (30 questions) and biology (50 questions) courses. ○ “Consider lower the definition of ‘Proficient’ from 60-795 correct to 55-75% correct. In the 2016 GNS pilot assessment of a Gen Ed chemistry course, ‘Proficient’ was defined as 45-65 correct for selected questions from the American Chemical Society’s General Chemistry II exam.”
NTR	<ul style="list-style-type: none"> • Faculty commented that “one thing that came up in our discussion is that the materials covered in chapter 3 (digestion and absorption) are core scientific principles within the nutrition discipline which are then repeated and reinforced throughout the remaining class. It was suggested that in the future, the chapter 3 assessment may be a more appropriate indicator for SLO-2.” • Faculty concluded that “while the chosen method of assessment (chapter 4) was appropriate for SLO-2, this exercise initiated discussions among NTR 213 faculty around identifying the basic scientific principles for the nutrition discipline. We agreed that in the future, the chapter 3 assessment would be a better method for evaluating SLO-2.”

2016-17 Report of the Assessment of the General Education Program

Department	<i>Faculty Comments – GNS SLO-2 (basic scientific principles)</i>
PHY	<ul style="list-style-type: none"> • PHY 205: <ul style="list-style-type: none"> ○ Faculty commented that “these data would be within target [80%] if non-participants are excluded.” ○ Faculty recommendations were the same as those for SLO-1. • PHY 211: <ul style="list-style-type: none"> ○ Faculty commented that “it is not surprising to have around 45% of students not be able to appropriately apply basic physical principles in exam situations. Although we did not meet this target, we are within 10% of the target, so we judge that we are close. Given the small numbers of students, we feel that this is within the margin of error.” ○ Faculty recommendations included: “We will monitor performance. The results are not likely to improve.”
PSY	<ul style="list-style-type: none"> • Faculty commented that “neural development is an area that most students find very interesting, and the empirical study used in SLO1 and SLO-3 was instructive in helping students understand the process of neural development and the ‘what if’ aspect in terms of disrupted development.” • Faculty recommendations included: “Additional empirical study and case study discussions should be included, with follow-up testing via exams on content as well as process.”

Figure 3 presents the results, by department, for GNS SLO-3.

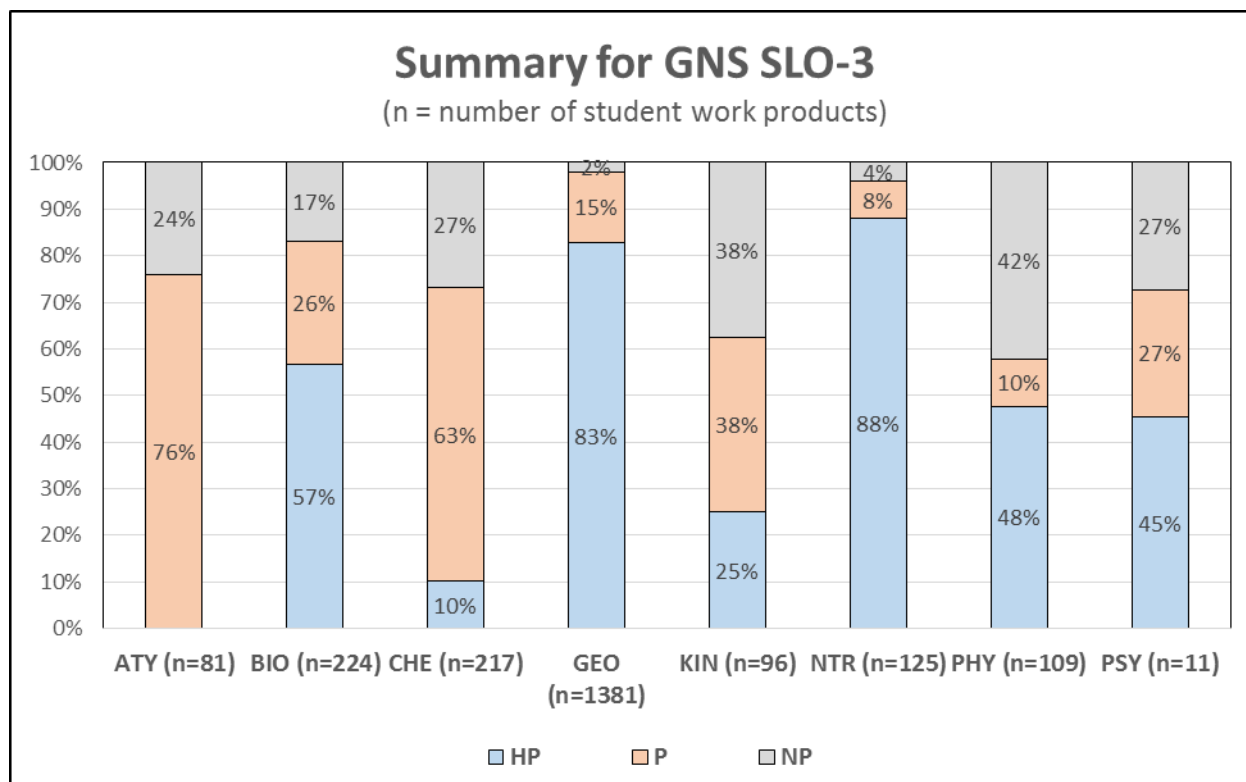


Figure 3. GNS SLO-3: Analyze qualitative and quantitative empirical data. (LG1)

2016-17 Report of the Assessment of the General Education Program

Faculty comments, by department, are reported in Table 4.

Table 4. Faculty comments regarding GNS SLO-3

Department	Faculty Comments – GNS SLO-3 (analyze qualitative and quantitative empirical data)
ATY	<ul style="list-style-type: none"> • All four questions required recalling a specific formula to perform a calculation and then recalling prior information to evaluate the results from the calculation to make a prediction. • Faculty concluded that “most students were able to correctly calculate and interpret simple ratios in terms of locomotion and mating patterns.”
BIO	<ul style="list-style-type: none"> • Two different kinds of questions were used: <ul style="list-style-type: none"> ○ For BIO 111, more interpretation and qualitative questions were used. ○ For BIO 112, more quantitative questions were used, which required students to take data from a graph, do a simple calculation, and interpret it. • Faculty learned that “97% of our students were proficient as long as math was not involved; they understood the data and could analyze it in a qualitative way (BIO 111). When the questions involved math, only ~60% of the students were proficient. We know we need to do better here.” • Faculty plan to continue to use these case studies in lecture and lab, throughout the semester. For SLO-3, they indicated they would “require problem solving questions that require synthesis in both lecture and lab . . . having the students not only analyze empirical data but also apply the data to problem solve.” They also plan to use both types of questions—interpretative/qualitative and quantitative/synthesis and application—to assess this SLO because it requires that students be able to do both. • Faculty found their results for this SLO “very illuminating” because it showed them that their students (up to 40%) “have problems with interpreting data quantitatively and doing a simple calculation involving division. The contrast between these two sets of questions is quite illustrative and reflects what we see in higher level science courses. Students panic when they’re asked to calculate things, and they don’t understand what mathematical operators actually do. But, this is mainly a problem if they are out of a math class context and need to apply their math knowledge. These students would be perfectly capable of simple division if they were in a math class. The problem is really with <i>application</i> of math skills to a non-math context.”
CHE	<ul style="list-style-type: none"> • Faculty stated: “Our prior experience and chemical education research shows that mathematical proficiency is often a key foundation for success in general chemistry courses. The lower percentage of students achieving proficiency in the SLO03 assessment is not surprising.” • Actions resulting from the assessments: <ul style="list-style-type: none"> ○ For CHE 111: “The department will look at methods to improve student success in quantitative problem solving. One such approach could be to use the co-requisite lab course (for CHE 111) to incorporate more emphasis on mathematical problem solving. The instructor for (this course) noted that homework problem selection needed improvement. A more structured and focused approach to assigning homework is needed to focus student attention on key concepts and skills. We

2016-17 Report of the Assessment of the General Education Program

Department	Faculty Comments – GNS SLO-3 (analyze qualitative and quantitative empirical data)
	<p>could also have CHE 111 instructors work with supplemental instructors to enhance quantitative problem solving during CHE 111 SI sessions.”</p> <ul style="list-style-type: none"> ○ “For CHE 101, in order to increase the proficiency for SLO-3, students will be provided with more practice problems to help them in their quantitative skills and knowledge. An electronic homework system was aligned with the textbook by the publisher and that homework approach was used by the instructor. In the future, a different approach to homework will be used for this non-science student course.”
GEO	<ul style="list-style-type: none"> ● “This SLO had the greatest number of SWPs, but the proportional results were much the same as SLO-1 and SLO-2. GEO 121 – Introduction to Geographic Information Sciences had the greatest number of SWPs relying on quantitative and empirical data analysis, and the greatest number of ‘not proficient’ responses to SWPs. It was still quite small and not considered very significant.” ● Faculty “recommended that all GNS courses in Geography seek to employ more SWPs utilizing quantitative empirical data.”
KIN	<ul style="list-style-type: none"> ○ Faculty commented that “most of the questions to assess SLO-3 were based on Category 2 questions in the “Test of Scientific Literacy Skills” (TOSLS) (CBE Life Sciences Education, 11, 364-377, 2012). The TOSLS was developed for use in Gen Ed biology courses and was employed in the 2016 GNS pilot assessment of UNCG Gen Ed chemistry and biology courses. 70% of students in both courses were judged as ‘Not Proficient’ in this SLO. Based on those pilot assessment results, our results were better than expected.” ○ Faculty recommendations included the following: <ul style="list-style-type: none"> ▪ Re-evaluate the assessment questions used for their relevance to SLO-3. ▪ Consider adding questions to assess ability to justify inferences, predictions, and conclusions based on quantitative data. This literacy skill was under represented in the KIN 220 assessment carried in Spring 2017.”
NTR	<ul style="list-style-type: none"> ● Faculty commented that “PNAP [Personal Nutrition Assessment Project] Part 2 provides a very guided set of questions for students to analyze their diet and activity patterns. This is primarily a quantitative evaluation comparing their nutrient and activity levels to national recommendations. We discussed adding a wrap-up reflective statement to provide a more qualitative evaluation of their diet and opportunities for improvement.” ● Faculty concluded that they would “revise PNAP part 2 to include an overall reflective statement about what the student learned about their diet and activity patterns and any changes that they are considering making because of what they learned in the class.”
PHY	<ul style="list-style-type: none"> ● PHY 205: <ul style="list-style-type: none"> ○ Faculty expectations were that “students were expected to analyze experimental data that they had collected.” ○ Faculty commented that if the 8 non-participants are excluded, “the results were not outside of expectations but can be improved on.” ○ Faculty recommendations included “improvements in assignment timing, instructions, and incorporating another assignment to build up and offer students earlier feedback . . . to improve results.”

2016-17 Report of the Assessment of the General Education Program

Department	<i>Faculty Comments – GNS SLO-3 (analyze qualitative and quantitative empirical data)</i>
	<ul style="list-style-type: none"> • PHY 211: <ul style="list-style-type: none"> ○ Faculty commented that “it is not surprising to have around 38% of students not be able to accurately execute quantitative analysis in exam situations. We have met the target for this assessment.” ○ Faculty recommendations included: “We will monitor performance. The results are not likely to improve, given the current level of personnel resources. A proven way for improving student performance is to conduct problem-solving sessions. given our current staffing levels, this is not possible.”
PSY	<ul style="list-style-type: none"> • Faculty commented that “this assignment was helpful for students in terms of becoming familiar with and analyzing results of an empirical study. However, it was an assignment for which students had access to the information while completing the work, thus I would expect strong results. In addition, the responses tended to be more qualitative versus quantitative.” • Faculty recommendations included: “For future semesters, specific quantitative responses should be required for similar activities, and exams will include additional analytical questions based on <u>novel</u> questions.”

Figure 4 presents the proficiency levels, by SLO, for the GNS category (n=total number of student work products (SWPs) for all 14 selected sections).

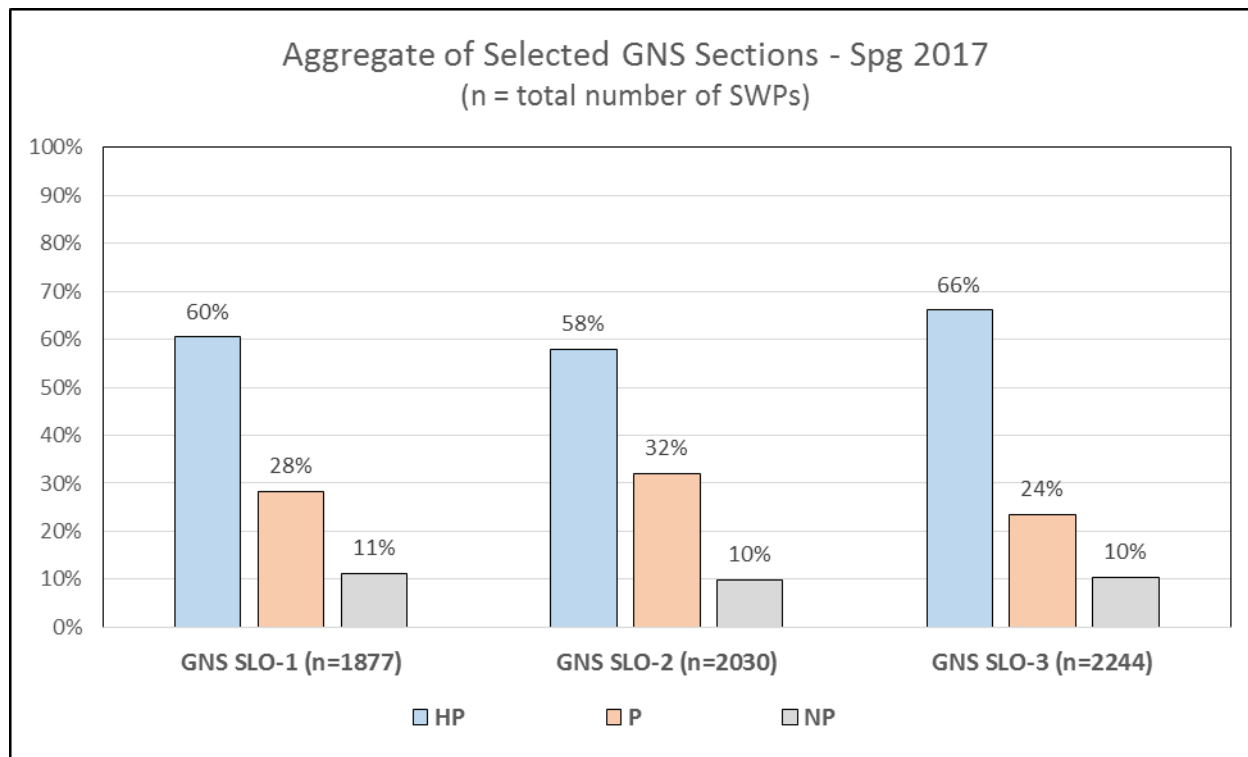


Figure 4. Proficiency levels for GNS category

2016-17 Report of the Assessment of the General Education Program

Discussion of results

When GNS faculty met together to discuss their results, they responded to the following questions:

- What did we learn?

Several faculty stated they learned that, while students can perform required math, they are “trepidatious” or “phobic” about applying math skills. Faculty indicated that UNCG needs to address this issue, which is not just true for UNCG students, and that the sequence of courses did not seem to be the issue.

Faculty discussed that synthesis of data needs to be separate from interpretation of data. That is, while students are able to successfully complete written problems, they struggle when given a graph. Faculty suggested that there may be a cultural road block to data visualizations and that this may be due to reasoning skills. It was suggested that every GNS course teach students how to use graphs, i.e., identify axes and trend lines, interpret data, recognize different types of graphs.

Additionally, faculty stated that they needed to define student learning outcomes and categories more to ensure faculty are teaching the same outcomes and to get comparable data for assessment of learning.

Chemistry faculty indicated that student learning of the scientific method is the challenge.

- Did the assessment process work?

Faculty responded affirmatively and commented that the process was preferred over a standardized test. In addition, faculty commented that they liked the reporting template.

- What should the proficiency levels be?

Faculty suggested 80 percent, with 90 percent as aspirational.

Faculty commented that GNS courses are high DFW (Drop/Fail/Withdraw) courses, and that some students will not be assessed if they withdraw or do not complete the assignment.