Seaver College General Education Assessment
Academic Year 2011-2012

I. Program Learning Outcome
>   ***Research & Inquiry***
>   *Students apply the processes of inquiry and analysis appropriate to the discipline of their academic major.*

II. Institutional Educational Outcomes (Objectives)

   Research & Inquiry is one of 14 general education (GE) learning outcomes within the undergraduate school (Seaver College) at Pepperdine University. The GE learning outcome on research & inquiry is achieved through designated courses within the student's chosen discipline; most often designated as "information literacy" at the program level. We agree with the Association of American Colleges and Universities (AAC&U) that information literacy is a core competency that is accomplished through an integrated course of study at the institutional level [Link: Standard 2.2 Core Functions of Teaching and Learning].

   From this perspective, the GE learning outcome on research & inquiry directly aligns with one of Pepperdine's core commitments in the Institutional Educational Outcomes (IEO), Knowledge & Scholarship. Within this commitment, research & inquiry fulfills the institutional values of *Purpose, Service*, and *Leadership*, as shown below [Link to: Pepperdine University: Institutional Education Objectives]

Knowledge & Scholarship
>   *Purpose*: Demonstrate expertise in an academic or professional discipline, display proficiency in the discipline, and engage in the process of academic discovery.
>   *Service*: Apply knowledge to real-world challenges.
>   *Leadership*: Think critically and creatively, communicate clearly, and act with integrity.

III. Student Learning Outcome

SLO #1	*Information Literacy*
	A graduate of Pepperdine University will be able to recognize when there is a need for information, to be able to locate, critically evaluate, and effectively and ethically use that information.

IV. Curriculum Map

   Currently, Seaver College undergraduate programs of study are not required to include research & inquiry (Information Literacy) as a designated program or student learning outcome, but are required to designate a course(s) that satisfies the "research methods" component of the discipline. Among the 39 programs of study offered across the eight divisions, 19 programs have clearly identified research & inquiry and/or information literacy as one of their program learning outcomes (see Table 1). Because the introduction, development, and mastery of research & inquiry and/or information literacy occurs through a progression of courses, mastery of this GE learning outcome occurs through upper-division course(s) in the student's chosen major. The following curriculum map shows the division, program, course, level of achievement, and assessment status of the GE learning outcome for research & inquiry:

Table 1. Curriculum Map

Division (n=8)	Program (n=39)	Course	Level Achieved	Status/Yr
Business				
	Business	BA 497 $^\gamma$	Identify PLO$^\alpha$	
Communications				
	Communications	COM 301$^\gamma$	Mastered	2011-2012
	Journalism	JOUR 561$^\gamma$	Mastered	**2011-2012**$^\beta$
	Media Production	COM 300	Identify PLO$^\alpha$	
	Public Relations	PR 555$^\gamma$	Mastered	2011-2012
Fine Arts				
	Art History	ARTH 590	Mastered	2013-2014
	Music	MUS 492$^\gamma$	Identify PLO$^\alpha$	
	Studio Art	ART 593$^\gamma$	Identify PLO$^\alpha$	
	Theatre	THEA 593$^\gamma$	Identify PLO$^\alpha$	
Humanities and Teacher Education				
	Creative Writing	*TBD*	Identify PLO$^\alpha$	
	English	ENG 500*	Mastered	**2011-2012**$^\beta$
	Film Studies	FILM 480	Mastered	2012-2013
	History	HIST 581	Mastered	2011-2012
	Liberal Arts	EDUC 561	Mastered	2012-2013
	Philosophy	PHIL 580	Mastered	2012-2013
	Teacher Education	EDUC 561$^\gamma$	Identify PLO$^\alpha$	
International Studies and Languages				
	French	FRE 342$^\gamma$	Identify PLO	
	German	GER 456	Mastered	2013-2014
	Hispanic Studies	SPAN 461	Mastered	2014-2015
	International Studies	INTS 599	Mastered	2012-2013
	Italian	ITAL 462$^\gamma$	Identify PLO$^\alpha$	
Natural Science				
	Biology	BIOL 420	Mastered	**2011-2012**$^\beta$
	Chemistry	CHEM 400$^\gamma$	Identify PLO$^\alpha$	
	Computer Science Engineering	COSC 490$^\gamma$	Identify PLO$^\alpha$	
	Mathematics	MATH 320$^\gamma$	Identify PLO$^\alpha$	
	Nutrition	NUTR 450	*Developed*	Identify Mastery
	Physics	PHYS 380$^\gamma$	Identify PLO$^\alpha$	
	Sports Medicine	SPME 430	Mastered	2011-2012
Religion				
	Religion	REL 302$^\gamma$	Identify PLO$^\alpha$	
Social Science				
	Economics	ECON 592	*Developed*	Identify Mastery
	Political Science	POSC 526	Mastered	2013-2014
	Psychology	PSYC 598	Mastered	2010-2011
	Sociology	SOC 310	Mastered	**2011-2012**$^\beta$

* Assessed through group of courses within the program

α No PLO identified as research/inquiry and/or information literacy

β Course was used in this report to assess research & inquiry for 2011-2012. If more than one program completed an assessment of research & inquiry within the same division, only one report was selected to represent each division.

γ Identified as meeting the "Research Methods" requirement for the major. The program currently does not designate research & inquiry and/or information literacy in a PLO.

<u>**V. Assessment Plan**</u>

Table 2. Assessment Plan: 2011-2012

	Direct Evidence	Indirect Evidence	Authentic Evidence
SLO #1	*See specific course listings Table 3.*	Keck First-Year Seminar Undergraduate Alumni Survey	Undergraduate Research Conference

Direct Evidence – Assessment Plan

Programs that have a PLO on research & inquiry and/or information literacy and assessed the PLO in AY 2011-2012 were used to sample this GE learning outcome across Seaver College. We aimed for including one program per division. With the programs/courses that were selected, we relied on the expertise of the faculty involved to create appropriate assessment methods, rubrics, and evaluation of the data. We expect that the criteria they developed reflect the nature and standards of their respective disciplines. Programs were excluded from our analyses for any of the following reasons: 1) the program did not have a PLO and/or course designated for research & inquiry, 2) the program indicated "developed" as the highest achievement level of this PLO, or 3) the division had multiple programs able to represent research & inquiry for this academic year.

Indirect Evidence – Assessment Plan

Indirect assessment of research & inquiry and/or information literacy was aimed at measuring students' perception of their knowledge through: 1) a midterm-post assessment in a first-year seminar course on research methods (Keck Scholar First-Year Seminar), and 2) an undergraduate alumni survey on general education.
1) *Keck Scholar, First-Year Seminar*
   Freshman who select this course in fulfillment of their freshman seminar learn about research methods within their chosen disciplines. Students are expected to demonstrate their learning of: identifying, evaluating, and effectively using information in order to develop a testable research question. Students who research proposals represent highest achievement are selected for funding by the Seaver Dean's Office.
2) *Undergraduate Alumni Survey*
   Students that have graduated from Seaver College with a bachelor's degree were surveyed on various aspects of their education at Pepperdine University. Graduates were asked a group of questions related to how their undergraduate experience contributed to their knowledge, skills, and personal development in 13 areas identified as part of the liberal arts education at Seaver (including information literacy).

Authentic Evidence – Assessment Plan

Undergraduate students have the opportunity to engage in the process of academic discovery, critical and creative thinking, and effective communication in an effort to apply their knowledge to real-world challenges when they engage in the research process with a mentor/professor. This process happens across disciplines, within and/or outside of designated programs or classes. For the purposes of this report, we assessed student proficiency in research and inquiry at the annual undergraduate research conference during Spring 2012 across all participating disciplines.

1) *Undergraduate Research Conference*
   Seaver students who engage in the research process with their professors and are supported by one of the university's internal grants are required to present their research methods, data, and findings at an annual research conference spanning all disciplines. The presentations, oral or poster, are evaluated by select faculty, students, and staff in four areas of proficiency related to research & inquiry.

Table 3. Assessment Plan, Direct Evidence: 2011-2012

	Division	Course	Direct Evidence	Assessment Tool
SLO #1	COM	JOUR 561	Senior Capstone Projects	Pending
	HUTE	ENG*	Senior Portfolio	Rubric
	NASC	BIOL 420	Research Projects	Rubric
	SOSC	SOC 310	Research Papers	Rubric

*Multiple courses
Descriptions of the assessment methods/tools used to gather direct evidence for each course are located in Appendix A.

VI. Rubrics

We relied on the expertise of the faculty teaching the course and/or the faculty involved with the research activity (e.g., Undergraduate Research Conference) to develop appropriate rubrics for their respective assessment tools. The rubrics used for Communication (JOUR 561), Humanities and Teacher Education (ENG 500), Natural Science (BIOL 420), and Social Science (SOC 310) are located in Appendix B. While the rubric for the Natural Science Division course (BIOL 420) is located in Appendix B, the full data, assessment, and conclusions were used throughout this report as an example of direct assessment of research & inquiry.

VII. Criteria/Benchmarks for Student Achievement / Success

For assessment of research & inquiry and/or information literacy across Seaver College, experts from each area determined appropriate benchmarks for student success in their respective courses or research activities. The criteria used and the knowledge, skills, and abilities assessed in each course are listed in Table 4. The criteria and survey questions asked in an effort to gather indirect and authentic evidence is listed in Tables 5 and 6.

Table 4. Criteria for Student Achievement (Direct Evidence)

SLO#1	Criterion (Criteria) Direct Evidence	Areas of knowledge, skills, and abilities assessed
COM (JOUR 561)	Excellent Good Satisfactory Unsatisfactory Unacceptable	Pending
HUTE (ENG 500)	Criteria 1 = low Criteria 2 = average Criteria 3 = high	Demonstrates skill in research techniques used in the discipline
BIOL 420	4 = Above Standard 3 = Meets Standard	-Introduction -Technique used in analysis of unknowns

	2 = Below Standard 1 = Far Below Standard	-Materials, methods, and experimental designs -Results -Identification of unknown and conclusions -Organization/Clarity -Accuracy -Grammar
SOC 310	Poor (P) Fair (F) Good (G) Missing	-Abstract -Introduction -Literature Review -Research Method -Discussion -Conclusion -Sample of research instrument -Reference/citations

Table 5. Criteria for Student Achievement (Indirect Evidence)

SLO#1	Criterion (Criteria) Indirect Evidence	Areas of knowledge, skills, and abilities assessed
Keck Freshman Seminar	1: Slightly 2: Relatively 3: Adequately 4: Considerably 5: Exceptionally	-Planning research -Analyzing research -Communicating research
Undergraduate Alumni Survey	Likert Scale: Very Little Somewhat Sufficiently Considerably	-To what extent did your experience as an undergraduate contribute to your knowledge, skills, and personal development in the following areas? Information literacy: Locating, evaluating, and using information effectively and responsibly for a particular purpose.

Table 6. Criteria for Student Achievement (Authentic Evidence)

SLO#1	Criterion (Criteria) Authentic Evidence	Areas of knowledge, skills, and abilities assessed
Undergraduate Research Conference	1-2 = Novice/Emerging 3-4 = Expert/Excellent	-Understanding of intellectual research -Ability to think critically, logically, and independently -Synthesizes and integrates knowledge -Oral presentation/written presentation

VIII. Evidence / Data

DIRECT EVIDENCE

General summary of direct evidence

Of the 39 programs of study offered at Seaver College, 19 have defined research & inquiry and/or information literacy as one of their program learning outcomes, all of which have either assessed or plan to assess this PLO between 2011-2015 (9 programs have completed their assessment of research & inquiry within the major). Of the 16 programs that have not identified research & inquiry and/or information literacy in a learning outcome, most of these programs have identified a course within their major that satisfies a "Research Methods" requirement. In the event that more than one program was assessed in the division, only one program was selected to represent the division. The following is a summary of the direct evidence from one program from the 4 divisions that assessed research & inquiry and/or information literacy in AY 2011-2012.

Communication – Journalism 561

PLO #2: Conduct relevant research, identify and interview sources for news articles, evaluate source credibility, and present the resulting news stories in a clear and concise fashion using a variety of words, images and sound.

Summary of Evidence: This was the first semester the revised course was offered as part of the new curriculum, which elevated the course to capstone level. Three journalism professors evaluated final media projects that included print, Web, radio and television versions of a public affairs story. Among a list of other criteria, projects were evaluated on the basis of their effective use of information and research to inform their reports. Five of the six groups had projects consistently rated satisfactory or better. Faculty rated one group's work unsatisfactory. One of the reasons for the unsatisfactory work was the level of post-production work in the television and web-based stories, not necessarily due to unsatisfactory skills related to research.

Humanities – English (multiple courses)

PLO #3: Utilize sophisticated critical thinking, research, discussion, and presentation skills.

Summary of Evidence: Student Portfolios from a series of English courses (English 215, 425, 426, 390/401) were evaluated to determine the percentage of samples achieving the expected level of learning (introduced, developed, mastered) in the respective courses. In the sequence of courses most students achieved the expected level of learning for the course: 80% of the sample papers indicated an introductory level achievement where expected, 82% of the sample papers indicated a developing level of achievement where expected (8% showing mastery). ENG 325 and ENG 326 fell below expectations.

Summary of Evidence: In the English capstone course, English 500 (Senior Seminar), 65% of senior theses demonstrated mastery of research skills and 35% demonstrated an acceptable level.

Natural Science – Biology 420

Note: As previously indicated, Biology 420 is used in this report as one example of research & inquiry. Therefore, the following includes a full report of the evidence.

PLO #2: Apply principles of the scientific method to problems in biology, including the formulation of a hypothesis, implementation of a research project, collection and analysis of data, and interpretation of data in both written and oral formats.

Mastery of research & inquiry is the expected level of learning in BIOL 420. Course SLOs C and D (and therefore PLO #2) are assessed through a varied approach to student work, which is defined completely in the Biology Annual Report.
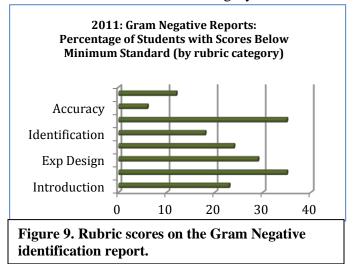
Methods of Assessment (1 of 2): A focal point for assessment of SLO #2 is the laboratory-based analysis of Gram-negative microbial unknowns, in which students use appropriate laboratory techniques and the scientific method to identify the genus of the unknown microbe. Students are required to report the results of their analysis in a formal report. The report is graded according to the rubric provided below, and is graded for the success of bacterial identification, and the effectiveness of the provided report. The analysis of a microbial unknown sample is the final project of the semester, and is challenging as many techniques practiced through the semester are put to use by the student with little additional assistance from the instructor.

Data: In 2011, 19 students evaluated unknowns in Microbiology and 77% were able to provide the correct identification of their unknown sample, an additional 13% identified the unknown correctly when provided with a "second try" at interpretation of their data and submission of a putative microbial identification. This reveals 90% to have generated sufficient data to identify the genus of their unknown specimen from a long list of candidate Gram-negative microbes of the family Enterobacteriaceae. This identification of an unknown, and the appropriate reporting of the techniques used in the analysis required mastery of core concepts/skills, use of the scientific method in the laboratory, and appropriate reporting of scientific data sets.
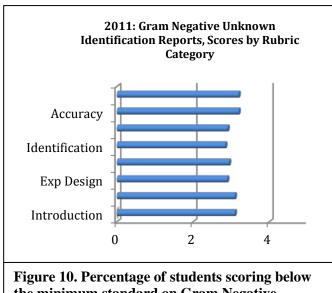
Methods of Assessment (2 of 2): The rubric shown in Appendix B was used to assess student performance on the Gram-negative laboratory reports. A key performance indicator was the correct identification of the unknown, though reporting of the process was expected to be clear and to display an appropriate competency with regard to experimental approach. Eight research teams, consisting of two to three students each, were formed, and each team was required to design and implement a research project that addressed a specific concept and/or hypothesis related to ecology. Each team was responsible for developing a research proposal that outlined the question to be addressed as well as the experimental design to be used in answering the question. This required a primary summary of the literature, and the development of both an oral and visual presentation. The visual presentation involved a poster that followed the basic format required by professional scientific societies at their annual meetings. Students were scored over four categories, (1) well below standard, (2) below standard, (3) meets standard, and (4) above standard. Two professors (Dr. Rodney Honeycutt and Dr. Tom Vandergon) used a grading rubric (Appendix B) to independently assess all eight research projects. Because all of the students in Biology 311 had previous experience with independent research projects and the presentation of results, we expected the average score to be 75% (scale 0-100%).

Data: The average scores provided by both Honeycutt (87.6%) and Vandergon (83.6%) exceeded this expectation. In each of the eight categories, student groups averaged near the "3.0" level of student proficiency with 4 categories averaging slightly higher than 3.0 and 4 categories slightly below the 3.0 level (Figure 9). Perhaps a more valuable analysis of the data was to score the percentage of students at or above the minimum standard level of 3.0 for each category or report analysis. Over 30% of students scored below a 3.0 in the "clarity/organization" category, and/or in the "techniques" category (Figure 10). Over 25% of students scored below the 3.0 thresholds in the "experimental design" category. These clearly are areas of reporting that deserve enhanced attention in future years of this course. One explanation for the deficit in some of these areas is the high percentage of students who were correct in their identification of their unknown. Perhaps students who had confidence in their laboratory findings felt a diminished need to submit a superb report, as the correct ID of the unknown strongly affects the overall grade. Another explanation is that students were not sufficiently informed of the standards for this assignment. In subsequent years, more time will be devoted to carefully defining expectations for this report.

Figure 9. Rubric scores on the Gram Negative identification report.

Figure 10. Percentage of students scoring below the minimum standard on Gram Negative identification report.

Summary of Findings: Learning Outcome I: As discussed above, the assessment of SLO #1 revealed good student performance in each of the key areas of class assessment. Students performed well in presenting a synthesis of the current scientific literature in a selected area of student interest. The grading rubric results revealed less than 70% of students meeting the 3.0 minimum standard for four key areas of review paper content. In the future, we will generate a more detailed document defining expectations for the review paper, and will include one additional writing assignment earlier in the semester to build student familiarity with expectations.

Learning Outcome II: As discussed above, the assessment of SLO #2 reveal strong student performance in displaying an understanding of the scientific method, data analysis, the application of laboratory technique, and the capability to identify the genus of an unknown sample. The assessment rubric revealed less than 70% of students performed at the 3.0 standard in two components of the "Gram negative unknown" module. These areas focused upon a clear description of experimental techniques, and appropriate clarity in defining project success. In future years, we will enhance class discussion of the rubric itself before students begin to write up their project reports.

Location of Assessment Data: Examples of graded review papers and graded Gram-negative laboratory reports are stored on the Sakai site entitled "Assessment-Seaver."

Social Science – Sociology 310
PLO #4: Design and conduct an empirical study that answers a sociological question
    Summary of Evidence: A representative sample of research papers were used to provide Direct Evidence of mastery of PLO #4. Independently assessed by two faculty, faculty expected 75% of the samples (papers) to achieve Fair or Good for each component of the rubric and that 0% of the samples would have any component of the assignment missing. The results of the analysis met the numerical expectations: Data from these samples indicated that 100% of the reports achieved Fair or Good on each component of the rubric and 0% of the reports were missing an expected component: one student paper sampled was rated as "poor" on any component, while the remaining three papers were rated as "Good" or "Fair" on all components; no papers were missing any components. There is variation in which components students completed well and which were only satisfactory. Students most commonly faced problems discussing their results in a clear and concise way, or they would neglect to highlight a finding in a theoretically-informed way. While no methodology section was perfect, the students were generally able to correctly describe what they had done, potential biases, problems encountered, and sampling.

INDIRECT EVIDENCE

Keck Scholar First-Year Seminar
    Summary of Evidence: A measure of student perceptions of understanding improved from midterm to post-course in all areas of knowledge, skills, and abilities related to research & inquiry (Table 7). Full data are available in Appendix C.

Table 7. Mean comparisons of midterm and post surveys

	To what extent do you feel capable of:	N	Mid-Average	Mid SD	Post-Average	Post SD	p value < .05
Planning Research	*1. Designing* an original research study?	124	2.76	1.015	3.77	0.787	0
	2. Locating current research studies relevant to any research topic?	124	3.4	0.962	4.06	0.886	0
Analyzing Research	*3. Demonstrating problem-solving or critical thinking skills* when carrying out a research project?	124	3.5	0.812	3.77	0.777	0.001
	4. Interpreting research findings appropriate to a research topic?	124	3.39	0.871	3.81	0.803	0
Communicating Research	*5. Communicating* clearly in well-organized and persuasive *oral* presentations?	124	3.5	0.958	3.87	0.836	0
	6. Communicating effectively in well-organized and clear *written* discourse?	124	3.43	0.818	3.88	0.812	0

Undergraduate Alumni Survey

Summary of Evidence: 83% of respondents indicated that their undergraduate experience contributed *sufficiently* or *considerably* to their knowledge, skills, and personal develop with respect to information literacy (Table 8). See Appendix C for more data and link to complete survey results.

Table 8. Undergraduate Alumni Survey Results – Information Literacy

To what extent did your experience as an undergraduate contribute to your knowledge, skills, and personal development in the following areas?

Information literacy*: Locating, evaluating, and using information effectively and responsibly for a particular purpose.*

Very little	Somewhat	Sufficiently	Considerably	Total
37 (15%)	7 (3%)	96 (38%)	115 (45%)	225

AUTHENTIC EVIDENCE

Undergraduate Research Conference

Summary of Evidence: A total of 188 undergraduate student research presentations were evaluated, 134 oral presentations and 54 written (poster) presentations. Scoring was based on a 4-point scale (1-2 = novice/emerging and 3-4 = expert/excellent). Combined, the average score for each component assessed was greater than 3, indicating that in this sample of 188 undergraduate student research presentations met and/or exceeded expectations with respect to level of achievement in research & inquiry. Full data is available in Appendix C.

IX. Summary

We agree with the skills identified by the Assessment Leadership Academy (ALA) regarding proficiency in information literacy. According to the ALA, an information literate individual is able to[1]:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

These skills form the basis of Seaver College's research & inquiry student learning outcome (information literacy) in the GE curriculum. These skills also form AAC&U's VALUE rubric for information literacy. We view these skills and the criteria within as a framework for how research & inquiry is assessed at Seaver College.

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[1] Assessment Leadership Academy, 2000. Information Literacy Competency Standards for Higher Education. WASC Resource Fair: Assessing Graduation Proficiencies. Pg. 69-70.

Based on the direct evidence reported in this review of research & inquiry (sections VI, VII, and VIII of this report), programs that are implementing, measuring, and evaluating student learning in research & inquiry and/or information literacy, met and/or exceeded expectations for student learning. While we view this as a positive indication of program effectiveness in research & inquiry and/or information literacy as a small sample within Seaver College, we do not yet know if the assessment methods, rubrics, and student learning in every program at Seaver College are adequate.

A qualitative evaluation of the extent to which each discipline (Program and/or Division) articulates and implements student learning of research & inquiry and/or information literacy is not consistent (Table 1). Because there is yet an institutional expectation for each program with respect to mastery of this core competency, we expected that some disciplines might not adequately address this learning outcome. Therefore, we have determined that the GE requirement of research & inquiry, as described in the catalog, is not sufficient in its expectations for implementation and achievement in each program. Given the intrinsic nature of information literacy to undergraduate education, we expected to see these skills articulated, to the extent necessary for the discipline and with discipline-specific language, in all 38 programs offered at Seaver College. In evaluating the annual or five-year reviews of each program, it is apparent that information literacy is central to many courses, and thus the program itself. Although this core competency is relevant and present in each program, there is a need for a) a clarification of this GE learning outcome as its central nature to all programs, and b) a requirement for each program to articulate this learning outcome as a program learning outcome and clearly show how it is being introduced, developed, and mastered in a series of course student learning outcomes.

The indirect evidence reported on research & inquiry and/or information literacy exceeded expectations for student learning. Overall, students perceive that their learning and ability to execute skills associated with research & inquiry are sufficient. Likewise, external evaluation of the students learning (authentic evidence) at a research conference showed that students involved in research & inquiry in a real-world setting met and/or exceeded expectations for student learning.

The data and summaries presented here provide a foundation for suggesting appropriate and strategic recommendations with respect to the GE learning outcome of research & inquiry.

X. Recommendations (Closing the Loop)

1. Edit the language of the GE learning outcome from "Research and Inquiry" to "Information Literacy". Information literacy, while it is not the equivalent to research and inquiry, it is a central component of research and inquiry in an academic setting. Further, information literacy is a lifelong skill and translates to every discipline. According to CFR 2.2 (WASC 2012), information literacy is one of four core competencies of an undergraduate education, such that in graduates of such programs should be proficient. Changes to the language of the GE learning outcome should be deliberate in including the unique nature of Pepperdine University's Institutional Educational Outcomes as well as incorporating skills articulated by the ALA and criteria of AAC&U Value Rubric for Information Literacy.

   Current GE Learning Outcome:
   Research & Inquiry *Students apply the processes of inquiry and analysis appropriate to the discipline of their academic major.*

   Recommended GE Learning Outcome:
   Information Literacy *Students recognize when there is a need for information, are able to locate, critically evaluate, and effectively and ethically use that information.*

   Student Learning Outcomes for Information Literacy may or may not include skills such as: thinking critically and creatively, communicating effectively, applying knowledge, solving real-world problems, appreciating diversity, and/or effective teamwork and leadership.

2. While some programs and majors are more easily adapted and have previously implemented an information literacy assessment, not all majors have a specific Program Learning Outcome relating to Information Literacy.
   a. First and foremost, majors that do not have a research methods requirement need to establish a requirement.
   b. Secondly, those majors that are not currently assessing information literacy in their Program Learning Outcomes need to rework/rewrite PLOs to include an information literacy component (Table 1). Likewise, these programs should show clear links to course(s) student learning outcomes toward achievement of information literacy.

3. To provide a Seaver-wide perspective and uniformity, a standard should be developed in order to promote consistency in the assessment of Information Literacy across all majors and disciplines. We suggest that a standard set of skills be explored in use across all disciplines, with depth, language, and achievement expectations variable to the

course/discipline. Look at majors (Chemistry, History) that are currently using quality tools for the assessment of Information Literacy, and identify adaptability across other disciplines. Because of the multi-disciplinary nature of Information Literacy, and the fact that this GE Learning Outcome is frequently attained in upper-division major courses, it will be imperative to include representatives from different divisions in any future reviews and/or decisions regarding a standardized assessment of Information Literacy.

4. Four of the 10 High-Impact Practices at Pepperdine are directly related to Information Literacy. Any information attained by the assessment of these practices will be useful as authentic evidence. Going forward, assessment of these practices should be skillfully evidence-based with expert institution input (e.g., emerging literature from WASC, AAC&U, and The LUMINA Foundation) articulated and implemented.

In order to accomplish items 2-4, we recommend that a small committee should be established that focuses on the institutional framing and assessment of information literacy going forward. The work of this committee should also result in appropriate changes to the Academic Catalog.

XI. Contributors

The following individuals performed assessment of this area of the General Education program:

Cooker Perkins: Assistant Professor III, Sports Medicine, Natural Science Division
Valerie Skinner: Assistant to the Associate Dean of Teaching & Assessment, Seaver Dean's Office

APPENDICES

Appendix A - Assessment Details

The following assessments were used to assess Student Learning Outcome #1 in JOUR 561, ENG (multiple courses), BIOL 420, and SOC 310.

JOURNALISM
Pending

ENGLISH
Research Notebook. Keep ALL of your writing and research notes for the following in a notebook of your choice. Bring notebook (hard copies, not your computer) to class each meeting prepared to show your progress toward your formal thesis paper.

The Thesis. 25-35pp double-spaced; MLA style. Formal Prospectus, Annotated Bibliography, 250 word abstract also required. I will also need a brief author's bio, a digital photograph, electronic copy, and permanent mailing address.

BIOLOGY
Review Papers: One review paper is required from each student covering a topic in microbiology. Each student must get approval for the chosen topic from the instructor (before Sept 25). Review papers will be a comprehensive evaluation of the chosen topic using information from relevant books, current journal articles, and current review articles. Students will be expected to research the topic carefully and perform literature searches through library or inter-net sources. Internet resources should be used cautiously as websites are not considered a reliable source of information. Use these resources for general information, and as a guide to peer-reviewed resources, but are not appropriate for your bibliography. *Review papers that display a lack of support from scientific journals will be marked down severely.* The review paper will be 8-12 pages in length (double-spaced) with a bibliography of up to 10 manuscripts. All sources will be referenced in the text and listed in an alphabetical bibliography. Citations in the text are to include author and year of publication. Example if multiple authors; (Valencia et al., 2006)., or if two authors (Valencia and Thompson, 2006), or one author (Valencia, 2006). The format of bibliographical citations should be the following:
Boehning D, van Rossum DB, Patterson RL, and SH Snyder (2005), A peptide inhibitor of cytochrome c/inositol 1,4,5-trisphosphate receptor binding blocks intrinsic and extrinsic cell death pathways, *Proceedings of the National Academy of Sciences,* 102:1466-71.

The term paper should be a thorough examination of the current literature on a chosen subtopic in microbiology, focusing upon cellular mechanisms, biochemistry, epidemiology, and ecology. Broad, superficial examinations of a topic will receive significantly lower scores, while papers examining fundamental cellular and biochemical mechanisms, as revealed in the current literature, (papers published within the past 2-3 years) will receive higher scores. Students should use caution in examining scientific literature for preparation of the report.

Class Presentations: Each student will be required to offer one 10-minute class presentation on a topic of their own choosing. This presentation may be your selected term paper topic, or may

be a separate topic. Students will be graded on clarity of presentation, value of content (depth/breadth), accuracy of content, speaking style, organization, and visual aids (PowerPoint, other projected images, handouts etc.). Students will be assigned a time to deliver their oral presentation, with at least a one week notification. Students are encouraged to begin preparation for this presentation early in the semester.

SOCIOLOGY
Research Proposal/Presentation

- Before you conduct your research, you must submit a research proposal on the assigned date. The research proposal should have: a clearly stated research question, review of relevant theories related to your research question/topic, a description of the method you will use to answer the question and who/what you will be studying to answer your question (also include applicable interview and/or survey questions, explanation of what/how you will observe, etc). Cite your work in the American Sociological Association (ASA) or the American Political Science Association (APSA) Style Guidelines.

   The proposal should be 5-6 pages, 12 pt font, double spaced. It must include your research instrument (e.g., survey).

- Your final research paper should clearly state your research question; review theories relevant to your research; describe your method and research sample; have a discussion of findings and limitations of your study; and have a conclusion. Your paper must also include necessary tables, graphs, or charts, and be properly cited in the ASA or APSA Style format (12-14 pages, 12 pt font, double spaced).

Appendix B - Rubrics

DIRECT EVIDENCE
The following rubric was used to analyze the <u>direct evidence</u> gathered in assessment of Student Learning Outcome(s) #1 in courses across Seaver College

Rubric 1 of 4: Direct Evidence, Research & Inquiry
JOUR 561 – Journalism of Culture and Society

JOUR 561 Rubric pending

Rubric 2 of 4: Direct Evidence, Research & Inquiry
ENG 500 – Capstone Course/Senior Theses

Scoring Rubric, English 500 Capstone

	Criteria 1	Criteria 2	Criteria 3
Demonstrates knowledge of American literature	Attention to literary conventions and contexts for a work or works by an American author or authors weak	Attends to major literary conventions and contexts for a work or works by an American author or authors	Attention to literary conventions and contexts for a work or works by an American author or authors is highly developed.
Demonstrates knowledge of British literature	Attention to literary conventions and contexts for a work or works a British author or authors weak	Attends to major literary conventions and contexts for a work or works by a British author or authors	Attention to literary conventions and contexts for a work or works by a British author or authors is highly developed.
Demonstrates knowledge of ethnic, gender, and cultural diversity	Does not effectively address ethnic, gender, or cultural diversity	Identifies basic questions of difference and diversity	Reflects sensitivity to theoretical questions of ethic, gender and cultural diversity
Employs rhetorical, composition, or literary theory	Does not demonstrate clear understanding of theory	Use of theory is present and used to consider literature	Demonstrates sophisticated knowledge of theory appropriate to literature considered
Reflects best practices in writing for English as a discipline	Does not display basic writing competence or a knowledge of MLA format	Displays coherent and competent writing style using MLA format	Reflect mastery of professional standard in the discipline and uses MLA format
Demonstrates skill in critical thinking,	Does not sustain an argument with clear understanding of consistencies and contradictions in sources	Sustains an argument with an adequate understanding of consistencies and contradictions in sources	Sustains an argument with a nuanced understanding of consistencies and contradictions in sources
Demonstrates skill in research techniques used in the discipline.	Does not use appropriate researched sources, or uses them with only rote reference	Use appropriate researched sources that are adequately integrated into the argument	Use appropriate researched sources that are critically assessed and integrated into the argument
Demonstrates discussion and presentation skills	Presentation and discussion are either absent or do not	Presentation and discussion pertain to the subject	Presentation and discussion pertain to the subject and

	pertain to the literary subject		reflect the depth of research and analysis
Explains the way that literature and/or language reflects and forms spiritual, moral, and ethical values	Does not directly address spiritual, moral or ethical values	Spiritual, moral or ethical values are inherent in the study	The study discerns directly the spiritual, moral or ethical values in the subject

Rubric 3 of 4: Direct Evidence, Research & Inquiry
BIOL 420 – Microbiology

Grading Rubric: Student names:_____

BIOL420: Microbiology: Laboratory Report (GRAM NEG UNKNOWN/ISOLATES)

Category	Above Standard (4)	Meets Standard (3)	Below Standard (2)	Far Below Standard (1)	Comments
Introduction (section 1)	Introduction is exceedingly effective, offering a clear overview of assigned microbes, providing examples of species that are relevant to human health. Goals for this module and analysis of unknown are presented professionally.	Introduction is effective, offering an adequate overview of assigned microbes, providing examples of species that are relevant to human health. Goals for this module and analysis of unknown are presented at a level appropriate for an undergraduate student.	Introduction is offered, but is incomplete, unclear, or inappropriate. Introduction was missing key components and may have been poorly written in some paragraphs.	Introduction was far below standards, was poorly written, or was written at a level that is inappropriate for an junior/senior-level undergraduate.	
Techniques Used in Analysis of Unknowns (section 2)	Tests used in this module are presented exceptionally well, including their value to clinical microbiology, and the relevance of the particular microbial characteristic to pathogenicity (if any).	Tests used in this module are presented clearly, including their value to clinical microbiology, and the relevance of the particular microbial characteristic to pathogenicity (if any).	Tests used in this module are presented clearly, but the content was incomplete or was presented with uneven effectiveness (as noted within feedback presented on report).	Tests used in this module are not presented effectively or are absent from the report.	
Materials and Methods, Experimental Design (section 3)	Procedure is explained in scientific terms with enough detail to repeat experiment conducted in lab. All requested content was included. Quality of presentation was professional and above expectations.	Procedures are explained in scientific terms with enough detail to repeat experiment conducted in lab. All requested content was included. Quality of presentation equal to or exceeding expectations.	Procedures are explained but not in appropriate scientific terms or not in enough detail to repeat the experiment. Or procedures are well explained but do not follow the appropriate format.	Procedures are inadequately explained and / or do not follow format typical of a peer reviewed publication.	
Results, (section 4)	Results are presented in an exceedingly clear manner, with exceptional use of figures and figure legends. Results are exceptionally well explained in concise scientific terms as would appear in a manuscript.	Results are presented in a clear manner, with appropriate graphs, illustrations, tables, etc. Results are presented in a final form as would appear in a manuscript including figure legends. All figures are explained using appropriate terminology.	Some figures are unclear or inadequately explained. Some data not represented in the best manner.	Results are incomplete. Data is not well documented, figure legends are missing or explanation of results is unclear or incorrect.	
Identification of Unknown and Conclusion (Section 5)	The student offered a high quality discussion of the results with connection to the current field of research. Unknown was correctly identified.	The student offered a clear conclusion to the report, effectively explaining the data. Unknown was correctly identified.	The conclusion did not give an adequate discussion of the experiments in lab. Unknown was incorrectly identified.	Conclusion was ineffective or missing key components. Unknown was incorrectly identified.	
Organization Clarity	The paper was exceptionally well organized, displaying superior explanations of scientific content.	The paper was well organized, used words effectively, and offered clear explanations of scientific content.	The paper had portions of confusing organization or unclear explanations of data.	The paper was poorly organized and or had discussion of the material was incomplete.	
Accuracy	The information provided in the paper was of superior quality and was of high integrity.	Information offered in the paper was scientifically accurate, and provided from appropriate sources.	Most information provided in the paper was accurate and appropriate.	Information offered was from inappropriate sources, was hearsay, pseudoscience, or based on non-scientific texts or websites.	
Grammar	The student was extraordinarily effective in communicating to a scientific audience, using appropriate grammar and punctuation throughout.	The student wrote clearly, used appropriate formal language and the paper was free from grammatical and punctuation errors.	In most instances, the student wrote clearly and effectively, though there were isolated grammatical or punctuation issues or occasional use of colloquial language.	The student did not communicate clearly, was inappropriately informal, displayed a poor use of scientific language and or had numerous grammatical or punctuation problems.	

Points Awarded (25 possible points): _____

Additional Comments:

Rubric 4 of 4: Direct Evidence, Research & Inquiry
SOC 310 – Introduction to Research Methods

	Poor(P)/Fair(F)/Good(G)	Missing
Title Page (includes Title, Name, Date, etc).		
Abstract: 150-200 words, summarizes: research question, method, major findings		
Intro: introduces research question, rationale for the study, defines major concepts		
Lit Review: summarizes research related to their question (at least three peer-reviewed/academic sources); discusses/analyzes the existent literature and discusses how their study may contribute/fit (if deductive, states a hypothesis; if inductive, explains what they will look for)		
Research Method: explains how they answered their question; discusses: operationalization, unity of analysis, sample, sampling procedure, sample validity/reliability, the data collection process		
Discussion: quality of their finding and analysis as related to the question; hypothesis supported? If inductive, what are the themes?); discusses/evaluates findings/limitations		
Tables, figures, charts, diagrams presented correctly/ clearly		
Conclusions: link it back to their original question/reflects		
Sample of research instrument?		
Reference/citations: Correct citations throughout?		
Research Proposal		
Overall writing/organization/clarity (includes page numbers, headings, free of typos/writing mistakes, follows basic directions, tone)		

*Late papers: deduct half a grade for each day that the paper is late

Check turn it in

AUTHENTIC EVIDENCE

The following rubrics were used to analyze the <u>authentic evidence</u> gathered in assessment of Student Learning Outcome(s) #1 in the *Undergraduate Research Conference* (Rubric 1 of 1)

Rubric 1 of 1: Authentic Evidence, Research & Inquiry
Undergraduate Research Conference

Undergraduate Research Presentations
Thursday, March 29, 2012
Oral Presentation

Name of Presenter: _____

Assessor (Circle One): Faculty   Staff   Student   Community Member

	1-2	3-4	
	Novice/Emerging	Expert/Excellent	Score
Understanding of Intellectual Research	*Describes some supporting details from sources; demonstrates a basic ability to analyze; states more than one perspective*	*Identifies important problems, questions, and issues; analyzes, interprets, and makes judgments of the relevance and quality of information; assesses assumptions and considers alternative perspectives and solutions*	
Ability to think critically, logically, and independently	*Explores relationships among sources of information, but lacks confidence in new insights*	*Uses experience and other sources of information to create new insights*	
Synthesizes and Integrates Knowledge	*Addresses previous information and concepts that have application to the new situation; Identifies perspectives drawn from several sources; defines abstract ideas; discusses research outcomes with little interpretation*	*Uses multiple sources of information and their synthesis to solve problems recognizes one's own capacity to create new understandings from learning activities and dialogue with others; uses complex information from a variety of sources including personal experience and observation to form a decision or opinion*	
Oral Presentation (Skip if Poster)	*Makes opening statement relevant to topic; has an appropriate pace and volume of delivery; has no distracting mannerisms; relies moderately to heavily on media; summarizes main points in conclusion*	*Conveys meaning in a way that others understand by writing and speaking coherently and effectively; effectively articulates abstract ideas; uses appropriate syntax and grammar; makes and evaluates presentations or performance; listens attentively to questions and responds appropriately; uses evidence/sources appropriately and effectively, with a clear understanding of the disciplinary audience's expectations; considers the previous knowledge generated within the discipline (i.e. literature review); evidence/sources used help develop and exemplify the overall argument/purpose of the writer; evidence/sources, including data tables or other visuals, are clearly and accurately represented and smoothly integrated into writer's argument/purpose*	
Written Communication - Poster (Skip if Oral Presenation)	*Hard to understand; has no conclusion or it is poor; ideas communicated without focus; insufficient or lacking supporting materials*	*Conveys meaning in a way that others understand by writing and speaking coherently and effectively; influences others through writing, speaking, or artistic expression; effectively articulates abstract ideas; uses appropriate syntax and grammar; makes and evaluates presentations or performance; listens attentively to questions and responds appropriately; the ideas are clearly communicated with focus and specifically*	

Appendix C - Evidence /Data (Optional)

DIRECT EVIDENCE
   The following direct evidence was gathered in assessment of Student Learning Outcome #1 in JOUR 561, ENG (multiple courses), BIOL 420, and SOC 310.

Direct Evidence 1 of 4: Research & Inquiry
Journalism 561 – [Communications Division Five- year Review](#)

Direct Evidence 2 of 4: Research & Inquiry
English (multiple courses) – [English Annual Report 2010-2011](#)

Direct Evidence 3 of 4: Research & Inquiry
Biology 420 – [Biology Annual Report 2011-2012](#)

Direct Evidence 4 of 4: Research & Inquiry
Sociology 310 – [Sociology Annual Report 2011-2012](#)

INDIRECT EVIDENCE

Indirect Evidence: Research & Inquiry
Assessment 1 of 2
Keck First Year Seminar, midterm and post survey (Fall 2011)

I. **Self-perceptions of Student Research Abilities (n=124): Midterm**

Students used these guidelines to assess their level of capability to accomplish the following tasks.
1: Slightly. Able to accomplish with *continuous guidance and direct instruction*.
2: Relatively. Able to accomplish with *frequent guidance* from an expert/mentor.
3: Adequately. Able to accomplish with *regular (scheduled) assistance* from an expert/mentor.
4: Considerably. Able to accomplish with *few questions and guidance* from an expert/mentor.
5: Exceptionally. Able to accomplish *without consulting* an expert/mentor.

	To what extent do you feel capable of:	*Average*	*Standard Deviation*
Planning Research	***Designing*** an original research study?	**2.76**	**1.02**
	Locating current research studies relevant to any research topic?	**3.40**	**.962**
Analyzing Research	***Demonstrating problem-solving or critical thinking skills*** when carrying out a research project?	**3.50**	**.812**
	Interpreting research findings appropriate to a research topic?	**3.39**	**.871**
Communicating Research	***Communicating*** clearly in well-organized and persuasive ***oral*** presentations?	**3.50**	**.958**
	Communicating effectively in well-organized and clear ***written*** discourse?	**3.43**	**.818**

II. **Post-baccalaureate Goals**
   1. 89 out of 124 students (72%) are interested in attending graduate school. Their interests range from business to the sciences to undetermined.

III. **Reasons for selecting a Keck First Year Seminar**
   1. 58 of 124 students (47%) reported that the seminar was not their first choice, but was in their top 3.
   2. 35 out of 124 (28%) reported that the seminar was related to their field of interest or major.
   3. 33 out of 124 (27%) students reported that the seminar was just assigned to them; it was not listed as a choice.
   4. 29 out of 124 students (23%) listed the seminar as their first choice.

IV. **Prior Research Experiences**
   1. 17 out of 124 students (only 14%) reported having participated in prior research projects.
      (3=research assistants; 2 teacher's assistants; 9=independent research; 6=other)
   2. Most prior research experiences that were documented related to class research papers or projects.

Keck First Year Seminar: STUDENT post-survey: Fall 2011

I. Self-perceptions of Student Research Abilities (n=124), Post term

Students used these guidelines to assess their level of capability to accomplish the following tasks.
1: Slightly. Able to accomplish with *continuous guidance and direct instruction*.
2: Relatively. Able to accomplish with *frequent guidance* from an expert/mentor.
3: Adequately. Able to accomplish with *regular (scheduled) assistance* from an expert/mentor.
4: Considerably. Able to accomplish with *few questions and guidance* from an expert/mentor.
5: Exceptionally. Able to accomplish *without consulting* an expert/mentor.

	To what extent do you feel capable of:	*POST Average*	*POST Standard Deviation*
Planning Research	*Designing* an original research study?	*3.77*	*0.787*
	Locating current research studies relevant to any research topic?	*4.06*	*.886*
Analyzing Research	*Demonstrating problem-solving or critical thinking skills* when carrying out a research project?	*3.77*	*.777*
	Interpreting research findings appropriate to a research topic?	*3.81*	*.803*
Communicating Research	*Communicating* clearly in well-organized and persuasive *oral* presentations?	*3.87*	*.836*
	Communicating effectively in well-organized and clear *written* discourse?	*3.88*	*.812*

Mean Comparisons of Midterm and Post Surveys for Total Group

	To what extent do you feel capable of:	*N*	Mid-Average	Mid SD	Post-Average	Post SD	p value < .05
Planning Research	*1. Designing* an original research study?	124	2.76	1.015	3.77	0.787	0
	2. Locating current research studies relevant to any research topic?	124	3.4	0.962	4.06	0.886	0
Analyzing Research	*3. Demonstrating problem-solving or critical thinking skills* when carrying out a research project?	124	3.5	0.812	3.77	0.777	0.001
	4. Interpreting research findings appropriate to a research topic?	124	3.39	0.871	3.81	0.803	0
Communicating Research	*5. Communicating* clearly in well-organized and persuasive *oral* presentations?	124	3.5	0.958	3.87	0.836	0
	6. Communicating effectively in well-organized and clear *written* discourse?	124	3.43	0.818	3.88	0.812	0

Mean Comparisons of Midterm and Post Surveys for Each Section

	To what extent do you feel capable of:	Section	N	Mid-Average	Mid SD	Post-Average	Post SD	p value < .05
Planning Research	*1. Designing* an original research study?	1	13	2.92	0.862	3.92	0.76	0.001
		2	10	2.9	1.287	3.3	0.823	0.309
		3	13	2.54	0.877	3.46	1.05	0.021
		4	14	3.29	0.994	4.07	0.475	0.035
		5	15	3.07	1.1	4.13	0.743	0.001
		6	14	2.29	1.069	3.5	1.019	0.001
		7	15	3	0.926	3.93	0.704	0.002
		8	16	2.25	0.931	3.69	0.479	0
		9	14	2.64	0.842	3.71	0.726	0.001
	2. Locating current research studies relevant to any research topic?	1	13	3.54	0.776	3.92	0.641	0.175
		2	10	2.9	1.101	3.5	1.08	0.024
		3	13	3.08	0.862	3.85	0.899	0.054
		4	14	3.64	0.633	4.29	0.726	0.013
		5	15	4	0.926	4.47	0.516	0.029
		6	14	2.71	1.069	3.64	1.216	0.001
		7	15	3.8	0.862	4.27	0.961	0.11
		8	16	3.69	0.873	4.25	0.683	0.014
		9	14	3	0.877	4.07	0.917	0.002
Analyzing Research	*3. Demonstrating problem-solving or critical thinking skills* when carrying out a research project?	1	13	3.46	0.776	3.85	0.801	0.24
		2	10	3.6	0.843	3.6	0.843	1
		3	13	3.38	0.961	3.62	0.87	0.427
		4	14	3.79	0.699	4	0.679	0.336
		5	15	3.6	0.507	3.93	0.704	0.136
		6	14	3.43	0.938	3.64	1.008	0.426
		7	15	3.67	1.047	3.73	0.799	0.806
		8	16	3.19	0.834	3.62	0.719	0.048
		9	14	3.43	0.646	3.86	0.663	0.054
	4. Interpreting research findings appropriate to a research topic?	1	13	3.23	0.725	4	0.913	0.026
		2	10	3.5	1.08	3.7	0.823	0.555
		3	13	2.92	1.038	3.46	0.877	0.11
		4	14	3.36	0.745	4	0.555	0.033
		5	15	3.93	0.704	3.87	0.834	0.774

		6	14	3.21	0.802	3.79	0.975	0.071
		7	15	3.8	1.014	3.93	0.594	0.634
		8	16	3.38	0.806	3.81	0.655	0.11
		9	14	3.07	0.616	3.64	1.008	0.088
Communicating Research	*5. Communicating* clearly in well-organized and persuasive *oral* presentations?	1	13	3.31	1.032	4	0.913	0.006
		2	10	3.3	1.16	3.8	0.919	0.096
		3	13	3.15	0.801	3.62	0.65	0.082
		4	14	3.71	0.726	4.14	0.535	0.082
		5	15	3.2	0.941	3.53	0.743	0.29
		6	14	3.36	1.008	3.57	1.089	0.189
		7	15	3.87	0.99	4	0.926	0.61
		8	16	3.75	0.931	4.12	0.719	0.054
		9	14	3.71	0.994	4	0.877	0.365
	6. Communicating effectively in well-organized and clear *written* discourse?	1	13	3.15	0.899	4.08	0.76	0.004
		2	10	3.3	1.059	3.7	0.949	0.223
		3	13	3.38	0.65	3.77	0.832	0.096
		4	14	3.5	0.65	3.79	0.893	0.365
		5	15	3.6	0.91	3.93	0.594	0.096
		6	14	3.21	0.893	3.86	0.949	0.045
		7	15	4	0.655	4.33	0.724	0.136
		8	16	3.44	0.727	3.69	0.479	0.164
		9	14	3.14	0.77	3.71	1.069	0.15

*In 8 out of 9 sections, there was statistically significant growth in students' abilities to design an original research study.
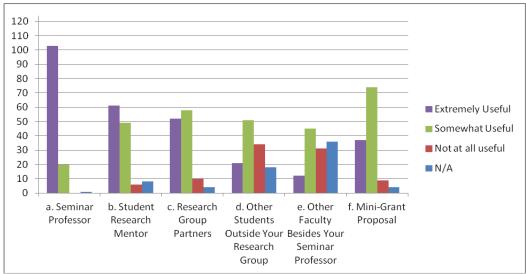
*In 6 out of 9 sections, there was statistically significant growth in students' abilities to locate current research studies relevant to any research topic.

I. **Post-baccalaureate Goals**
1. 85 out of 124 students (69%) are interested in attending graduate school. Their interest to study business & the sciences were cited the most.
2. 69 out of 124 students (56%) are interested in starting to work after graduation. Education, business, and communications are three main areas of interest that were reported.

II.   How useful were the following elements of the Keck Seminar program?

	N/A (0)	Not at all useful (1)	Somewhat useful (2)	Extremely Useful (3)
Seminar Professor	1	0	20	103
Student Research Mentor	8	6	49	61
Research Group Partners	4	10	58	52
Other Students Outside Your Research Group	18	34	51	21
Other Faculty Besides Your Seminar Professor	36	31	45	12
Mini-Grant Proposal	4	9	74	37
Other: (List here)	119	0	2	3

1. 103 out of 124 students (83%) reported that their *seminar professor* was extremely useful during their Keck seminar experience. 126 out of 124

2. 61 out of 124 (49%) reported that the *student research mentor* was extremely helpful. 49 students (40%) reported that the mentor was somewhat useful.

3. 52 out of 124 (42%) reported that their *research group partners* were extremely helpful. In this same way, 111 out of 124 students (90%) found research group partners to be somewhat or extremely useful.

4. 34 out of 124 (27%) reported that *students outside their research group* were not at all useful. 36 out of 124 (29%) did not find this element to be applicable to their experience.

5. 67 out of 124 students (54%) found that *faculty besides the seminar professor* were not at all useful or no applicable to their experience.

6. 111 out of 124 students (90%) found the *mini-grant proposal* to be somewhat or extremely useful.

7. Specific assignments, learning to read/analyze research documents/writing, and workshop time & class lectures were *other elements* that were reported as being useful during the students' Keck experiences.
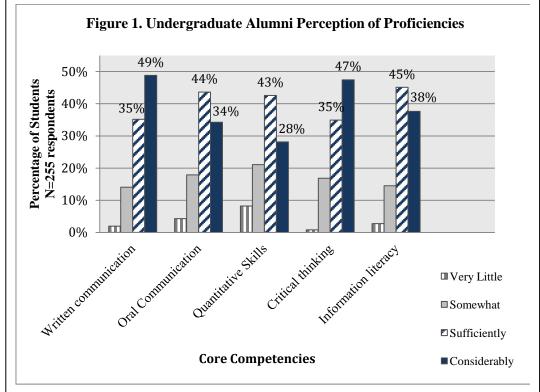
Indirect Evidence: Research & Inquiry
Assessment 2 of 2
Undergraduate Alumni Survey, Information Literacy

Questions regarding undergraduate alumni perceptions of the extent to which they perceive their undergraduate education contributed to the development of proficiencies in core competencies of an undergraduate education. Specifically, alumni were asked: "To what extent did your experience as an undergraduate contribute to your knowledge, skills, and personal development in the following areas?"

- **Information literacy:** Locating, evaluating, and using information effectively and responsibly for a particular purpose.
- **Quantitative Literacy**
- **Effective writing:** Conveying accurate and compelling content in clear, expressive, and audience-appropriate prose.
- **Effective speaking**: Conveying accurate and compelling content in clear, expressive, and audience-appropriate oral presentations.

Response options included *very little, somewhat, sufficiently,* or *considerably*.

The total sample size was 255 respondents from various degree routes. 83% of respondents indicated that their experiences during their undergraduate education sufficiently or considerably contributed to their knowledge, skills, and personal development in the area of information literacy. The percentage of students that indicated sufficient/considerable contribution to their knowledge, skills, and personal development in all core competencies exceeded expectations. Given the diversity of degree routes of the respondents, these data indirectly suggest that core competencies of an undergraduate education are adequately being addressed in a variety of programs.

Figure 1. **Undergraduate Alumni Perception of Proficiencies**

Authentic Evidence: Research & Inquiry
Assessment 2 of 2
Undergraduate Research Conference

Oral Presentations	Score 1-2	Score 3-4			
	Novice/Emerging	**Expert/Excellent**	**Students Assessed**	**Average Score**	**Range (Min-Max)**
Understanding of Intellectual Research	*Describes some supporting details from sources; demonstrates a basic ability to analyze; states more than one perspective*	*Identifies important problems, questions, and issues; analyzes, interprets, and makes judgments of the relevance and quality of information; assesses assumptions and considers alternative perspectives and solutions*	134	3.6	2.0-4.0
Ability to think critically, logically, and independently	*Explores relationships among sources of information, but lacks confidence in new insights*	*Uses experience and other sources of information to create new insights*	134	3.5	2.0-4.0
Synthesizes and Integrates Knowledge	*Addresses previous information and concepts that have application to the new situation; Identifies perspectives drawn from several sources; defines abstract ideas; discusses research outcomes with little interpretation*	*Uses multiple sources of information and their synthesis to solve problems recognizes one's own capacity to create new understandings from learning activities and dialogue with others; uses complex information from a variety of sources including personal experience and observation to form a decision or opinion*	134	3.6	2.0-4.0
Oral Presentation	*Makes opening statement relevant to topic; has an appropriate pace and volume of delivery; has no distracting mannerisms; relies moderately to heavily on media; summarizes main points in conclusion*	*Conveys meaning in a way that others understand by writing and speaking coherently and effectively; effectively articulates abstract ideas; uses appropriate syntax and grammar; makes and evaluates presentations or performance; listens attentively to questions and responds appropriately; uses evidence/sources appropriately and effectively, with a clear understanding of the disciplinary audience's expectations; considers the previous knowledge generated within the discipline (i.e. literature review); evidence/sources used help develop and exemplify the overall argument/purpose of the writer; evidence/sources, including data tables or other visuals, are clearly and accurately represented and smoothly integrated into writer's argument/purpose*	134	3.4	1.0-4.0

Authentic Evidence: Research & Inquiry
Assessment 2 of 2 continued
Undergraduate Research Conference

Poster Presentations	*Score 1-2*	*Score 3-4*			
	Novice/Emerging	*Expert/Excellent*	**Students Assessed**	**Average Score**	**Range (min-max)**
Understanding of Intellectual Research	*Describes some supporting details from sources; demonstrates a basic ability to analyze; states more than one perspective*	*Identifies important problems, questions, and issues; analyzes, interprets, and makes judgments of the relevance and quality of information; assesses assumptions and considers alternative perspectives and solutions*	54	3.8	2.0-4.0
Ability to think critically, logically, and independently	*Explores relationships among sources of information, but lacks confidence in new insights*	*Uses experience and other sources of information to create new insights*	54	3.8	2.0-4.0
Synthesizes and Integrates Knowledge	*Addresses previous information and concepts that have application to the new situation; Identifies perspectives drawn from several sources; defines abstract ideas; discusses research outcomes with little interpretation*	*Uses multiple sources of information and their synthesis to solve problems recognizes one's own capacity to create new understandings from learning activities and dialogue with others; uses complex information from a variety of sources including personal experience and observation to form a decision or opinion*	54	3.9	2.0-5.0
Written Communication	*Hard to understand; has no conclusion or it is poor; ideas communicated without focus; insufficient or lacking supporting materials*	*Conveys meaning in a way that others understand by writing and speaking coherently and effectively; influences others through writing, speaking, or artistic expression; effectively articulates abstract ideas; uses appropriate syntax and grammar; makes and evaluates presentations or performance; listens attentively to questions and responds appropriately; the ideas are clearly communicated with focus and specifically*	54	3.8	2.0-4.0

<u>Appendix D - Chronology</u>

The committee met and performed activities in support of this assessment as indicated below. Please add additional rows as necessary.

Date	Members Participating (Initials)	Action
Fall	CP, AD, MF, CF	Meeting to discuss general education learning outcomes
Fall	CP, AD, MF, CF	Determine appropriate avenues and individuals for assessment related to research & inquiry
Spring	CP & VS	Read and review all annual- and five-year program reviews for evidence of assessment in research & inquiry
Spring	KC & LK	Data collecting at Undergraduate Research Conference
Spring	CP & VS	First draft of assessment report
May 2012	CP & VS	Second draft of assessment report
June 2012	CP & VS	Evaluating of data collection from Keck First-Year Seminar, Undergraduate Research Conference, and Undergraduate Alumni Survey.
June 2012	CP & VS	Second draft of assessment report
July 4, 2012	CP & VS	Final draft of assessment report of research & inquiry.