

Annual Academic Assessment Report
B.A. Psychological Science
2019-2020 Academic Year

On March 2, 2015, the Department of Psychological Science adopted a plan for the assessment of the undergraduate curriculum in Psychological Science. The Department identified five major measurable goals that would be evaluated by means of this assessment. These goals were based on recommendations by the American Psychological Association in its publication *APA Guidelines for the Undergraduate Psychology Major*.¹

- 1. Knowledge Base:** Demonstrate knowledge of core areas of psychological science as well as the ability to interpret and apply knowledge of psychological science
- 2. Scientific Literacy and Critical Thinking:** Demonstrate the ability to reason scientifically, understand scientific research, understand basic statistics relevant to behavioral sciences and think critically.
- 3. Ethical and Social Responsibility in a Diverse World:** Demonstrate a basic understanding of ethical principles as they apply to psychological research and practice.
- 4. Communication:** Demonstrate an ability to communicate effectively in written and oral presentations.
- 5. Professional Development:** Demonstrate the ability to apply skills learned to enhance teamwork, career preparation, and manage projects in a work or educational environment.

The Assessment plan called for measuring these goals annually using a combination of direct and indirect methods and for providing a report of findings to the faculty of the Department of Psychological Science and to the Dean of Fulbright College. Data collection for this assessment was carried out starting on the 10th week of the Fall and Spring Semesters of the 2019-2020 academic year and continued until the end of each semester. This report provides the findings of these assessment efforts.

Assessment of Goals

Goal 1. Knowledge Base

The first goal identified by the Department concerns ensuring that students have a broad understanding of the knowledge base of Psychological Science. We used two measures to assess this goal.

Psychology Print Exposure Measure²

Sample: Sixty graduating senior Psychological Science majors, taking Advanced Research or Advanced Seminar, completed this measure. We compared results for graduating Senior

¹ APA Board of Educational Affairs Task Force on Psychology Major Competencies (2012). *APA Guidelines for the Undergraduate Psychology Major (Version 2.0)*. American Psychological Association: Washington D.C.

² Smith, D. L., & Barker, L. (2008). Using yes-no recognition tests to assess student memory for course content. *Teaching Of Psychology*, 35(4), 319-326.

Psychology majors to a sample of 51 General Psychology students who had completed the measure in a previous year.³

Description: The Psychology Print Exposure (PPE) measure provides students with 50 terms taken from psychology classes (e.g., cognitive dissonance) as well as 50 psychological-sounding foil terms (e.g., proactive sufferance). Students are asked whether these are real psychological terms. Research shows that students with no psychological training score near chance and that performance on this simple ‘yes-no’ measure strongly correlates with course grades and final exam performance, r 's > .68. The Committee on Undergraduate Assessment developed an alternative version of the PPE for use with our students. Instead of merely replying Yes/No as to whether a term was a real psychological term, students were given three response options – (a) this is a real psychological term and I know what it means, (b) this is a real psychological term but I don't remember what it means, (c) this is a fake psychological term. For consistency with prior research we count as correct any case where students indicate that a real psychological term is a real psychological term (even if they do not believe they know what it means) and any case where they reject a false psychological term.

Desired Level of Performance: Our goal was that 80% of graduating seniors would obtain scores of 70% or better on this assessment. Seventy-percent correct is considered ‘proficient’ by the test authors. Additionally, our goal was that graduating seniors and would significantly outperform students in General Psychology.

Results: Mean performance was 65.49% correct (SD = 10.05%). Substantially more Advanced Research/Seminar students (40.00%) scored at the proficient level than did General Psychology Students (21.57%), χ^2 (df = 1, N = 111) = 4.34, $p = .037$.

Exit Interview

Sample: All graduating seniors were asked to complete an online exit interview. This measure was completed by 62 out of 146 graduating seniors (42.47%).

Description: As part of a formal online exit interview, students were asked to answer a set of questions concerning the degree to which they believed that the classes and experiences they had as part of obtaining a degree in psychological science provided them with knowledge of core areas in psychology. Items were presented in the form of statements. For each student, some items were positively framed (e.g., “My classes and experiences as a major in psychological science have prepared me to understand applications of psychology to the real world.”) and some were negatively framed (e.g., “My classes and experiences as a major in psychological science failed to prepare me to understand applications of psychology to the real world.”). For each statement students rated their degree of agreement on a 5 point scale ranging from ‘strongly disagree’ to ‘strongly agree.’ For positively framed items, responses were coded such that ‘strongly disagree’ = 1, ‘disagree’ = 2, ‘neither agree nor disagree’ = 3, ‘agree’ = 4, and ‘strongly

³ In past years we sampled General Psychology students from the General Psychology subject pool to serve as a comparison group. During the past year, demand for access to research participants for this pool increased and we were not able to access student participants in this manner. We believe it is reasonable to assume however, that patterns from previous years would hold for this comparison group and so we used data from the previous year's assessment for comparison purposes.

agree' = 5. Negatively framed questions were reverse scored (i.e., a rating of 1 was transformed into a rating of 5, a rating of 2 was transformed into a rating of 4, and so on).

Desired Level of Performance: Our goal was that at least 75% of students would provide ratings of 4 or 5 to each item.

Results: Results of the Exit Interview questions dealing with the core knowledge goal are shown in Table 1. Results are for both positively and negatively framed items, but for ease of exposition, only the positively framed version of the item is shown. As can be seen, a majority of graduating seniors agreed that the undergraduate program in Psychological Science did a good job (rating of 4 or 5) in providing them with content knowledge of Psychological Science.

Table 1. Exit Interview Questions Concerning Goal 1.

Item	Percent of Students Providing Rating of 4 or 5	Mean (SD)
... prepared me to describe key concepts, principles, and overarching themes in psychology	93.55	4.32 (0.9) N=62
... provided me with a working knowledge of psychology's key content domains	93.55	4.34 (0.7) N=62
... provided me with an understanding of applications of psychology	85.48	4.23 (0.93) N=62

Goal 2. Scientific Literacy and Critical Thinking

The second goal identified by the Department concerns ensuring that students can demonstrate the ability to reason scientifically, understand scientific research, understand the basics of statistics relevant to behavioral sciences and think critically. We used two measures to assess this goal as described below.

Research Methods and Statistical Knowledge Concept Inventory⁴

⁴ Veilleux, J. C., & Chapman, K. M. (2017). Validation of the Psychological Research Inventory of Concepts: An Index of Research and Statistical Literacy. *Teaching of Psychology, 44*(3), 212-221.

Sample: The measure was given to 65 graduating seniors in Advanced Research/Advanced Seminar in the Fall 2019 and Spring 2020 semesters. For comparison purposes we also examined scores of 51 students in General Psychology from a previous year.⁵

Description: This measure presents students with a series of vignettes depicting research scenarios and multiple choice questions asking about conclusions that can be drawn about each situation. These vignettes and questions address topics at the heart of research methodology and statistics taught in undergraduate psychology courses, including replication, experimenter bias, operational definitions of variables, correlation, reliability and validity, random assignment, experimental design, confounds, interaction effects, limits to generalizability, and interpretation of statistical findings. To correctly answer each question, students must truly understand the concept, as the foils present empirically derived wrong-answers.

Desired Level of Performance: Our goal was that 70% of graduating seniors in capstone courses (Advanced Seminar and Advanced Research) would achieve 70% or above on this measure. Additionally, our goal was that graduating seniors would significantly outperform students in General Psychology.

Results: Overall, we found that students in the Advanced courses scored significantly higher ($M = 54.95\%$, $SD = 18.02$) compared to students in the General Psychology course ($M = 38.14\%$, $SD = 14.39$), $t(114) = 5.44$, $p < .0001$. Thus, we have evidence that advanced students are more proficient at research methods and statistical knowledge than early psychology students.

We did not meet our goal of 70% obtaining 70% or more on the measure; only 23.08% of the graduating seniors tested achieved a score of 70% or above. However, about 41.54% of these graduating seniors achieved a score of 60% or higher, indicating that a substantial number of students obtained scores between 60% and 70%. Conversely, only 3.9% of students in General Psychology achieved a score of 70% or more on the concept inventory, and only 5.9% of students in General Psychology achieved a score of 60% or more.

It is noteworthy that when the PRIC was adopted as our assessment method it was just in pilot testing and had not yet been published. Thus, there was no good normative information on what kind of performance it would be reasonable to expect. It is possible, therefore, that the committee set an unrealistic level of expectation for performance. The comparison to general psychology students demonstrates that students substantially increase their understanding of behavioral research methods and statistics compared to General Psychology students.

Exit Interview

Description: The online exit interview included five questions concerning the degree to which their degree provided them with mastery of methodology and statistical concepts. These items were scored as described above.

⁵ As with the PPE test we have typically collected a sample for General Psychology students from the General Psychology subject pool. However, due to limitations on the size of the subject pool this semester, we elected not to collect new data but to make comparisons to data we had already collected during a previous semester on the assumption that performance of General Psychology students would be relatively consistent across years.

Desired Level of Performance: Our goal is that 75% of students would provide ratings of 4 or 5 (as described above).

Results: Results of the exit interview questions dealing with the research methods goal are shown in Table 2. Of the students who responded to the exit interview, results are strongly in line with our goals; most of the responding graduating seniors believed that the undergraduate program in Psychological Science did a good job (i.e., moderately or strongly agreed) in teaching critical thinking, scientific literacy and methodological competence.

Table 2. Exit Interview Questions Concerning Goal 2.

Item	Percent of Students Providing Rating of 4 or 5	Mean (SD)
... gave me the ability to use scientific reasoning to interpret psychological phenomena	95.16	4.40 (0.64)
... increased my psychology information literacy	98.39	4.65 (0.58)
... gave me the ability to engage in innovative and integrative thinking and problem solving	88.71	4.31 (0.67)
... gave me the ability to interpret, design, and conduct basic psychological research	90.32	4.37 (0.75)
... gave me the ability to incorporate sociocultural factors in scientific inquiry	88.71	4.23 (0.78)

Goal 3. Ethical and Social Responsibility in a Diverse World

The third goal of the Department was for graduating senior psychological science majors to demonstrate a basic understanding of ethical principles as they apply to psychological research and practice. We assessed this goal in two ways: 1) performance of undergraduate students on a mandatory ethics tutorial and exam, and 2) a set of ethics questions included in an exit interview for graduating seniors. Results from these assessments are summarized below.

Research Ethics Tutorial

Description: We examined archival records of students who had completed the Department's online ethics tutorial and compared those records to a list of graduating seniors. The tutorial is designed such that students complete a final exam at the end of the tutorial. Students are required to take and pass this tutorial if they are involved in research in any way. Students are considered

to have successfully passed the tutorial only if they achieve a score of 100%. Students are allowed to take the tutorial as many times as needed in order to meet this criterion.

Desired Level of Performance: Our goal was that at least 50% of all graduating seniors will have successfully completed the ethics tutorial, with 80% of those students obtaining a score of 100% on the first try.

Results: Our examination revealed that 89.04% of graduating senior Psychological Science majors had successfully completed the online ethics tutorial and the accompanying test. The vast majority of these students (80%) scored 100% on their first attempt on the tutorial. The mean number of attempts was 1.23 (SD = .49). These results are consistent with the goals outlined in the department’s assessment plan.

Exit Interview

As described previously, a formal online exit interview was given to a sample of graduating seniors. A component of this exit interview was a set of questions designed to assess the degree to which their classes and experiences provided them with adequate training and experience in research ethics and social responsibility. Four such ethics items were presented in on the exit interview (Table 3). Details regarding the scoring and framing of these items is described in a previous section of this document. The percentage of graduating seniors providing a rating of 4 or 5 for ethics items on the exit interview is summarized in Table 3. All items but the third met the specified departmental goal of 75% agreeing or strongly agreeing and for that item, 72.58% of students provided a rating of 4 or 5.

Table 3. Exit Interview Questions Concerning Goal 3.

Item	Percent of Students Providing Rating of 4 or 5	Mean (SD)
...provided me with the ability to apply ethical standards to evaluate psychological science and practice.	91.94	4.48 (0.94)
...helped me learn how to build and enhance interpersonal relationships.	80.65	4.19 (0.90)
...helped me to adopt values that build communities at local, national and global levels.	72.58	4.02 (0.91)
...helped me to respect the values of others who are different from me	91.94	4.56 (0.69)

Goal 4. Communication

The fourth goal identified by the Department concerns improving student's communication skills. We used three measures to assess this goal.

Advanced Research Final Paper

A random sample of 20 papers submitted to two different sections of Advanced Research were coded using a modified version of a scoring rubric published by the Society for the Teaching of Psychology (Vosmik & Johnson, 2007)⁶. The revised scoring rubric included 8 criteria. Each criterion was scored on a 4 point scale (inadequate, minimally adequate, adequate, exceptional). Our goal was, that for each criterion in the grading rubric, 75% of students would score adequate or above. Results on each of the criteria are shown below in Table 4. For all criteria except for *General Discussion*, the goal level was achieved.

Table 4. Percentage of Graduating Seniors Receiving Scores of Adequate or Exceptional on Their Senior Writing Requirement in Advanced Research.

Item	Percent of Papers Adequate or Above
Title Page	90
Abstract	90
Introduction	80
Method	100
Results	100
Discussion	65
References	100
General APA Style	85

Honors Theses

We examined the results of honors theses submitted by students in the Department of Psychological Science. A total of 18 students were awarded honors in our department in the 2019-2020 academic year. Each honors thesis is graded by the student's committee on a 9 point scale. Our goal was that at least 70% of psychological science honors students would obtain a thesis score of 5 or higher on their thesis defense. Additionally, students can be awarded honors

⁶ Vosmik, J.R. & Johnson, K.E. (2007). A rubric for evaluating a psychology research report. Office of Teaching Resources in Psychology. Society for the Teaching of Psychology. http://www.coastal.edu/sacscoc/academic/faccomposer/1382647131_Rubric%20article%20draft_July%202015.pdf This scoring rubric was awarded the 2007 Instructional Resource Award by the Society for the teaching of Psychology

cum laude, magna cum laude, or summa cum laude. Our goal was that 50% of psychological science students receiving honors would obtain magna cum laude or higher.

In 2019-2020, 88.89% of graduating honors students received thesis scores of 5 or higher on their thesis defenses, with a mean score of 6.42 (SD = 1.61). In 2019-2020, 77.78% of our honors students who received honors, received Magna or Summa Cum Laude. On all measures we achieved our aspirational goals with regard to supervision of honors theses.

Exit Interview

Three exit interview questions concerned the degree to which students believed that they developed communication skills in our program. Results of the Exit Interview questions dealing with the communication are shown in Table 5. As can be seen, well over 75% of the graduating seniors responding agreed that the undergraduate program in Psychological Science did a good job (i.e., rating of 4 or 5) in helping them to improve their writing skills and skills interacting with others. However, 70.97% indicated that the undergraduate program in Psychological Science helped them to improve their oral communication skills, which is lower than our goal.

Table 5. Exit Interview Questions Concerning Goal 4.

Item	Percent of Students Providing Rating of 4 or 5	Mean (SD)
... helped me to improve my writing skills	82.26	4.19 (1.04)
... helped me to improve my oral presentation skills	70.97	3.97 (0.97)
... helped me to improve my ability to interact effectively with others	82.26	4.21 (0.89)

Goal 5. Professional Development

The fifth and final goal of the Departmental undergraduate assessment was to determine if advanced undergraduate students (specifically, graduating students) demonstrate the ability to apply skills learned to enhance teamwork, career preparation, and manage projects in a work or educational environment. Our plan calls for assessing this goal in two ways. First, the performance of graduating seniors on the Teamwork KSA (knowledge, skills and attitudes; Stevens & Campion, 1999) measure. We also examined how they responded to questions asking about the degree to which their classes and experiences in the department contributed to their professional development. The results of these assessments are summarized below.

Teamwork KSA (knowledge, skills attitudes):

Our assessment plan calls for a sample of Advanced Psychology students to complete the Teamwork KSA (Stevens & Campion, 1999) as a measure of teamwork and professional development. Eighteen graduating senior psychology majors completed this measure. We compared their performance to 18 General Psychology students who completed the measure in a previous year. The Teamwork KSA is made up of two major subscales – Interpersonal Skills and Self-Management Skills. Table 6 shows performance on these scales converted from raw scores into percent correct. As can be seen, graduating senior psychology majors outperformed General Psychology students on all scales as well as on the overall measure, however, the differences were not statistical significant.

Table 6. TKSA scores listed as mean percent correct.

	Seniors	General Psychology	p
Total Score	57.46	47.94	0.08
Interpersonal	55.33	44.89	0.07
Self-Management	62.78	55.56	0.29

Mean raw scores were also higher for our graduating seniors (M = 20.11) than in a study published by Stevens and Campion (1999) using an industry sample (M = 19.80) and in a study of undergraduate psychology students (M = 19.29).

Exit Interview

Description: To better assess professional development, the exit interview included questions about post-graduate plans, whether the student had a job lined up, whether the student had been accepted to graduate school, medical school, law school, etc. Additionally, graduating seniors were asked to answer a set of questions concerning the degree to which they believe the classes and experiences aided in their professional development. These items were scored as described above.

Desired Level of Performance: Our goal is that 75% of students will respond ‘agree’ or ‘strongly agree’ to the positively worded questions and 75% of students will respond ‘disagree’ or ‘strongly disagree’ to the negatively worded questions (i.e., ratings of 4 or 5).

Results: A majority of students gave ratings of 4 or 5 on all measures. All measures but one met our goal of at least 75% of students providing a rating of 4 or 5. The exception was the item asking if the degree improved their teamwork ability, which received a rating of 4 or 5 by a majority of students, but less than the 75% goal. It is interesting that on the standardized measure of teamwork ability (i.e., the Teamwork KSA) our students performed quite well, but that students own perceptions of their teamwork abilities do not always match up.

Table 7. Exit Interview Questions Concerning Goal 5.

Item	Percent of Students Providing Rating of 4 or 5	Mean (SD)
... helped me to apply my new knowledge and skills to my career goals.	80.65	3.97 (1.04) N=62

... helped me to improve my project management skills.	90.32	4.27 (0.73) N=62
... helped me to develop meaningful professional direction for life after graduation.	80.65	4.13 (0.93) N=62
... helped me to improve my self-efficacy and self-regulation skills.	80.65	4.15 (0.81) N=62
... helped me to improve my teamwork.	67.74	3.74 (1.23) N=62

During the exit interview, we asked graduating seniors about their post-graduate plans, whether the student had a job lined up, whether the student had been accepted to graduate school, medical school, law school, etc. Results are shown in Figure 1.

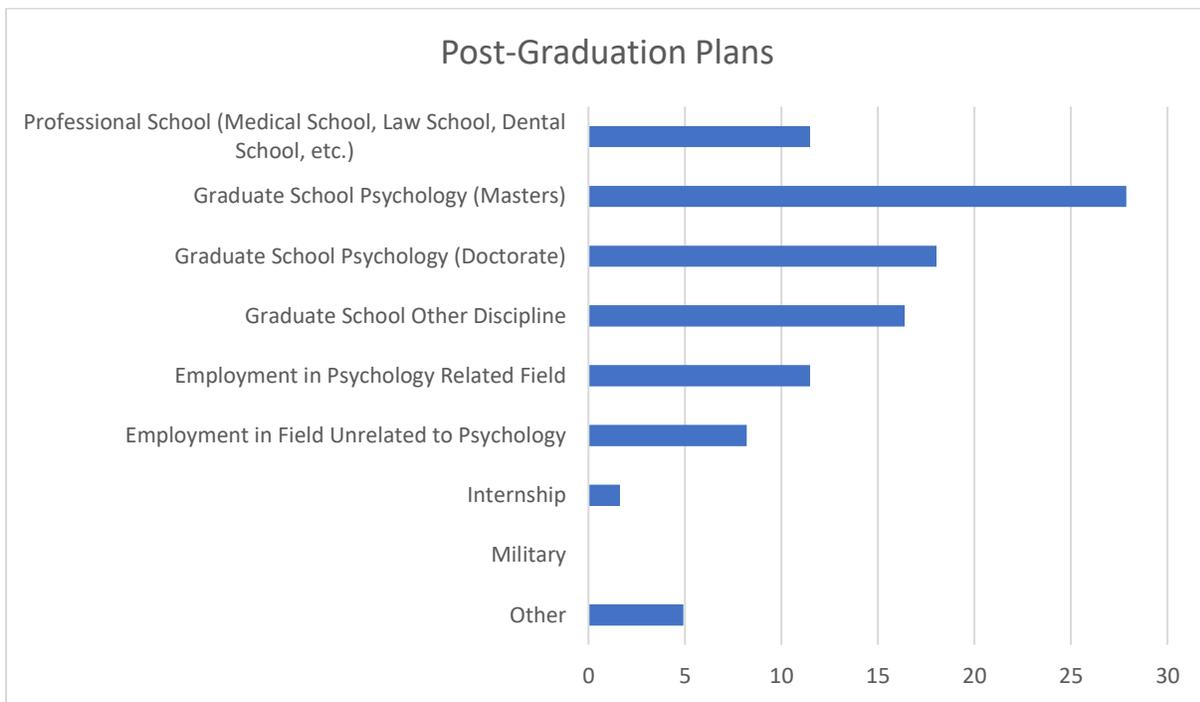


Figure 1. Post-graduation Plans of Graduating Senior Psychological Science Majors.

More than 60% of students in our sample indicated that they intended to attend graduate school following graduation and close to 12% indicated that they planned to attend a professional school (e.g., Medical School, Law School).

Conclusions and Recommendations

The undergraduate assessment plan adopted by the Department of Psychological Science calls for the annual assessment of the undergraduate program and that the results of the assessment be reported annually to the Department and to the Dean of Fulbright College. As part of the action plan adopted by the Department, each Fall following the assessment, the Undergraduate Curriculum Committee, in conjunction with the Undergraduate Assessment Committee, will review the results of the assessment and make recommendations for any needed curriculum changes based on the results of the assessment.

The results of the present assessment suggest that the Undergraduate Curriculum and Undergraduate Assessment Committees should consider addressing the following issues in particular. Because of the process outlined in the assessment plan, we withhold making specific recommendations for change – leaving that instead to the appropriate committees and the Department as a whole. Instead we simply highlight important findings that the Department should address.

Program Strengths

The Department of Psychological Science is highly regarded by graduating seniors. The general pattern to emerge from this assessment is that the Department received high ratings in terms of providing students with (1) Knowledge of Core Psychological Concepts, (2) Knowledge of Scientific Reasoning and Critical Thinking, (3) Understanding of Ethics as it Applies to Research, Practice and Diversity, (4) Written and Interpersonal Communication Skills. A majority of students rate the department highly on (5) Professional Development, however, not all students see themselves as having gained much knowledge about teamwork (despite good performance on objective measures of teamwork).

Additionally, on the objective performance measures used in the assessment, our graduating seniors typically performed either at our aspirational goal level or only slightly below those goals. When comparing graduating seniors to General Psychology students, as we did for many of the objective performance measures, it was clear that students in our program learn a great deal in relation to all five of our major goals during their time in the program. Not only did graduating seniors outperform the comparison group, but they tended to outperform them to a very impressive degree.

Program Weaknesses

Although the program review generally indicated that the undergraduate program in psychological science is strong and vibrant, there were some areas where we fell short of our goals. The faculty should consider ways of addressing these issues.

With regards to knowledge of research methodology, statistics and critical thinking, our graduates significantly outperformed General Psychology students, suggesting that our students have learned a great deal about these topics during the time in our program. Additionally, students generally believed that they had learned a great deal about these topics. However, on our objective measure of knowledge of research methods and statistics, the *Research Methods and Statistical Concept Inventory*, we did not reach our goal of 70% of students scoring 70% or better. A much larger percentage of students scored 60% or better. This pattern replicates what we found during last year's

assessment of the undergraduate program. This suggests that there is some room for improvement in teaching of research methodology and statistics. However, it is also noteworthy that at the time these goals were first developed, we had very little normative information about this measure. It is possible that we set the aspirational goal at too high a level.

Although our students generally believed that the department did a good job in supporting their professional development, teamwork was not rated as highly as other measures in the exit interview. Interestingly, despite these lower ratings, students performed slightly above the norm on an objective measure of teamwork. With regard to communication skills, exit interview responses indicate that students believe the program could do a better job in teaching oral communication skills.

Conclusions

It is noteworthy that for each of the five main goals outlined by the American Psychological Association, our department gained high marks on the vast majority of measures. The faculty are to be commended on the exceptional job that they are doing in fostering outstanding undergraduate education in psychological science.