



Department of Psychology 2022 Assessment Report

MISSION STATEMENT

The primary mission of the Department of Psychology is to introduce students to the science of behavior. We emphasize student learning regarding what psychology, as a science, has to say about human nature, the ability to think critically about issues relevant to the discipline, the ability to communicate via both writing and orally these ideas to others, and the participation in the research process such that they are able to critically and effectively analyze and assess this process. We encourage our students to become active participants in research so that they garner the skills necessary to actively participate in the knowledge produced by psychological research and not simply accept such knowledge or claims passively. We recognize as well that students, upon leaving our department, will have to thrive in the real world and hence we explicitly emphasize training in career options in order to facilitate our students becoming productive citizens of their state and more generally, country, whether that is the USA or other.

DEPARTMENT OBJECTIVES AND ALIGNMENT WITH PRIORITIES FOR ACTION

1. As a department, we emphasize student learning regarding what psychology has to report on human behavior, and as such, *we place student success at the center of all we do.*
2. We emphasize the ability to think critically and complexly about important issues, and hence *drive excellence and innovation in teaching, learning, and research.*
3. We emphasize the ability to communicate ideas successfully, and hence *place student success at the center of all we do.* Mission first, people always, we mentor students in fostering a diverse and inclusive campus.
4. We emphasize participation in the research process and the ability to critically analyze that process, hence *we drive excellence and innovation in teaching, learning, and research.* We seek to partner with place in terms of helping students become productive members of the community and state.

5. We emphasize explicit training in career options in order to help our students take their places as productive citizens of their state and country, and hence *place student success at the center of all we do, embody the principle of "Mission First, People Always."*

6. Proudly tell the U of M story. We want students to graduate proudly from our department and speak positively about our department and institution to others as they progress with their careers.

STUDENT LEARNING GOALS and MEASUREMENT TOOLS

	Survey of Different Years in Program and Credit Hours Associated with Proficiency	Direct Knowledge Proficiency Exam	Student/Faculty Surveys of Participation in Psychology Activities	Open-Ended Question Evaluating Core Principle and Ability to Succinctly Explain	Curriculum Map
1. Discipline-specific knowledge. We want students to understand the basic aspects of human nature (e.g., social, developmental, biological, learning), to have a basic awareness of the history of our field, and to understand important ethical issues.	X	X		X	X
2. Critical thinking. We want students to be able to think critically and complexly about their world. We want them to be able to work independently and evaluate ideas and research with a logical mind and a critical eye.	X			X	X
3. Writing skills. We want students to be able to communicate psychology through the written medium, including gaining the skills to	X			X	X

<p>use the primary literature of the fundamental areas of psychology to prepare a clear written summary of a research topic, gaining the ability to create understandable graphical and tabular representations of psychological data and research results, and learning to write in accord with the style manual of the American Psychological Association.</p>					
<p>4. Data and research methodology. We want students to learn the skills necessary to design and carry out independent research, the abilities to match basic statistical tests to research hypotheses, to collect and analyze data, to draw appropriate conclusions, to critically read existing research, and to more generally be passionate about and understand the scientific research process. We also want students to actively participate in the research process first-hand.</p>	<p>X</p>	<p>X</p>		<p>X</p>	<p>X</p>
<p>5. Career knowledge and guidance. We want students to understand their career options with respect to psychology and know relevant information about what persons with a psychology degree can and cannot do with respect to their career.</p>	<p>X</p>				<p>X</p>

<p>6. Encourage active participation in the field. We want students to be active participants in our scientific field and to use this experience to prepare them for careers in psychology; and to understand their career options with respect to psychology and know relevant information about what persons with a psychology degree can and cannot do with respect to their career.</p>	X	X	X		X
<p>7. Awareness of diversity issues. We want students to understand and appreciate differences between and among different cultural groups, to have knowledge of those groups, and to have an attitude of understanding towards them.</p>	X	X			X

RESULTS and MODIFICATIONS

Since the last assessment report (2000), we have assessed overall and domain-specific knowledge by collecting **new data in the Fall of 2022**.

Student Learning Outcomes results	Modifications made to enhance and assess learning
<p><i>Discipline Knowledge.</i> We collected new assessment data in the Fall of 2022 (early December), revised and added a few items and questions to our previous measures and collected data from many more classes than in prior assessments (updated with “A” in Curriculum Map, Appendix G). The data assessment yielded general support for our Department’s continued success in undergraduate training by diverse</p>	<p>Learning and Knowledge Throughout Program Years. In our data collection/assessment, in years past, we assessed knowledge and learning at 1st year and 4th year (exit) levels only. To provide a more accurate assessment of continued learning over the span of our program, we added two new questions to our assessment to address a shortcoming of this approach. We asked students what year they took their first psychology course at the University of Montana to get a sense of how long, on</p>

<p><i>measurement tools as well as diverse analytical statistical tools (See collective Appendices for details on data, analysis and interpretation). Overall, our students from years 1 through 4 and beyond, on average, successfully increment their knowledge based on credit hours taken and number of program years. See Appendix A for test scores as a function of years in program and number of credits.</i></p>	<p>average, they have been in the program, and second, how many credits they have taken in psychology since they began their degree. As we will see in the ensuing assessment results for 2022, both of these measures have provided us with a more continuous sense of the learning and achievement over time for students rather than solely a binary categorization of 1st year to 4th year students as in years past. As will be discussed in this report, we have found quite strong evidence that performance on our measure is related to number of credits taken in psychology, which implies that students gain increasingly more knowledge and learning, on average, for every credit hour spent in our program. The inclusion of these measures is a significant improvement on past measures where we could only compare 1st to 4th year students in terms of their progress.</p>
<p><i>We found that the group “3rd and 4th year” were more proficient in knowledge than the group “1st and 2nd year”. That is, evidence suggests that more senior students have amassed more knowledge and skill compared to more junior students.</i></p>	<p>Evaluation at Pre vs. Post Midpoint in Program. As mentioned, in years past, we evaluated at years 1 (entry) and 4 (exit). In this year’s assessment (2022), we evaluated continuously throughout years (as much as we could given the data we obtained), and instead of only comparing years 1 vs. 4, we were able to evaluate at years 1 and 2 as a group vs. 3 and 4 as a group to learn if knowledge increased from “early years” (1 and 2) to “latter years” (3 and 4).</p>
<p><i>We found similar results for those students taking greater than 1000 seconds to complete the survey as those taking greater than 2000 seconds. In some analyses, we used only the group > 1000 seconds as to allow more sample size from which to draw our conclusions. See Appendix A.</i></p>	<p>Time Taken to Complete Survey & Validity of Results. As a reward for completing the survey, students received a bonus credit in their respective course. We are aware that because of this, some students will have participated in the survey simply to gain a credit and thus may have “fast-tracked” through the survey without paying much attention to their choices. In years past, we have not controlled for this or even recognized this as a possibility. To amend this</p>

	<p>for this year’s assessment, we eliminated survey results from respondents taking less than 1000 seconds (approximately 16 minutes) from the survey and performed analyses on groups spending more than 1000 seconds and then another group spending more than 2000 seconds (approximately 33 minutes). The survey consisted of 66 questions. Even figuring conservatively, it should take a student at least 20-30 seconds to respond to each question. If we consider the upper limit of 30 seconds, that translates into $30 \times 66 = 1980$ seconds. The lower limit of 20 seconds translates into a time length of $20 \times 66 = 1320$ seconds. Since we expected some variability around these limits (i.e., some students read exceedingly fast, some slow), we figured the cut-offs of 1000 seconds and 2000 seconds were reasonable ones and thus generally analyzed data separately in accordance with these groups. In years past, we did not take this into consideration. Hence, this year’s analysis provides a more accurate and valid assessment of student performance. Both cut-offs, in general, produced similar results in terms of findings. Of course, analyzing data for the group 2000 seconds or more usually resulted in fewer participants, so in some cases we analyzed data for only the 1000 seconds (or more) group to allow more sample size into our analyses. The key point is that we took this into consideration for this year’s assessment instead of including results that may have simply represented a student skimming through the survey responding at will simply to get a bonus point. The validity of our results and findings matter, and we took great care this year to ensure valid results as much as possible.</p>
<p><i>Concept and Focused Written Explanation.</i> <i>We evaluated a core concept in methodological psychology by asking</i></p>	<p>We added a concept question about one of the most central methodological topics we would like students to learn in our program,</p>

<p><i>students to read a brief statement and evaluate whether they could identify the correlation vs. causation issue. This question was added also in an effort to address a weakness in past assessments for evaluating writing. Our results (Appendix B) showed in general that as students progressed through the program, their understanding, recognition and appreciation of this issue became clearer based on our rigorous grading of the item. Students in senior years in general performed better than students in earlier years and identified the core issue in the brief statement better than students in earlier years.</i></p>	<p>and that is of the idea of correlation does not (necessarily) imply causation. This was an open-ended question and it was graded very rigorously allotting a “successful” response only to those students who provided superior and focused knowledge in their response. It also allowed us to evaluate whether students could express the solution through written expression instead of multiple choice. As discussed in our February 2021 faculty meeting regarding assessment, we continually strive to have students express themselves via writing in a much more clear, succinct manner, though we have long recognized a need to improve assessment in this regard. As we will see when we survey results below, the number of years in our program were generally related to how well students responded to this question, more specifically senior students (e.g., years 3 and 4 and higher) were more likely to get this question correct when compared to junior and sophomore students (e.g., years 1 and 2). This increase in proficiency for this item is quite dramatic between years 1 and 2, suggesting that students indeed gain in knowledge from their starting point in year 1. This is exciting for us, because it suggests that we, as a department, successfully put students on a positive trajectory of understanding one of the most fundamental areas of methods in psychology and science in general. By allowing this question to be open-ended instead of multiple choice, it permitted us to evaluate whether they could adequately and succinctly identify the issue in the reading statement.</p>
<p><i>Discipline Knowledge at First Year: Assessing 1st Year Student Progress.</i> <i>We evaluated students’ learning at first year after having taken an introduction to psychology course for a single semester as well as other</i></p>	<p>We invest much resources in TA-funding for introductory courses, as well as mentorship of graduate students teaching these courses. These investments are meant to improve undergraduate student learning. In prior</p>

<p><i>introductory courses in psychology. We wanted to know whether students were performing better than would be expected by chance alone. Comparing their performance to baseline chance expectation revealed that even after a semester in our program, students were performing better than would be expected by random chance (See Appendix C). We were pleasantly surprised at how well our first-year students were performing! (and will emphasize this to our faculty who teach intro courses).</i></p>	<p>assessments, there was no attempt to assess the performance of 1st year students. This was a weakness of prior assessments. Instead, we simply compared their scores to 4th year scores to see if improvement was taking place. For this year however, we developed a way to assess the progress of 1st year students by using a statistical methodology to compare their performance on the measure to what we would have expected had they been responding by chance or randomly. For each of the multiple-choice items, students randomly guessing would be expected to get the correct response approximately 1 out of 4 times, or 25%. We compared their actual performance to this baseline chance expectation, and found that 1st year students, even after a single semester of introductory psychology and other introductory courses, as a group performed better than would be expected by chance. This suggests two things: 1) our 1st year undergraduate teaching is very effective in increasing knowledge from the time they enter the program after a 1st semester, and 2) our 1st year teaching sets students on a positive trajectory moving forward because they are better able to understand concepts later in their program after this initial grounding. This assessment of 1st year students is a significant improvement on prior assessments where we did not specifically evaluate these 1st year students relative to a chance baseline.</p>
<p>Domain-Specific Knowledge. <i>We evaluated students' learning before vs. after the midpoint of their education (i.e., years 1 and 2 vs. years 3 and 4). These were measured across different domains of psychology (e.g., biological psych, cognitive psych, methods, history and systems, etc.). Across all domains, students in years 3 and 4 had higher mean</i></p>	<p>In prior assessments, we compared years 1 (entry) to 4 (exit). In this assessment for 2022, we assessed before vs. after the midpoint of their program of study. This was done to get a better sense of whether early vs. late students perform better in general since we would likely expect 4th year students to perform better than 1st. By combining</p>

<p><i>performance on our measure compared to students in years 1 and 2 (see Appendix D). We were a bit surprised that some of the scores were not a bit higher in senior years, and will address this among faculty. Perhaps recency of learned material in intro psych is what is boosting early scores to make them competitive in some cases (e.g., bio) with scores in senior years.</i></p>	<p>years 1 and 2 vs. 3 and 4, though a tougher comparison, we nonetheless get a better sense that overall, senior students are performing better than juniors and sophomores.</p>
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FUTURE PLANS FOR CONTINUED ASSESSMENT

We have a formal system in place for systematic evaluation of our assessment reports and discussion of possible changes to be made as a result. In other words, we have a feedback loop already in place, with an established history of necessary actions resulting from that feedback.

As a part of our ongoing feedback loop, faculty will be presented with these Assessment results this Spring of 2023 at a Full Faculty Meeting and discussion of results will ensue. This is a part of a larger discussion that has been in place over the past few years, much of which began with the formulation of our Curriculum Map. This is in line with a long past history of a feedback loop. In the last 17 years, the department (in addition to the aforementioned more recent developments) has developed and successfully implemented a direct method of assessment in our Knowledge Assessment Test (i.e., the general knowledge test we give to our students to assess knowledge). This has been given several times – including during the last round of assessment in Fall 2022. In the past we have given it only to entry and exit-level students, but in this latest round of assessment, we recruited participants from a variety of levels of education (years in program) in our department, as well as recorded from them the number of credit hours in psychology they have taken for their degree. *Results are only and always as good as the measures on which they are based, and one of our central missions is to continually improve the measures on which we evaluate student outcomes for assessments.* We plan to continue using this test or similar in the future, as well as potentially developing or obtaining other tests (see below for a discussion) that might help us better understand our program and students’ learning in our program.

We would also like to collect more sample size from all levels (years in program, credit hours, etc.) of education in our program as to get a better sense of the continued longitudinal trajectory of student learning over the course of our 4-year undergraduate program. We envision future analyses and assessment featuring prospective longitudinal analyses and possibly pinpointing groups of students who get “off track” in their degree progression and devising techniques for bringing them back into focus to complete their degree. Longitudinal trajectories will help us spot these deviations from the path we would like them to be on. This current assessment report, in which we evaluated total score on our test as a function of

number of credits over the years of a student's degree, sets the stage for future longitudinal analyses as now we are beginning to think more "continuously" about a student's progress rather than simply comparing entry to exit students as we have done previously. Our next assessment will specifically look at longitudinal trends and whether successful trajectories vs. unsuccessful ones can be identified and whether or not we can remedy unsuccessful trajectories.

Though we have included a writing component to our current assessment, writing has historically been a weakness in our assessment data, and in future assessments we would like to implement more of a writing test, or use one of our writing courses (e.g., Psyx. 400) as a means to evaluate and assess writing specifically and more holistically, likely using a specific writing task that we could evaluate for assessments (e.g., an essay assignment). Still, including an open-ended question in the current assessment and grading the ability of a student to express themselves succinctly on an important methodological issue (correlation vs. causation) we feel is a step in the right direction in the assessment of written communication. Indeed, we would like to implement more critical writing questions on our performance test. These open-ended questions are very useful in telling us whether students can actually think *creatively* instead of simply answering multiple choice questions. As a result of scores being a bit low on our open-ended question, we plan on including at least **5 more open-ended questions** in the next round of assessment to get an even better picture and understanding of any limitations our students have with regard to writing.

How to improve writing in our students (and the assessment of it) will be a focal point in our discussions in the Spring 2023 faculty meeting where we will review the results of our current assessment (specifically how students scored on the writing component question and how to possibly improve). We are fully invested in the idea of better assessing writing and critical thinking, and see it as a major goal of our next assessment. Based on faculty discussion moving forward, we will draft up new items to include in the next round of assessment.

As well, for the next round of assessment, we would like to possibly purchase or otherwise access a **standardized psychology achievement measure** that could be given alongside our current one. This would serve two purposes, 1) to establish validity with our current measure, and 2) to provide a wider array of item possibilities for students. Simply because a student may not respond correctly to one particular item does not necessarily mean they will miss a *similar* item. Wording and context of questions is an influential factor in determining whether they score correctly, and using a standardized measure in coordination with our own would be helpful to round out our assessment and also validate our current tool.

It should be emphasized as well that not only the negative results will be shared with faculty, but also the more positive results as well. The fact that number of credits is predictive of test performance is a strong point of our program, just as the performance of our 1st year students doing better than would be expected when compared to chance is also a strong point. These results will be shared with faculty in the Spring of 2023 at faculty meeting.

In summary, we have a recent and farther-back history of (1) actively developing and implementing assessment tests, (2) analyzing those tests, (3) producing clear assessment outlines and strategies (e.g., the Curriculum Map), (4) demonstrating that the department is largely effective at meeting its learning goals, (5) providing feedback to faculty about the results of assessment, and (6) directly addressing weaknesses revealed by that assessment. We plan to continue implementing all of these into the future.

APPENDICES

1. Appendix A. Description of Data and Test Scores as a Function of Years in Program and Credits.
2. Appendix B. Case Study Assessment on “Correlation vs. Causation.”
3. Appendix C. Focus on First-Year Students: How Much Do Our First Year Students Learn?
4. Appendix D. Domain-Specific Knowledge.
5. Appendix E. Are Students Satisfied With Our Program? Do They Feel They are Benefiting From Our Program?
6. Appendix F. Assessment Data for Psychology Survey 2022.
7. Appendix G. Curriculum Map.

Appendix A – Description of Data and Test Scores as a Function of Years in Program and Credits

Data were collected in early December of 2022 from 6 classes in our Department representative of students in early classes (e.g., 1st year, 2nd year) through to later years (seniors, many 3rd or 4th year or beyond). These classes were Psych 100, 222, 233, 270, 330, 360 and represented students’ journey through many of our core courses. Data collected at the end of the semester ensured that all students had completed the same amount of semester education (i.e., a full Fall semester) and were nearing the completion of their respective courses (especially for Psych. 100 students, as will be explained in the document we wanted a measure of 1st year knowledge so it was imperative that we allowed them to complete the entire semester before responding). Students were asked to complete a survey of core areas in psychology that we, as a department, deem important to evaluate (see Appendix F for a copy of the survey). The survey represents core areas of psychology in the discipline and includes such areas as physiological psychology, biological psychology, methods, abnormal psychology, history and systems of psychology, as well as others. Analysis of survey results suggested that in

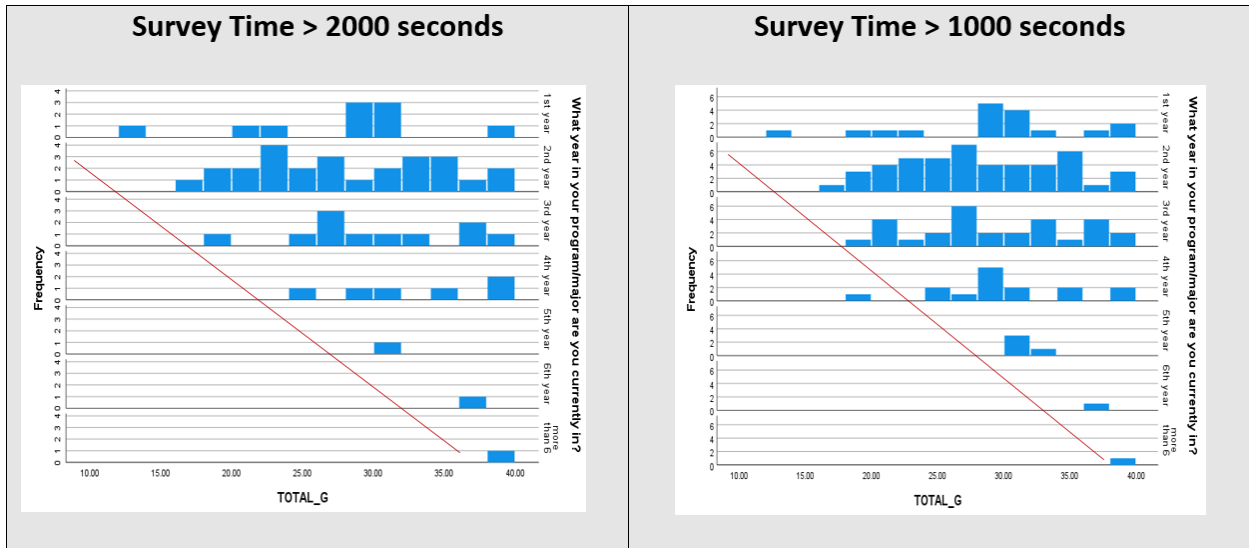
general and overall, **students in our department gain knowledge and proficiency from years 1 through to senior years.** In addition, our data suggest that even 1st year students, upon completing courses such as introduction to psychology, are gaining knowledge and performing better on our measure than would be expected by chance alone. As we will see, these results indicate that our students are gaining excellent knowledge even early on in their program (recall this was part of our modifications noted earlier, to learn how well students are doing early on after only a single semester of education in our program rather than simply compare 1st year to 4th year as we have done previously in assessment data).

In each Appendix, we detail results of the survey and explain each analysis. We recorded the time it took for students to complete the survey via Qualtrics. As a result of students being allotted a bonus credit for completing the survey, we eliminated results from students completing the survey in a minimal amount of time (i.e., the survey consisted of 66 questions, any student completing the survey in less than 1000 seconds (i.e., about 16 minutes) were excluded from the results as to guard against students simply “fast-tracking” through the survey simply to get a bonus point and answering randomly (e.g., some students took 3 minutes to complete the survey and were excluded). As mentioned in “Modifications,” to ensure validity, we were only interested in analyzing results from students who took a measure of requisite time and care to complete the survey. Hence, we also partitioned results for those students taking greater than 2000 seconds (i.e., about 33 minutes). Both sets of results are given below for most analyses. In some analyses, only data for time > 1000 seconds were used and analyzed as to allow for greater sample size. For the majority of the data, results were relatively consistent for both time > 1000 and time > 2000 groups (hence the extra sample size afforded by using the lower limit of > 1000 seconds was simply that, to provide greater numbers of observations rather than produce an entirely new empirical finding or trend).

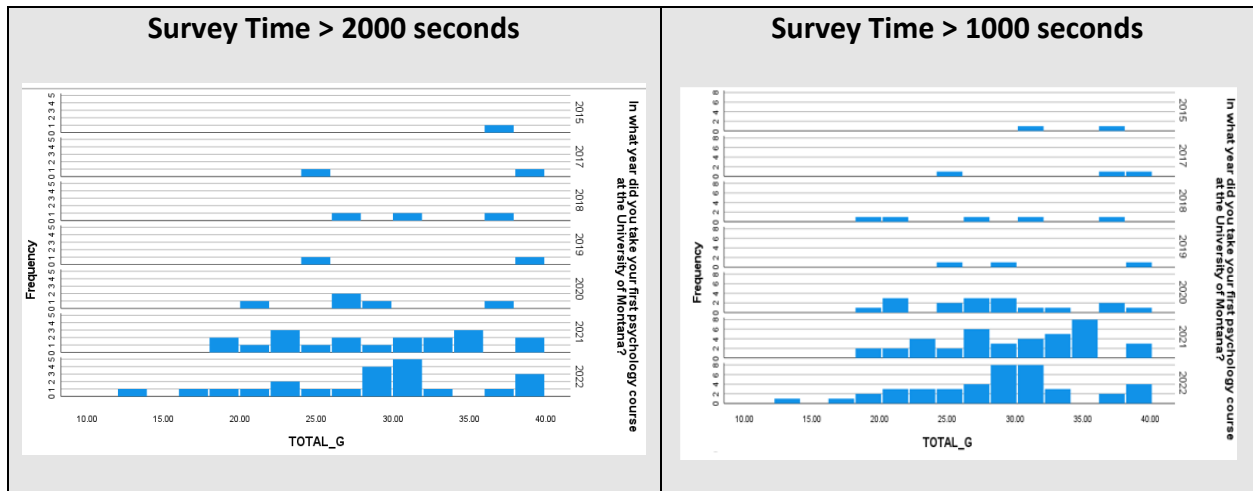
Analysis #1 – Total Test Score by Year in Program

In this first analysis, both groups time > 1000 seconds and time > 2000 seconds were analyzed. Both plots below reveal that total test score (TOTAL_G, which is the Total Graded Score on the test) is generally related to what year the student is in currently in our program. What is more, years 1 through 4 show a fairly consistent, though still relatively weak pattern of lower scores being “pulled in” toward middle scores, which suggests that as students enter the program, scores are highly variable (i.e., some students score low, some students score high, and everywhere in between). As students progress in the program, **the lower end of the distribution is generally pulled toward middle scores**, suggesting somewhat that the **minimal amount of knowledge that students learn in our program becomes higher the more years they are in our program.** Data for years 5, 6 and higher are sparse, but the effect, in general, is still slightly apparent. Note in the following for both groups, we see a generally slanted slope from top left to bottom right at the minimums, representing a general tendency (even if marginal for some years) to “narrow in” toward average scores. The trend is somewhat more emphasized for those taking greater than 2000 seconds to complete the measure (perhaps they

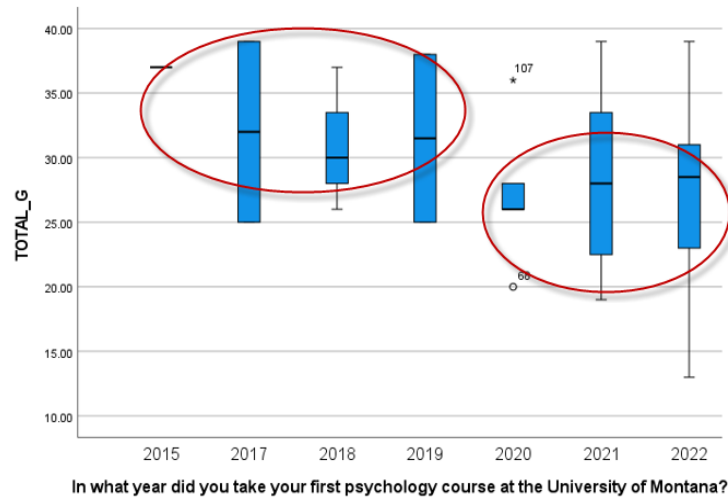
took more care in responding). These trends are not strong and are based on limited data, but may nonetheless suggest a trend to validate with future data (and additional sample size).



A similar pattern results when respondents were asked **“In what year did you take your first psychology course at the University of Montana?”**. We can see below that if they just began their program (2022), distributions of scores are wide, but as they spend more time in the program, distributions generally lean toward the right of the plot, indicating, in general, higher scores and fewer low scores. This again tentatively suggests (admittedly, the trend is still based on very small data, so we must be cautious with our conclusion) that as students spend more time in the program, in general, they appear to accumulate more knowledge and are less likely to score low on our assessment. Though some years are based on quite small sample data, and the effect is not always overwhelmingly dramatic, the general pattern seems to still be evident (more so for > 2000 seconds). In our next assessment (2024), we would like to gather more data on this to see if the general pattern is reinforced with more observations (especially in later years given our current data have relatively few cases in those years). The key point is that in first year (2022), distributions are relatively wide, but appear to narrow toward higher scores as years in the program increase. More data collected at our next assessment (2024) will be able to confirm or disconfirm this hypothesis (more data might furthermore allow us to conduct an inferential test on whether this trend holds).



The following plots (boxplots, the middle horizontal “dash” in the plots is the median) also reveal that, in general, those respondents having started earlier in the program (e.g., years 2015-2019) have higher test scores than those beginning more recently. We see in the plot relatively distinct groups arising (circled). Note that the left circled group represents years 2015-2019 (with, in general, higher scores and higher medians), while the right group represents years 2020-2022 (with, in general, lower scores and lower medians). Of course, there is some variability from year to year which is expected, but the general trend seems to be apparent, and that is, students who began earlier in the program do better, on average, than students who began more recently. **This suggests that our senior students have amassed more knowledge than our junior students, which is what we would have expected if progress in the program is associated with knowledge.** We also note that the variability for those just beginning the program (2022) is quite extensive (as indicated by the extended whiskers in the plot) but generally narrows down toward earlier years. This is the same effect as mentioned previously, that more time in the program seems to generally be associated with lesser variability in scores, especially toward the lower end of the distribution. In other words, **as a student spends more time in our program, they appear less likely to score low on our assessment. This suggests that the minimum knowledge they retain from their courses increases the longer they spend time in our program and amass more credits.**



Analysis #2 – Are Number of Credit Hours in Psychology Predictive of Total Test Score?

This was perhaps our most meaningful and important analysis and one that clearly and unequivocally indicated that students are learning as they progress through our program. As noted in “Modifications,” we asked students how many credit hours they have taken thus far in psychology (psychology only, not other majors). This is an improvement over simply analyzing 1st year and 4th year students as was done in prior assessments. If students are learning over time in our program, then **as number of credit hours increase, this should be accompanied, in general, by a higher test score, which in turn, represents the accumulation of knowledge and skill.** Indeed, this is precisely what we found, and the effect is quite large, both for students spending > 1000 seconds and > 2000 seconds on the survey, where “Q66” is the question asking respondents how many credits they have taken thus far in psychology. Results follow (we present results only for the > 2000 group; results were very similar for the > 1000 group):

Number of Credits in Psychology Predictive of Total Test Score (seconds > 2000)

```
Call:
lm(formula = TOTAL_G ~ Q66)

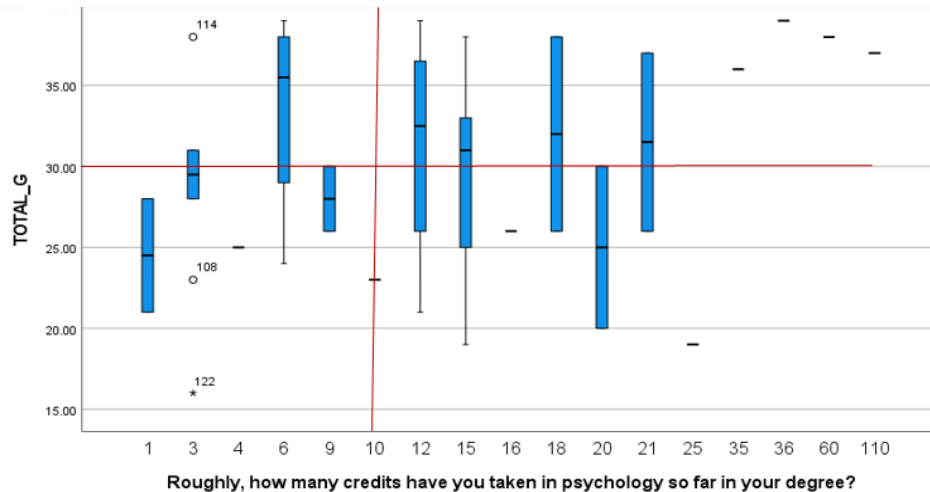
Residuals:
    Min       1Q   Median       3Q      Max
-12.3128  -4.1908   0.6872   4.3484  10.3742

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 27.99978    1.18983  23.533  <2e-16 ***
Q66          0.10434    0.05094   2.048  0.0467 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 6.143 on 43 degrees of freedom
(11 observations deleted due to missingness)
Multiple R-squared:  0.08888,    Adjusted R-squared:  0.06769
F-statistic: 4.195 on 1 and 43 DF,    p-value: 0.04669
```

We can see above that not only is the result statistically significant (even with relatively low sample size), but the multiple correlation (square root of Multiple R-squared) is .298, which for this type of data is quite large. Clearly, in general, students are learning more information in our department as they accumulate more credits. That is, **number of credits taken in psychology is highly predictive of how they score on our assessment measure.**

As a related analysis to the above, we looked at number of credits by total score on the test. Boxplots are below:



Using Total_G = 30.00 as a cut-off on the y-axis (recall that Total_G is the total graded test score, the red horizontal line at 30 is the cut-off point we used), we see that as the number of credits increase, so do, in general, the medians (the horizontal black dashes in the figure). For the lower end of the number of credits, (10 as the cut-off on the x-axis, the vertical red line at 10 credits, representing 10 credits or less), 5/6 medians fall below 30 with only a single median falling above 30. For the upper end of the number of credits (greater than 10), only 3/11 medians fall below 30, with the remainder 8/11 falling above. Though of course in some cases the data are extremely small, the pattern is generally evident, suggesting that overall, the more credits one takes, the better the performance on the measure. Indeed, a comparison of means reveals a statistically significant difference between groups with means equal to 10.12 for those with less than 30 on our measure and a mean of 20.90 for those scoring greater than 30 as a function of number of credits, as we can see in the following t-test (p = .047). Again, this supports the finding that credit hours are related, in general, to how well a student performs on our assessment:

Two Sample t-test

```
data: Q66 by TOTAL G BINARY 30 F
t = -1.8595, df = 21.646, p-value = 0.047
alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
sample estimates:
mean in group 0 mean in group 1
10.12 20.90
```


To supplement the above analysis, we also analyzed median score on the test as a function of the number of credits via regression. We found once more that as medians increase, so too, in general, do the number of credit hours. Even based on small sample size, the result was statistically significant at $p = .037$ with a substantial effect size of $R = .524$.

Appendix B – Case Study Assessment on “Correlation vs. Causation”

Analysis

Question Q65_G on our questionnaire was a **case-study analysis** asking students to respond (written response, not multiple choice) to the following open-ended question:

Suppose researchers find that exercise frequency is associated with depression and conclude “Exercise causes depression.” Do you agree with the conclusion? Why or why not? (briefly explain).

We asked this question because it is an extremely important marker of students’ understanding of what can vs. cannot be concluded from an empirical research finding. Students had to recall from their coursework and experience in the program that **correlation does not (necessarily) imply causation**. This question was scored “1” for correct and “0” for incorrect. The question was graded **extremely rigorously** in that we only assigned a grade of “1” if the student clearly and unequivocally understood the concept. Debatable or unclear answers were assigned “0.” We then cross-tabulated these results with “Year in Program.” Serving simultaneously as an item to assess how well a student can express themselves via writing, the question also evaluated how succinctly students could identify the issue in the question. As we can see below, for students in their 1st year, 5/20 (25%) got the question correct. For students in their 2nd year, 19/61 (31%) got the question correct. For students in their 3rd year, 15/40 (38%) got the question correct, and for students in their 4th year, 10/24 (42%) got the question correct. **This suggests that as students progress through the program, their understanding of this pivotal and crucial methodological item generally increases.** Again, we consider this to be a very important item that represents student maturity with regard to methodology and what can vs. cannot be concluded from a research report. We would like to see students scoring higher on this item, but it nonetheless suggests that students’ understanding of this issue increases as they work their way through the program and coursework. It should be noted that had we used a lighter grading rubric (i.e., graded the question a bit “easier”), we would have probably seen these percentages rise across all years collectively, but likely evenly so across each year. We chose to grade this question very hard however as to only deem very high quality answers as correct to see how well students could succinctly identify the primary issue (correlation vs. causation) at hand.

“Correlation vs. Causation” Grading by Year in Program

		Incorrect	Correct	Total
What Year in Your Psychology Major Are You Currently In?	1 st year	15	5	20
	2 nd year	42	19	61
	3 rd year	25	15	40
	4 th year	14	10	24

We also analyzed data on this same question (Q65_G) with regard to what year in the program students began their education in our department. Results are below, which again suggest that overall, students who have been in the program longer are more successful in getting this question correct than students who have just begun the program (e.g., 2021, 2022):

“Correlation vs. Causation” Grading by Year of First Psychology Course

		Incorrect	Correct	Total
In What Year Did You Take Your First Psychology Course at The University of Montana?	2015	2	1	3
	2017	1	2	3
	2018	3	2	5
	2019	5	3	8
	2020	15	10	25
	2021	33	21	54
	2022	40	12	52
	None of the above	3	1	4
TOTAL		102	52	154

Reading off the table, for those just beginning the program (2022), 12/52 or 23% got the question correct. For those beginning the program in 2021, 21/54 or 39% got the question correct. For those beginning in 2020, 10/25 or 40% got the question correct, and for those beginning in 2019 or earlier, 8/19 or 42% got the question correct. In general then, we see overall an increment in scores as the student spends more time in the program. Of special note is the increment from 2022 to 2021 where the percentage increases from 23% to 39%, suggesting that students are introduced to this important methodological issue early in the program and increase their scores rather dramatically from junior to sophomore. This is great news for our department, as it suggests a dramatic increase in knowledge from 1st year to 2nd year, where that knowledge generally levels off in 3rd and 4th and beyond (40% and 42% respectively), but is nonetheless maintained. In other words, **we do not have evidence that students are “forgetting” this crucial concept the more time they spend in the program.** Student knowledge retention is important to us. We do not want them to simply perform well then forget everything they know once they leave the given course. We want them to depart our department having these (and other) principles instilled and ingrained in them. The finding that students in 3rd and 4th year (and beyond) retain knowledge of the issue suggests that they are not simply learning it in 1st or 2nd year and then forgetting it. Instead, it suggests that what we teach our students with regard to this issue is retained for the remainder of their degree (and hopefully beyond as they enter the workforce).

Appendix C - Focus on First-Year Students - How Much Do Our First-Year Students Learn?

Analysis

As noted in “Modifications,” as a department, we are especially invested in the education of our 1st year students. We typically devote a great deal of time and resources (in the form of training our graduate students in teaching courses, for instance) in making sure our incoming students get exposed to the science of psychology sufficiently well to help them during the remainder of their program. For this reason, we chose to analyze 1st year data **exclusively** on total test score (TOTAL_G). We then evaluated their scores relative to what would be expected if they were simply guessing in general on the multiple-choice items. **This represents a baseline of what we would expect to see if students were simply randomly guessing on the test without any systematic knowledge to draw on from their education.** Results follow for those completing the survey in more than 1000 and 2000 seconds. Though the sample size is quite small per group, the results suggest that even 1st year students (who presumably have relatively little experience in university-based psychology coming into the program), perform very well relative to chance expectation.

Focus on 1st Year (Time > 2000 seconds)

```
> describe(TOTAL_G)
  vars n  mean  sd  median trimmed  mad  min max  range  skew kurtosis  se
  1 10  27   6.72   28   27.38   3.71  13  38   25  -0.52  -0.3   2.12
```

The probability of getting 27 items correct (i.e., their mean, as noted above) out of 49 (the number of items scored, we deleted one item from this analysis because it had 5 choices, not 4) by chance is very small ($p < .001$). This suggests that even in their first year after taking a few psychology courses, students are already learning a great deal in our department. They are performing much better than if they were simply “guessing” on the test. By 4th year, we have the following:

```
> describe(TOTAL_G)
  vars n  mean  sd  median trimmed  mad  min max  range  skew kurtosis  se
  1  6  32.5  5.54   32.5   32.5  7.41  25  39   14  -0.07  -1.89  2.26
```

The probability of getting 33 items (mean of 32.5 rounded up) correct out of 49 by chance is likewise very small ($p < .0001$). The conclusion here is that not only are 4th year students performing better than 1st year (i.e., their mean is higher), but also that **each group (i.e., 1st year and 4th year) independently is performing better than would be expected by chance or random guessing.** That is, their performance is likely not simply due to guessing or chance. It must be due to something else. What then might it be due to? **Actual learning and knowledge acquisition.** That’s what these data suggest, that they are answering to items on the test systematically (i.e., based on knowledge and skill) instead of randomly (based on chance).

Appendix D – Domain-Specific Knowledge

Analysis

We binned “years in program” into two categories, group 1 = years 1 and 2 in our program, group 2 = years 3 and 4 in our program and evaluated knowledge of specific domains across these two groups. As specified in our “Modifications,” we chose to do this analysis to evaluate **midpoint progress** in the program vs. later years progress instead of simply 1st (entry) vs. 4th year (exit) as we have done in years past assessments. Admittedly, this is a tougher test of our data, but it is a much more valid one. If students are learning over the course of their years in the program, we should expect to see means increase from group 1 to group 2. Indeed, this is exactly what we found across **all domains** for those spending more than 1000 seconds on the survey (note that in all cases below, means increase from group 1,2 to 3,4 across areas of psychology, biological psych through to learning (circled below is one mean comparison example for abnormal psych, 2.5781 to 2.9091 improvement). Some increases are very small, though this may be due to simply measurement error having only used 4-5 items per category to assess performance. In future assessments, we may use more items to provide a more rigorous evaluation. Or, it may be that in those areas, students are simply not progressing as well.

Subdomain (Psyx)	Year (1,2 vs. 3,4)	Sample Size	Mean
Biological	1,2	64	3.6094
	3,4	44	3.7273
Cognitive	1,2	64	2.6250
	3,4	44	2.6591
Abnormal	1,2	64	2.5781
	3,4	44	2.9091
Developmental	1,2	64	3.0781
	3,4	44	3.2273
History & Systems	1,2	64	2.7344
	3,4	44	2.9318
Personality	1,2	64	1.7656
	3,4	44	1.7727
Social	1,2	64	2.7188
	3,4	44	2.7500
Methods	1,2	64	6.1719
	3,4	44	6.5000
Learning	1,2	64	2.6250
	3,4	44	2.7045

Appendix E - Are Students Satisfied with Our Program? Do They Feel They are Benefiting From Our Program?

Analysis

Finally, we wanted to get a sense of how satisfied students were with their educational experience in our program. We asked them **“How satisfied are you with the education you received in the psychology department?”** Out of a total of 114 responses, where “none” was an option, all students responded with “somewhat” or “very much,” with the majority responding with “very much”:

Overall, in Your Educational Experience, How Satisfied Are You with the Education You Received in the Psychology Department?			
	Frequency	Percentage	
Not at all	0	0%	
Somewhat	39	34%	
Very much	75	66%	
Total	114		

Out of 114 respondents, 75/114, or 66% responded “very much” to the question. This suggests that in general, students are satisfied with education from our department, many of whom indicating very much satisfied.

We also asked students **“To what extent did your psychology courses help you in developing the following skills (where 1 = “not at all”, 2 = “somewhat” and 3 = “very much”)?”** As shown below, means on these responses were generally high, with only “speaking effectively”, “working effectively with groups of people” and “knowledge of/experience with computers” slightly below 2.



APPENDIX F. "ASSESSMENT DATA PSYCHOLOGY" SURVEY

Assessment Data Psychology 2022

Start of Block: Block 1

Q60 Dear University of Montana Student:

Thank you for agreeing to take this survey! Your responses on the questionnaire are NOT relevant to your grade in whatever course you are taking it from. Other than providing your name if you are getting course extra credit, your name will be deleted from questionnaire responses in our main data file. PLEASE DO NOT TAKE THIS SURVEY MORE THAN ONCE. You must complete the survey in entirety to get extra credit (the survey will take approximately 20 minutes). You cannot get additional extra credit for taking it multiple times. We are not "assessing" or "grading" YOU at all; we are assessing ourselves. Indeed, the only reason we are running this study is for assessment of our department, as required by the university and accreditation agencies. Thank you for being involved in this process! Write in "YES" in the space below. _____

Q61 What is your full name? (if you are not receiving extra course credit for completing this survey, you can leave this field blank). For what course are you receiving extra credit? _____

Q1 The tree-like branches of a neuron that receive information from other neurons are called:

- axons (1)
- dendrites (2)
- soma (3)
- myelin (4)

Q2 The insulating material that covers some axons is called a(n):

- axon hillock (1)
- myelin sheath (2)
- axonic spine (3)
- Owens-Corning fiber (4)

Q3 Much of the parietal lobe is dedicated to processing information about:

- where things are (1)
- the identity and meaning of things (2)
- how we should feel (3)
- how we should move (4)

Q4 Where is the primary visual cortex located?

- occipital lobe (1)
- thalamic lobe (2)
- temporal lobe (3)
- frontal lobe (4)

Q5 "Broca's" and "Wernicke's" areas are two brain regions important for

- memory (1)
- emotion (2)
- movement and decision-making (3)
- language (4)

Q6 In research on categorization, "typicality effects" are common. For example, people are usually faster at identifying "robin" as a bird, than "ostrich" as a bird. When evaluating typicality effects it should be taken into account that

- "typical" exemplars are always objectively superior (1)
- all humans are born with the idea that some exemplars are better than others (2)
- "typical" exemplars will be different in different cultures (3)
- these effects have been repeatedly refuted by modern research (4)

Q7 Processes that are directed by expectations derived from knowledge are called

- bottom-up processes (1)
- top-down processes (2)
- contextual processes (3)
- controlled processes (4)

Q8 Interference from material encountered before learning is called

- proactive interference (1)
- retroactive interference (2)
- release from proactive interference (3)
- pre-categorical interference (4)

Q9 Information that has general meaning (e.g., knowledge of state capitals) but is not specific to any particular event is called

- episodic memory information (1)
- semantic memory information (2)
- procedural memory information (3)
- memory information in the long run (4)

Q10 In a classic problem known as the Luchins "Water Jars" problem, people tend to keep using the same formula to solve each consecutive case even when simpler, easier-to-use formulas are available. This phenomenon is referred to as

- functional fixedness (1)
- working backward (2)
- hillclimbing (3)
- mental set (4)

Q11 Which of the following is true about the development of the Diagnostic and Statistical Manual of Mental Disorders (DSM), from its original publication in 1952 to the most recent version?

- It has become a shorter manual, with the list of possible diagnoses much smaller and more precise than it was in 1952 (1)
- It has become less theoretically-specific, moving away from earlier psychoanalytic origins (2)
- It is used less frequently now for insurance and reimbursement purposes than it was in the past (3)
- It is now published by pharmaceutical companies, where the original version was published by the American Psychiatric Association (4)

Q12 Research that is focused on the causes and symptoms of different diagnoses in the DSM is called

- Diagnostic configuration research (1)
- correlational research (2)
- basic psychopathology research (3)
- treatment outcome research (4)

Q13 Which of the following is true about personality disorders in DSM-5?

- They cannot be diagnosed until the person is 18 or older (1)
- They are the most common diagnoses in the general population (2)
- They must be diagnosed alongside a mood or an anxiety disorder (3)
- They are the most widely researched diagnoses in the DSM (4)

Q14 George meets criteria for both Major Depressive Disorder and Generalized Anxiety Disorder. This is an example of

- misdiagnosis (1)
- negative symptoms (2)
- assessment (3)
- co-occurring disorders (4)

Q15 Which of the following are NOT possible symptoms of schizophrenia?

- Delusions, or having fixed false beliefs (1)
- Cognitive disorganization, or confused thoughts (2)
- Hallucinations, or experiencing a stimulus that is not actually present (3)
- Flashbacks, or experiencing an event as if it is happening again (4)

Q16 Language development is characterized by

- a solely maturational (innate) unfolding over time process (1)
- discrimination of all speech sounds in all languages (until 6 months) followed by specialization in native language(s) (2)
- rote memorization of words and grammar produced by adults (3)
- production preceding comprehension (4)

Q17 "Theory of mind" reflects an understanding that

- other people think, imagine, pretend, have feelings, and wonder about the world around them (1)
- memory is specific only to certain areas of the brain (2)
- the mind, not actual experience, creates memory (3)
- the mind is the source of all behavior (4)

Q18 Piaget's theory of development focused primarily on

- how our thinking changes as we grow older (1)
- biological and physical changes over time (2)
- our unconscious issues and problems (3)
- the ways in which our environment influences our daily lives (4)

Q19 Environmental agents that cause damage during the prenatal period are called

- teratogens (1)
- birth defects (2)
- biohazards (3)
- amniocentesis (4)

Q20 Which of the following statements is true, according to attachment theory?

- Descriptions of children as "difficult" or "slow-to-warm-up" refer to their attachment styles (1)
- Parent-child attachment patterns are only relevant in the early years of life (2)
- Infants throughout the world become attached only to their mothers, regardless of cultural variations in caregiving practices (3)
- The security of an infant's attachment to the primary caregiver has important implications for later behavior and social behavior (4)

Q21 The early roots of modern psychology emerged primarily from the disciplines of western

- education and medicine (1)
- theology and religion (2)
- history and philosophy (3)
- philosophy and physiology (4)

Q22 According to Watson, the goal of psychology should be to

- Discover the locations and functions of mental processes in the brain (1)
- predict and control behavior (2)
- Explain how motivation and emotions influence behavior (3)
- Study the unconscious workings of the mind (4)

Q23 Why was the U.S. Supreme Court's "Brown vs. Board of Education" decision in 1954 an important event for psychology?

- This was the decision establishing the American Psychological Association as the accrediting board for the profession (1)
- This decision, mandating the right to equal education for children of all races, was influenced by evidence from psychological studies of the negative effects of segregation on African-American children (2)
- Brown vs. Board of Education marked the beginning of the field of School Psychology in the U.S. (3)
- This led to the requirement that psychologists should be represented in all School Boards throughout the country (4)

Q24 Which one of the following people developed the idea of "client-centered therapy" and became a pioneer in the humanistic psychology movement?

- Sigmund Freud (1)
- Carl Rogers (2)
- John Dewey (3)
- Lightner Witmer (4)

Q25 The sudden interest in tests and measurements in the early 1900's was influenced largely by

- a focus on special education (1)
- World War I and the need to assess military recruits (2)
- an increase in women entering the field of psychology (3)
- the rising opposition to behaviorism (4)

Q26 According to Jung's analytic psychology, the collective unconscious results from

- a person's experiences since birth (1)
- the interactions among the ego, the id and the superego (2)
- parental indifference and the development of hostility (3)
- the synchronicity between defense mechanisms and anxiety (4)
- the accumulated experiences of our ancestors over time (5)

Q27 Skinner's radical behaviorism and Freud's psychoanalytic approach share an emphasis on

- internal drives (1)
- determinism (2)
- environmental causes of behavior (3)
- early childhood development (4)

Q28 Albert Bandura's Bobo Doll experiments were a remarkable demonstration of

- children's abilities to behave conscientiously and ignore inappropriate adult aggression (1)
- the application of negative reinforcement to the acquisition of prosocial (i.e., helping) behavior (2)
- the application of negative punishment to decrease the frequency of aggressive behavior (3)
- the fact that we can learn novel behavior vicariously, or without direct experiences of reinforcement (4)

Q29 The fact that there are individual differences in [] is a cognitive explanation for the fact that people demonstrate wide variety in their responses to specific stressors.

- appraisal (1)
- access to the unconscious (2)
- aggression (3)
- extroversion (4)

Q30 A group of persons who speak a common language and share customs and values can be said to share a common

- ethnicity (1)
- race (2)
- genetic heritage (3)
- idiolect (4)

Q31 Miller (1984) looked at the attributional tendencies of adults and children in White American and persons from India. Her results suggested that

- the correspondence bias is not learned culturally (1)
- among young children, White Americans made more dispositional attributions than people from India (2)
- among adults, White Americans made more dispositional attributions than people from India (3)
- among adults, people from India made more dispositional attributions than White Americans (4)

Q32 Any tendency to gather or interpret information concerning the self in a way that leads to overly positive evaluations is called

- self-enhancing bias (1)
- correspondence bias (2)
- self-perception theory (3)
- self-handicapping (4)

Q33 Steele and Aronson's (1995) famous study on stereotype threat demonstrated that

- Thinking that a test was highly related to academic ability caused poorer performance among White Americans (1)
- Thinking that a test was highly related to academic ability caused better performance among White Americans (2)
- Thinking that a test was highly related to academic ability caused poorer performance among Black Americans (3)
- Thinking that a test was highly related to academic ability caused better performance among Black Americans (4)

Q34 Bushman (2002) had one group of participants hit a punching bag while thinking about a person who had angered them (punching bag/rumination), another group hit a punching bag while thinking about becoming physically fit (punching bag/distraction), and a third group do nothing at all (control). Then, he gave all participants the opportunity to behave aggressively toward the person who had made them angry. Which of the following best represents the pattern of results?

- participants in all three conditions showed very little aggression (1)
- participants in the punching bag/rumination group showed the least amount of aggression (compared to the other two groups) (2)
- participants in the punching bag/distraction group showed the least amount of aggression (compared to the other two groups) (3)
- participants in the control group showed the least amount of aggression (compared to the other two groups) (4)

Q35 "People can sometimes engage in behavior solely intended to help someone else (without the prospect of personal rewards for the helper), but they don't do it all the time." This statement would most likely be uttered by someone who held which of the following ideas about helping?

- cynicism theory (1)
- social complexity perspective (2)
- mood management view (3)
- empathy-altruism hypothesis (4)

Q36 In within-subjects experiments, each subject's performance is compared with its performance during a

- experimental period (1)
- random sampling period (2)
- baseline period (3)
- benchmark session (4)

Q37 Experiments done in natural settings are called

- natural experiments (1)
- spontaneous experiments (2)
- unplanned experiments (3)
- field experiments (4)

Q38 Any variable an experimenter manipulates is a/an [] variable.

- autonomous (1)
- dependent (2)
- independent (3)
- synchronous (4)

Q39 Any variable that is allowed to vary freely is a/an [] variable.

- autonomous (1)
- dependent (2)
- independent (3)
- synchronous (4)

Q40 In group-design experiments, researchers often use [] to reduce differences among participants.

- Clones (1)
- Statistics (2)
- DNA matching (3)
- Matched sampling (4)

Q41 Pairing a novel CS with an already-conditioned CS results in the learning of the conditioned response to the novel CS. This illustrates the phenomenon of:

- Pseudoconditioning (1)
- Higher-order conditioning (2)
- Sensitization (3)
- Sensory preconditioning (4)

Q42 The law of effect says that

- Satisfying consequences are more powerful than annoying consequences (1)
- Behavior is a function of its consequences (2)
- How an organism perceives events is more important than the events themselves (3)
- Effective behavior drives out ineffective behavior (4)

Q43 The free operant procedure is most associated with

- Skinner (1)
- Thorndike (2)
- Pavlov (3)
- Watson (4)

Q44 The one thing that all reinforcers have in common is that they

- Strengthen behavior (1)
- Are positive (2)
- Feel good (3)
- Provide feedback (4)

Q45 Whether children imitate an aggressive model depends largely on

- The nature of the aggressive model (1)
- Whether the model's behavior is reinforced or punished (2)
- Whether the child is encouraged to imitate the model (3)
- The relationship between the child and the model (4)

Q46 Which of the following is likely to allow the investigator to make the strongest causal statements about the relationships among variables?

- surveys (1)
- case studies (2)
- naturalistic observation (3)
- experiments (4)

Q47 The typical correlation coefficient varies from

- 0 to +1.0 (1)
- 1.0 to 0 (2)
- 1.0 to +1.0 (3)
- 10.0 to +10.0 (4)

Q48 Which of the following is an example of a negative correlation?

- Height increases as weight decreases (1)
- Weight decreases as height decreases (2)
- Height increases as weight increases (3)
- Weight stays the same as height increases (4)

Q49 The standard deviation is a measure of

- variability (1)
- central tendency (2)
- correlation (3)
- significance (4)

Q50 A researcher has developed a test that is intended to predict success in employment. He finds that for African Americans, the test is an excellent predictor of success in employment. However, for Caucasian Americans scores on the test have no relation at all to success in the job. This means that as a measure of potential success on the job the test appears to be

- Valid for African Americans but not for Caucasian Americans (1)
- Valid for Caucasian Americans but not for African Americans (2)
- Valid for both groups (3)
- Not valid for anyone (4)

Q55 To what extent did your psychology courses assist you in developing the following skills?

	not at all (1)	somewhat (2)	very much (3)
speaking effectively (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading/listening carefully (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
working effectively with groups of people (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
working effectively on your own (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
knowledge of/experience with computers (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
developing a career choice (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
critical thinking (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
writing skills (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
research methodology/data skills (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
improving your knowledge of psychological theory (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
increasing your understanding of diversity of human behavior (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
increasing your understanding of different cultural groups (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q56 Overall in your educational experience:

	not at all (1)	somewhat (2)	very much (3)
How positive to you feel about your psychology major? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How satisfied are you with the education you received in the psychology department? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you view research being done in the field of psychology as important? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To what extent did your instructors generate enthusiasm about the subject matter? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did your instructors provide real world application of personal relevance to the material you studied? (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did you feel your instructors were interested in what you were getting out of class? (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q57 What year in your program/major are you currently in?

- 1st year (1)
- 2nd year (2)
- 3rd year (3)
- 4th year (4)
- 5th year (5)
- 6th year (6)
- more than 6 (7)

Q62 What is your current GPA? (roughly)

- 2.5 to 3.0 (1)
- 3.0 to 3.5 (2)
- 3.5 to 4.0 (3)
- under 2.5 (4)

Q63 In what year did you take your first psychology course at the University of Montana?

- 2015 (1)
- 2016 (2)
- 2017 (3)
- 2018 (4)
- 2019 (5)
- 2020 (6)
- 2021 (7)
- 2022 (8)
- none of the above (9)

Q64 What was the most difficult course you have taken in your degree so far?

Q65 Suppose researchers find that exercise frequency is associated with depression and conclude "Exercise causes depression." Do you agree with the conclusion? Why or why not? (briefly explain)

Q66 Roughly, how many credits have you taken in psychology so far in your degree?

End of Block: Default Question Block

APPENDIX G. CURRICULUM MAP.

**UM Curriculum Mapping Template
Psychology Degree**

Course	Outcome 1: Discipline Specific Knowledge	Outcome 2: Critical Thinking	Outcome 3: Writing Skills	Outcome 4: Data and Research Methodology	Outcome 5: Career Knowledge and Guidance	Outcome 6: Encourage Active Participation	Outcome 7: Awareness of Diversity Issues
<i>Psyx 100 (Intro)</i>	I,A	I, A	I, A	I, A	I, A	I	
<i>Psyx 105 (Careers)</i>					I	I	
<i>Psyx 120 (Methods I)</i>	D	D	I	D		I	
<i>Psyx. 222 (Stats)</i>	D, A	D, A	A	D, A	A	A	A
<i>Psyx. 230 (Developmental)</i>	M	D	I	I		I	
<i>Psyx. 233 (Aging)</i>	M, A	D, A	D, A	A	A	A	I, A
<i>Psyx. 250N (BioPsych)</i>	M	D					I
<i>Psyx 270 (Learning)</i>	M, A	D, A	A	D, A	A	A	A
<i>Psyx. 280 (Cognition)</i>	M	D		D			
<i>Psyx. 290 (Research)</i>				D		D	
<i>Psyx. 298(Service Learning)</i>						D	
<i>Psyx. 320 (Methods II)</i>	M,A	M, A	I, A	M, A	A	A	A
<i>Psyx. 330 (Child Devel)</i>	M, A	D, A	A	A	A	A	A
<i>Psyx. 340(Abnormal)</i>	M	D		D	I		D
<i>Psyx. 345(Child/Ad.Dis)</i>	M	D	D	I	I	I	I
<i>Psyx. 348(Family Violence)</i>	M	D		D	I		M
<i>Psyx. 352(Comparative)</i>	M	D		D			
<i>Psyx. 356(Fund.Neuro)</i>	M	D					
<i>Psyx. 360(Social)</i>	M, A	D, A	A	D, A	A	A	A
<i>Psyx. 362(Multicultural)</i>	M	D					
<i>Psyx. 376(Prin. Cog. Beh Mod)</i>	M	D					
<i>Psyx. 377(Proctoring)</i>	M						
<i>Psyx. 378(Intro Clinical)</i>	M	D		D	I	D	D
<i>Psyx. 385(Personality)</i>	M	D		D			D
<i>Psyx. 390(Research)</i>				M		M	
<i>Psyx. 398(Service Learning)</i>	M					M	
<i>Psyx. 400(History & Systems)</i>	M, A	D, A	M, A	A	I, A	A	A
<i>Psyx. 441(Addiction Studies)</i>	M	D					
<i>Psyx. 442(Counseling Theories)</i>	M	D					
<i>Psyx. 499(Thesis)</i>	M	M		M		M	

KEY:

- I = Introduced
- D = Developed/reinforced, with opportunities to practice
- M = Mastery
- A = Assessment evidence collected

END OF 2022 ASSESSMENT REPORT.