

Pathways Assessment Sampling FAQs

How should I collect and report Pathways assessment data for courses with large student enrollments?



For Pathways courses with more than 20 students enrolled, instructors may choose to report data for a **minimum** sample of 20 randomly selected students. For courses with multiple sections, a minimum of 20 randomly selected students should be assessed **per course section**.* All students in the course should complete the same assignments, but only the work of the sampled students would need to be reviewed by the instructor using the Pathways Rubrics and reported via the Pathways Assessment Reporting Form.

Although the Pathways implementation plan calls for a **minimum** sample of 20 students, the larger the sample size, the more reliable and valid any conclusions from the data will be. Larger sample sizes are associated with a smaller margin of error. Instructors who would like to have a 10% margin of error with a 95% confidence level will need to collect data from the following number of students per course:

Population/Class Size	Sample Size
20 students or less	All students
25 students	21
30 students	24
40 students	29
50 students	34
75 students	43
100 students	50
150 students	59
200 students	66
250 students	70
300 students	73
350 students	76
400 students	78
500 students	81

Instructors are encouraged to submit data for as many students as possible. For instructors utilizing Opscan forms or Canvas for exams/quizzes, it may be easier to submit data for all students in a course than to report data for a sample of students.

Alternative data collection and reporting option for large, multi-section courses that use the exact same Pathways assessment measures across sections

For large-enrollment courses that have multiple sections AND use the exact same Pathways assessment measures in each section, departments may instead choose to collect Pathways assessment data from a larger random sample of students pulled from the entire population of students enrolled in the course (i.e., across the multiple course sections). Departments choosing this option should select a sample large enough to obtain a 10% margin of error or less with a 95% confidence level. Below are sample size guidelines for courses that would like to utilize this option.

Population/Class Size	Sample Size with a 10% Margin of Error	Sample Size with a 5% Margin of Error
600 students	83	235
800 students	86	260
1000 students	88	278
1200 students	89	292
1400 students	90	302

How do I generate a random sample of students in my Pathways course?

There are multiple options for creating a random sample of students in a Pathways course. Two options described in more detail here are (1) a random number generator, and (2) Excel.

Using a Random Number Generator:

Random number generators are available on the internet (e.g., <http://stattrek.com/statistics/random-number-generator.aspx>) or as smartphone applications (e.g., Random Number Generator Plus). These programs allow instructors to enter the number of random numbers they need to create a sample (e.g., 50 random numbers for a sample of 50 students), as well as minimum/maximum values and the option to eliminate duplicate entries.

For example, an instructor would like 73 random numbers to be generated to create a sample of 73 students from a class with 300 students. The minimum value should be set at 1 to represent the first student on the class roster and the maximum value set at 300 to represent the last student on the class roster. Duplicate entries should not be allowed in order to prevent numbers/students from being selected more than once. The program then generates a list of random numbers (e.g., 2, 4, 9, 10, 19, 23, 26, etc.). The instructors' sample would be comprised of the students from the class roster that correspond with the random numbers generated (e.g., student #2, student #4, student #9, student #10, student #19, student #23, student #26, etc.).

Using Excel:

To create a random sample of students using Excel, follow the steps below. This example is for an instructor who has 500 students in a course and would like to generate a random sample of 81 students.

1. Within the Excel spreadsheet that includes your class roster, add a new column and name it Random_number
2. In the first cell underneath the heading row, type =RAND()
3. Press "Enter" and a random number will appear in the cell
 - a. This number will be a decimal between 0 and 1
4. Copy and paste that cell into the cells below in the Random_number column so that each row contains a random number
 - a. You may notice that numbers within previous cells change during this process. Step 5 will lock the random numbers in place.
5. Select the entire Random_number column
 - a. Click COPY
 - b. Click PASTE VALUES
 - c. This step replaces the random number formula with the generated value
6. Use the SORT option to custom sort the records by the Random_number column
 - a. Select "Smallest to Largest" order and click OK
7. Once sorted, choose the first 81 students listed. These students would comprise a random sample of 81 out of 500 students.

(Adapted from: <https://www.surveymonkey.com/mp/random-sample-in-excel/>. A three-minute tutorial entitled "How to Create a Random Sample in Excel" is available on YouTube here: <https://www.youtube.com/watch?v=q8fU001P2II>.)

How should I deal with missing data (e.g., students who were in my original sample but did not submit an assignment)?

Two options that instructors may consider using are (1) replacing the students who withdraw, do not submit assignments, etc. in the sample, or (2) select a larger sample of students initially to account for attrition. Instructors are encouraged to do the best they can to submit data for a minimum sample of 20 students.