

MATHEMATICS GOAL for General Psychology (S.Graf)

How Specific General Psychology Section will meet the CRITERIA RESPONSE (see Criteria for Mathematics)

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- 1) Student interprets Standard Celeration Chart of SAFMEDS and Basic Concept learning to:
- describe/measure frequency, celeration and bounce of both corrects and errors
 - describe changes in corrects and errors (jumps and turns)
 - project completion of fluency
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- 2) Student represents mathematical information by:
- symbolically using symbols on Daily per minute Standard Celeration Charts to represent correct and error frequencies and observation time of SAFMEDS and Basic Concept timings
 - visually drawing celerations of SAFMEDS correct and error frequencies using the focus method
 - visually comparing celerations to key reference celeration values
 - visually determining change effects: jumps and turns
 - visually determining outliers: peaches and lemons
 - numerically determining jump and turn combinations, measuring how much SAFMEDS behavior jumped up or down and/or how much it turned up or down
 - verbally describing SAFMEDS and Basic Concept Learning Pictures using frequency and celeration terms
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- 3) Student solves problems using:
- arithmetic to cumulate Initiative, Reliability, and Thoroughness behaviors and then derive ratios of appropriate to inappropriate behaviors for those three categories to determine standing in the course
 - Standard Celeration chart of self-chosen real world problem behaviors to determine how quickly and in what direction behaviors are changing, how much variability has occurred, and when aims will be reached
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- 4) Student estimates:
- where frequencies in six different cycles of 10 would occur on the Standard Celeration.
 - celeration values to the closest reference celeration, of 11 such celerations learned
 - probability of obtained outliers occurring by chance
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- 5) Student recognizes:
- strengths, limits and shortcomings of various types of charts (Fill the Frame Add, Fill the Frame Multiply, Standard Celeration)
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- 6) Student participates in collaborative learning situations,:
- pairing up with a partner each class session (as well as outside class) to take turns attempting and counting Basic Concept and SAFMEDS fluency attempts.
 - writing "workout" exercises on each text chapter to develop and sharpen critical thinking and questioning behaviors
 - conduct studies of learning pictures using Standard Celeration Charts
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NARRATIVE

Justifying inclusion of this course in math section of basic skills

We need fluency

The concept of “fluency” involves the ability to perform a behavior quickly as well as accurately. Children in the United States tend to fare poorly in the area of mathematics in comparison to some nations of the world. I believe this stems from curricula which emphasize accuracy and ignore speed. Grading on accuracy and ignoring speed will not develop fluent behaviors in students. Such behaviors develop only when one measures speed as well as accuracy and sets aims for high speed. Meeting such aims require practice, and repeated practice produces fluency. Were we fluent in the math skill of accurately representing behavior on charts and fluent in the reading and understanding of those charts, the above contentions would be clearly seen.

We need standard charts

Unfortunately, from my experience, many North Americans, including college students and college professors, tend to be chart phobic. We fear charts for several reasons. Charts usually aren't standard; anyone studying a behavior develops a unique chart specific to their results. A better approach involves using a standard chart that remains the same, so that all behavior can be represented on the same chart. We haven't been taught how such charts are possible, or even why they are preferable. We lack the basic rationale as well as experience in this basic math skill—charting.

We need to monitor frequency

Behavior of any kind consists of frequency—a count of “how many happened” in “what amount of time.” Mathematically, we express this relationship between count and time as a ratio of count divided by time. Since every behavior has a frequency, we can use frequency to compare all behaviors.

Math in General Psychology

Most of us don't associate general psychology with math or math skill, but here's how they tie together:.

Psychology refers to the scientific study of behavior.

- We can study behavior by counting and timing—monitoring the frequency of the behavior—mathematical information. [Criteria 1]
 - Once we count and time frequencies daily, we can chart them on a chart with frequencies as numbers on a scale up the left, and time as days across the bottom—representation of mathematical information. [Criteria 2]
 - We can picture a behavior as its daily frequencies on a chart. Interpreting the chart allows us to solve problems such as when the behavior will be gone (undesirable behavior) or when the behavior will reach a high frequency aim (desirable behavior). One can also estimate the probability that obtained outliers occurred by chance. [Criteria 3 & 4]
 - Creating Fill the Frame Add and Multiply charts of the same behaviors allow students to compare directly the strengths, limits, and shortcomings of the various charting strategies. [Criteria 5]
 - Students study three significant mathematical models of how behavior grows and decays: the Fill the Frame Add model, the Fill the Frame Multiply model, and the Standard Celeration Charting model. [Criteria 6]
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Justifying inclusion of this course in math section of basic skills, Continued

How Goals 1, 2 and 3 are integrated

This general psychology course integrates:

- Goal 1 by requiring one page written assignments on each of twenty-two basic concepts within the course. Students also receive initiative points for summarizing small group discussions for the whole class to hear or asking questions relative to the material being discussed.
 - Goal 2 by requiring students to acquire Standard Celeration Charting skill as an appropriate technology for monitoring behavior change, process the information charted by drawing celeration lines, obtaining celeration values, drawing bounce lines and obtaining bounce values, noting jump-turn combinations and outliers occurring in the behaviors charted. The above process involves the presentation of quantitative information.
 - Goal 3 by exposing students to problems in behavior which require examination of beliefs. Most of such beliefs apply directly to one's life and the behavioral choices open to self and family.
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