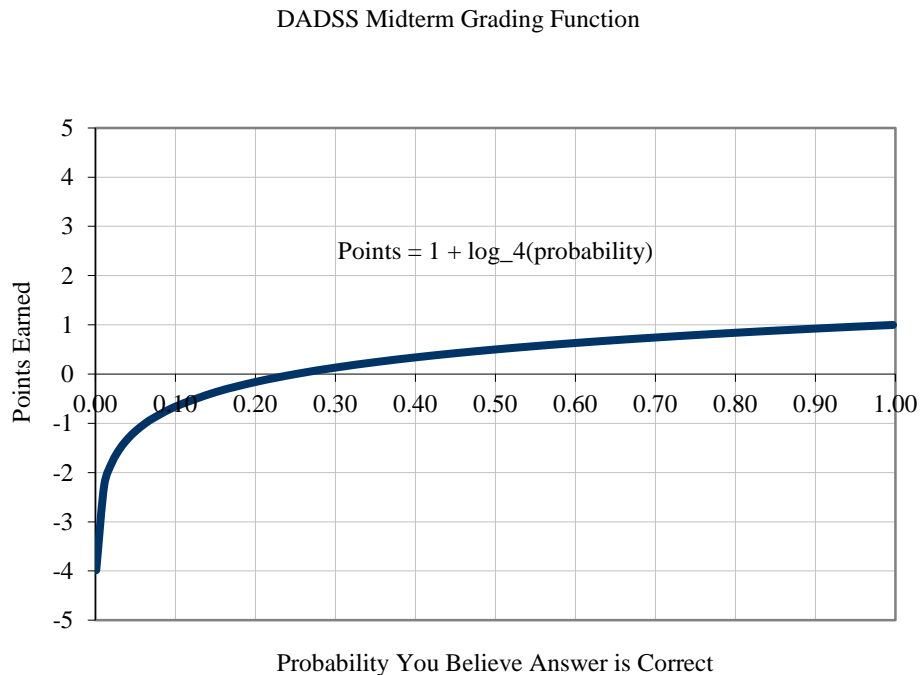


The DADSS Midterm Grading Procedure

There will be 20 multiple choice questions on the midterm (four choices per question). Each question will be worth a maximum of 1 point. However, don't expect to get the entire point. Instead of selecting a single option as being correct, you will put beside each option the probability that you think that it is correct. For example, you might feel that option A is mostly likely correct, but that B is a close second, and that C and D are unlikely to be right. So you might divide up your belief:

- A) .50
- B) .40
- C) .05
- D) .05

Your actual point value for the problem will be determined by the following curve.



The belief that you placed by the actual correct answer will be used to determine your point value for that question. For example, if you weighted the answers as above...

- if A was correct, you would get: $1 + \ln(0.50)/\ln(4) = 0.5$ points
- if B was correct, you would get: $1 + \ln(0.40)/\ln(4) = 0.34$ points
- if C or D was correct, you would get: $1 + \ln(0.05)/\ln(4) = -1.16$ points

...for an expected payoff of 0.23 points for the question.

DADSS Midterm Grading

Here's a table to help you make up your weighting decision:

Probability	Value	Probability	Value
0.01	-2.32	0.50	0.50
0.05	-1.16	0.60	0.63
0.10	-0.66	0.70	0.74
0.20	-0.16	0.80	0.84
0.25	0.00	0.90	0.92
0.30	0.13	0.95	0.96
0.40	0.34	1.0	1.00

(Note: any value between 0.001 and 0.997 can be used.)

I cannot stress strongly enough the need for each of you to sit down and think about different strategies for answering the questions. This grading technique completely removes any benefit of random guessing. Such a guess could be disastrous. You're much better off admitting that you don't know the answer to a question. (Placing a 0.25 probability by every option indicates that you have no idea which answer is correct, and your score will be 0 for that question). Assessments of probability 0 (0%) or 1 (100%) are not allowed. These answers will be interpreted as probability 0.001 (0.1%) and 0.997 (99.7%) respectively. Your probability assessments must sum to 1 (100%). A probability of 0.001 by the correct answer will result in a score of -4. In contrast, a probability of 0.997 on the correct answer only earns a score of 1. Think about the implications of this **before** the day of the test.

I *strongly recommend* that you analyze the grading problem from a decision analysis perspective. Calculate expected values (or expected utilities) for various levels of personal uncertainty. Notice what happens if you are overconfident or underconfident.

This grading scheme makes the midterm harder than a standard multiple choice test, but this is the point. It has many benefits from a teaching/learning perspective.

- 1) It teaches you to apply the techniques that have been discussed in class. You have to assess your own personal probabilities and apply them to problems that have very real (and potentially) important payoffs. It is impossible to get these points across with the few simple lotteries demonstrated during class.
- 2) It helps to remove the element of chance from the test. Because of the severe penalty for guessing, the test will more accurately measure your knowledge.
- 3) The test will also measure what you know about your knowledge.
- 4) By analyzing how you answer the questions, I will be able to determine which questions are hard and which questions you believe are hard. (A "flatter" distribution for a question indicates a lower confidence in the question, and therefore, a belief that it is hard.)
- 5) It will allow you to appreciate how hard it is to assess probabilities.