UNIVERSITY OF WISCONSIN
PLATTEVILLE
DEPARTMENT OF MATHEMATICS

Problem of the Week #5

(Fall 2016)

A certain online prediction market offers contracts whose values depend on future events. For example, you can buy shares of a contract called Merkel2017 in the market. If Angela Merkel is reëlected Chancellor of Germany in 2017, you will receive $1 for each share of Merkel2017 you own – otherwise, these shares are worthless. After the election, the shares disappear.

The site will charge you a brokerage fee of 10% of any profit you make on your shares. [This is 10% of the profit, not the gross payout. No brokerage fee applies if you lose money on the shares.]

Additionally, if you cash out, the site charges a processing fee of 5% of your withdrawal.

Let p denote Dr. Black's best estimate of the probability that Chancellor Merkel will be reëlected in 2017. What is the most that Dr. Black might be willing to pay for a share of Merkel2017?

[Please fully explain your answer.]

Solutions should be submitted to Cinda Furry, in Gardner Hall 435, by 4:00 P.M. on Wednesday, October 19, 2016.

Every week, the best solution submitted earns a $10 Platteville gift certificate; the top scorer each semester also wins a cash award. Good luck!

You can always see the Problem of the Week (and complete rules) online at:

`http://www.uwplatt.edu/mathematics/problem-week`