

## Statistics Assignment 7

1. Let  $S$  be the event that an email is spam and  $F$  be the event that an email has the “free money” phrase. By Bayes’ Rule,

$$P(S|F) = \frac{P(F|S)P(S)}{P(F)} = \frac{0.1 \cdot 0.8}{0.1 \cdot 0.8 + 0.01 \cdot 0.2} = \frac{80/1000}{82/1000} = \frac{80}{82} \approx 0.9756.$$