BMI/CS 576 – Day 10

- Today
  - Intro/review of probability
    - random variables, independence, distributions
- Next week
  - Substitution matrices, BLAST, and statistical significance of alignments
  - Multiple alignment

HW2

- posted very soon
- due Oct 23
- sequence alignment

Quiz

Given the joint distribution below for the random variables X (representing the weather) and Y (representing whether a flight is on-time or late), compute the value (as a decimal value) of the conditional probability that the flight is on-time given that it is raining.

joint distribution

x, y	$\Pr(X = x, Y = y)$
sun, on-time	0.20
rain, on-time	0.20
snow, on-time	0.05
sun, late	0.10
rain, late	0.30
snow, late	0.15

$$\Pr(Y = \text{on-time} \mid X = rain) = \frac{\Pr(Y = ontime, X = rain)}{P(X = rain)}$$

$$= \frac{\Pr(Y = ontime, X = rain)}{\Pr(Y = ontime, X = rain) + \Pr(Y = late, X = rain)}$$

$$= \frac{0.2}{0.2 + 0.3} = 0.4$$