**Suggested reading:** [OpenIntro Statistics, 3rd edition](https://www.openintro.org/stat/textbook.php?stat_book=os" \t "_blank), Chapter 2, Section 2.2

**LO 1.** Distinguish between marginal and conditional probabilities.

**LO 2.** Construct tree diagrams to calculate conditional probabilities and probabilities of intersection of non-independent events using Bayes’ theorem: P(A|B) = \frac{P(A~and~B)}{P(B)}*P*(*A*∣*B*)=*P*(*B*)*P*(*A* *and* *B*)​

***Test yourself:****50% of students in a class are social science majors and the rest are not. 70% of the social science students and 40% of the non-social science students are in a relationship. Create a contingency table and a tree diagram summarizing these probabilities. Calculate the percentage of students in this class who are in a relationship.*