Prerequisites: calculus.

This course is an introduction to mathematical probability.

Here are some everyday problems that you will be able to answer— and derive the answer for—once you've taken this course.

1. How is the ranking of poker hands determined? Why does a flush beat a full house? What is the chance of getting a full house on a deal of five cards? What is the chance of getting a $4, 3, 3, 3$-suit distribution in a bridge hand?

2. Given a machine-made batch of chocolate chip cookies with, on average, 7 chips per cookie, how many cookies in a batch of 1000 will have no chocolate chips? If a pedestrian takes 20 seconds to cross the road and cars are passing at an average of 10 per minute how long is she going to have to wait before there is a long enough opening for her to cross? How are these two problems related?

3. If a drug with unknown efficacy cures three out of the first four sick patients it is administered to, what are the chances it will cure the next patient?

4. In the 2000 presidential election, in Florida the republican candidate received 2,912,790 popular votes, versus 2,912,253 for the democratic candidate. What are the chances of such a small error, if each person has a 5% chance of not making it to the polls?

5. When the weatherperson says that there is a 30% chance of rain tomorrow, what does s/he really mean?

6. Why does *your* line at the supermarket checkout always seem to move slowest?

7. Why are soap bubbles round?