By this point in this class, we have developed all of the basic tools that we need to study and analyze probabilistic models. So this is a good time to move to a practical subject, the subject of inference. The general idea is that we have a probabilistic model involving several random variables. We observe the values of some of them. And we want to make inferences on some of the others.

Note that the unknown quantities are modeled as random variables, which means that we can use the Bayes rule. And so we will stay within the realm of so-called Bayesian inference. In the four lectures that follow, we will illustrate the use of the Bayes rule in various settings. We will discuss different methods of coming up with estimates of unobserved random variables. And we will illustrate the methodology through several examples.

If you have mastered the material in previous units, you should not face any challenges here. We will only apply tools that we already have, together with some new definitions and terminology. However, this may be a good time to review the different versions of the Bayes rule and the examples covered in the second half of lecture 10. And by the end of this unit, you should have a working knowledge of the key elements of Bayesian inference. And you should be ready to apply your knowledge to actual problems, as they arise in the real world.