Bayesian Classifiers

- Bayesian classifiers use **Bayes theorem**, which says

$$p(c_j \mid d) = \frac{p(d \mid c_j)\, p(c_j)}{p(d)}$$

where

$p(c_j \mid d)$ = probability of instance d being in class c_j,

$p(d \mid c_j)$ = probability of generating instance d given class c_j,

$p(c_j)$ = probability of occurrence of class c_j, and

$p(d)$ = probability of instance d occuring