There are many test statistics that are based on U-statistics. This thesis deals with tests based on U-statistics for the general two-sample problem. After describing two-sample tests based on U-statistics from a general viewpoint, a presentation of some particular test statistics follows. All considered test statistics are described in a connection to the theory of U-statistics, with emphasis on their asymptotic properties. Special concern is given to tests based on a difference between two one-sample U-statistics and to tests based on empirical characteristic functions. Test statistics, based on a difference of two empirical characteristic functions, have a form of a V-statistic. A related U-statistic is derived and its properties are studied. An example of applying the bootstrap method to these test statistics is included.