It is well known that newforms of integral weight are simultaneous eigenforms for all the Hecke operators, and that the converse is not true. We will give a characterization of all simultaneous Hecke eigenforms associated to a given newform, and determine several situations in which the full space of cusp forms is spanned by a basis consisting of such eigenforms. This is joint work with Tom Shemanske and Lynne Walling.