**Mentor:** James A. MacKay

**Students:** Amanda Williams, Holly Sofka

**Project Description:** Ribonucleic acid (RNA) is believed to be an important molecule in the evolution of life and has functionally taken on many important biological roles.  Given the many functions of RNA, molecular recognition of RNA represents an attractive goal for practical applications in biotechnology.  Our research involves the design and synthesis of peptide nucleic acid (PNA) strands that incorporate synthetic nucleosides capable of sequence specific binding to RNA.  Students will undertake the rational design of nucleobases by performing computer simulations where new molecules are docked with canonical Watson-Crick base pairs.  Once desirable targets have been recognized the project goals shift to the synthesis of a small library of molecules capable of binding to RNA.