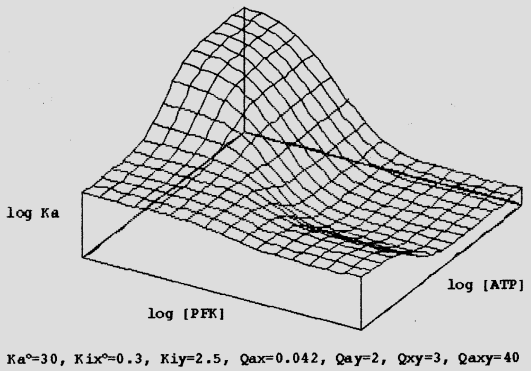
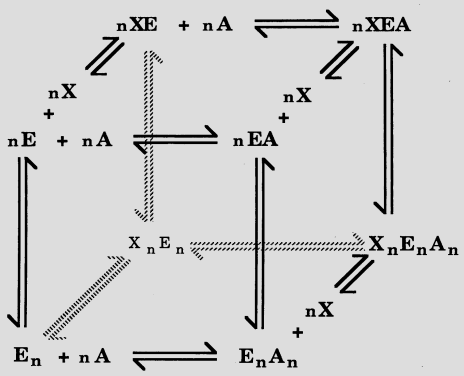
David L. Mork

David L. Mork joined the faculty at Concordia College in 1990, then completed his Ph.D. from the University of Oklahoma in 1993 under Gregory D. Reinhart. Mork has been chair of chemistry since 1997. He has had funding for summer research by the Howard Hughes Foundation and the Centennial Scholars Fund at Concordia College.

Research Interests: My area of research is in enzyme kinetics and the thermodynamics of enzyme regulation. Many enzymes of the cell are highly regulated and understanding how small (or big) molecule binding to an enzyme can alter the activity of the active site fascinates me.

I use traditional kinetic techniques in an unusually comprehensive manner to derive fundamental thermodynamic parameters underlying the regulatory process. My ten summer research students and I have, over the last five years, investigated the regulation of NADP+-specific glutamate dehydrogenase (GDH) from E. coli rather comprehensively, however we have not been able to elucidate the exact kinetic mechanism for the enzyme. The work we have done is nearing the stage where publication is likely, but we need the kinetic mechanism of GDH as one of the final pieces to put in place.

Dr. Srivastava's (at NDSU) area of interest is in enzyme mechanisms and mine in enzyme kinetics complement each other nicely. More to the point of this project, Dr. Srivastava uses stopped flow enzyme kinetics, which is a way of doing very short timeframe kinetics. Dr. Srivastava has told me several times that it is a method that is likely to solve the kinetic mechanism question for GDH in short order, once all the bugs in my system are worked out (never a straight-forward process!). This collaboration means a student may work with either of us at NDSU or Concordia, doing work from molecular biology to kinetics to physical biochemistry.