

Course Catalog - Spring 2010

Civil and Environmental Engineering

534 ***Surface Water Quality Modeling*** credit: 4 hours.

Mathematical modeling of the movement and fate of pollutants and other substances in streams, lakes, and other natural water bodies. Development of one-, two-, and three-dimensional differential conservation equations, one-, two-, and three-dimensional steady-state and transient solutions. Finite difference, finite element, and finite particle methods. Lagrangian and Eulerian formulations, diffusion and dispersion tensors, numerical dispersion, and solution stability. Kinetic relationships describing important physical, chemical, and biochemical water constituent transformation phenomena. Field or laboratory experiment in model calibration and verification. Same as CSE 564. Prerequisite: MATH 285, CEE 442, and CEE 451.