

Advanced subsurface flow and transport

Spring 2015 semester

Washington State University -- Pullman

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Currently listed as: CE 552--01 Advanced topics in hydraulic engineering

This course will provide conceptual and quantitative analysis of the mechanics of groundwater flow that give rise to solute transport phenomena in real systems. Emphasis will be placed on subsurface processes but the principles of advection-- dispersion-- diffusion--reaction are applicable to a wide range of transport problems in fluids. The focus of the class will be on developing the skills in math, physics, and chemistry needed to understand transport behaviors in groundwater systems, as well as the geologic processes that create heterogeneities and their effects on transport. An introductory class in groundwater is recommended but the class is appropriate for science and engineering students with at least a basic knowledge of hydrology.

Topics will be tailored to the interests of the class but may include: environmental tracers and age, volume averaging, multi--scaling, geostatistics, tracer tests, mass transfer, sorption, reactive transport, remediation, risk assessment, and mixing.