

Migration of Solutes & Contaminants in Groundwater 206-25081 – 2.5 credits

Prof. Alex Yakirevich

Syllabus

The course discusses geophysical and geochemical processes connected with movement of solutes and pollutants in ground water. The course is designed for hydrologists and geologists interested in groundwater quality. In particular it provides quantitative tools to hydrogeologists interested in movement of pollutants in the saturated zone. Topics covered include physical/mathematical models of flow and transport systems in saturated porous media, methods of predicting direction and amplitude of pollutant flow, presentation and definition of 'safe' zones, tracer tests for transport and conduction, molecular diffusion and hydrodynamic dispersion; Fick's law, retention, solution and replacement of solutes in the saturated zone, solution, transport and precipitation of solutes; numerical methods for solving distribution of pollutants in time and space.

Bibliography

Course reading materials are places by the instructor on the course Web page during term time.

Course Requirements

Prerequisites: The Mathematics of Systems 1, Introduction to Hydrology

2 hr lecture

1 hr tutorial

Grading

40% home exam

30% 3 computer tests (10% for each test)

30% theoretical exam