

**GEGN 467**

**FINAL EXAM WED DEC 15 from 7PM to 9:10PM**

**\*\*\* NOTE ROOM BE205 \*\*\***

**GEGN 466**

**FINAL EXAM THURS DEC 16 from 10:15AM to 12:25 PM**

**\*\*\* NOTE ROOM BE204 \*\*\***

**Or depending on whether you signed up for Wed evening**

**FINAL EXAM WED DEC 15 from 7PM to 9:10PM**

**\*\*\* NOTE ROOM BE205 \*\*\***

**BRING CHEAT SHEETS  
CALCULATOR  
TRANSPARENCIES**

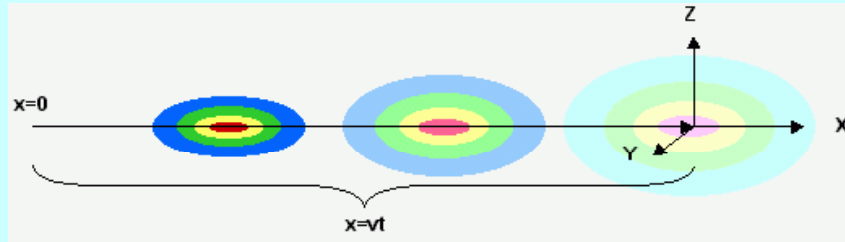
**OFFICE HOURS DURING FINALS WEEK**

**MONDAY DEC 13 10-11AM and 3-4 PM**

**WEDNESDAY DEC 15 4-6 PM**

**Or email anytime  
[epoeter@mines.edu](mailto:epoeter@mines.edu)**

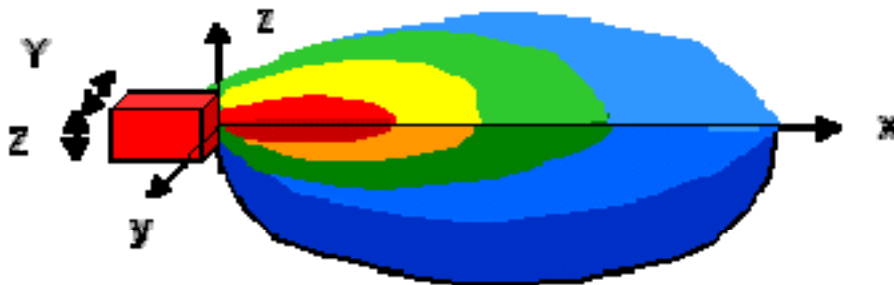
Recall Analytical Transport models, e.g. for 1D slug source:



$$C(x=\bar{v}t+X, y=Y, z=Z) = \frac{M}{8(\pi t)^{3/2} \sqrt{D_x D_y D_z}} e^{-\frac{X^2}{4D_x t} - \frac{Y^2}{4D_y t} - \frac{Z^2}{4D_z t}}$$

Uniform flow can be created by fixing heads on west and east  
and specifying no flow on north south top and bottom  
Need to specify transport boundaries (instantaneous addition of Mass at  $x=0$   $t=0$ )  
Initial condition would be  $C_0 = 0$  at all  $x,y,z$   
Need effective porosity (or average linear velocity)  
Need dispersivity

Analytical Solution for transport in  
1D flow field  
continuous source  
3D spreading



Uniform flow can be created by fixing heads on west and east  
and specifying no flow on north south top and bottom  
Need to specify transport boundaries (continuous addition of  $C_0=0$  at  $x=y=z=0$   $t=0$ )  
Initial condition would be  $C_0 = 0$  at all  $x,y,z$   
Need effective porosity (or average linear velocity)  
Need dispersivity