Hydrology 518

FUNDAMENTALS OF SUBSURFACE HYDROLOGY

FALL 2010

3 Units

Instructor: S.P. Neuman, J. W. Harshbarger Bldg., Room 232C, 621-7144
e-mail: neuman@hwr.arizona.edu
Office Hours: Tuesdays and Thursdays 2:00 - 3:00 pm
Classes: Chavez 103, Tuesdays and Thursdays 3:30 - 4:45 pm
Text: Class Notes in electronic format (provided)
References: Underlined references on list of source material provided electronically

Course Outline:

1. Introduction to Subsurface Hydrology
2. Darcy’s Law, Hydraulic Head and Gradient, Hydraulic Conductivity
3. Continuity and Saturated Flow Equations
4. Flow Net Analyses of Steady State Flow
5. Analytical Solution of Steady State Flow to Wells and Ditches
6. Analysis of Pumping Tests in Confined Aquifer Systems
7. Introduction to Numerical Modeling
8. Capillarity and Unsaturated Flow Equations
9. Analysis of Pumping Tests in Unconfined Aquifers
10. Field Determination of Vadose Zone Properties
11. Near-Surface Flow Phenomena
12. Solute Transport

Examination:

There will be 2 closed book mid-term examinations on Tuesday, September 28 and Thursday, October 28. The final examination is scheduled for 2:00-4:00 p.m., on Thursday, December 16.

Assignment of Grades:

The overall grade in the course will be determined as follows:

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<th>Component</th>
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<tbody>
<tr>
<td>Homework</td>
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<tr>
<td>Midterm 1</td>
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<tr>
<td>Midterm 2</td>
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<tr>
<td>Final</td>
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<tr>
<td>Overall Grade</td>
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