GEO 573.01: Applied Groundwater Modeling

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FALL 2013  
Geosciences 573 - 3 CREDITS  
Applied Groundwater Modeling  
Thursday 2:10 to 5:00 PM

Instructor: William W. Woessner (SC307)  
Text: Applied Groundwater Modeling- MOODLE

Course goals and objectives: Prepare students to successfully evaluate and quantitatively analyze hydrogeologic flow problems using numerical methods.

<table>
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<th>CLASS DATE</th>
<th>Readings</th>
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<td>August 28</td>
<td>Intro</td>
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The Modeling Process

September 5 Modeling Approach Chap 2  
September 12 Conceptualizing Hydrogeologic Systems  
September 19 Mathematical Formulation Chap 3  
September 26 Finite Differences and Finite Elements, Model Execution Chap 2

Formulating the Numerical Model

| October 1  | Tuesday Class Model Dimensionality and Setting Boundaries MTAWRA Bozeman October 3 and 4 Chap 3,4 |
| October 10 | Setting Boundaries and Grid Design Chap 3.4,6 |
| October 17 | Initial Parameterization Chap 4 |
| October 24 | Internal Sources and Sinks Chap 5 |
| Oct 31     | Special Needs for Transient Simulations Chap 7 |
Executing and Evaluating Models

November  7   Particle Tracking            Chap 8
November  14  Particle Tracking Execution and the Calibration process Chap 9
November  21  Calibration, Prediction     Chap 9,10
November  28  No Class
December  4   Reporting and other models  chap 11

**FINAL EXAM:** Tues December 10 3:20-5:20 Final class discussion and completion of assignments. (using the 4:10 time on the exam schedule)

COURSE ASSESSMENT: Quality of completed assignments and class participation, timely completion of assignments.

Assignments will be made as appropriate including selections from Anderson and Woessner. Problems may require some periods of intense work plan accordingly.

GRADING: 85% on problem completion, 15% on class participation.