

# CVE 421/521 Behavior and Properties of Concrete Fall, 2008 (Revised)

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**Textbook:** required *Concrete*, 2<sup>nd</sup> Edition, S. A. Mindess, F. J. Young, D. Darwin, Prentice-Hall, 2003, and optional *Design of Concrete Mixtures*, Kosmatka and Panarese, Portland Cement Association [www.cement.org](http://www.cement.org)

**Prerequisite:** none

**Catalog description:** CVE 421/521 Behavior and Properties of Concrete (3-0-3)  
Properties of hydraulic cements, aggregates, plastic, and hardened concrete; effect of admixtures and curing conditions; specifications and acceptance tests; placement, consolidation, finishing, and durability of concrete.

<b>Grading system:</b>	<b>CVE 421</b>	<b>CVE 521</b>
Problem sets and pop quizzes –	10 %	10 %
Project –	N/A	10 %
Two Exams – each	30 %	25 %
Final Exam –	30 %	30 %

**Course Objectives:** At the conclusion of this course, you should be able to:

1. Discuss cement properties, specifications, manufacture, and hydration
2. Discuss aggregate properties and specifications
3. Discuss and evaluate results of tests on fresh concrete
4. Discuss and evaluate results of tests on hardened concrete
5. Design concrete mixtures by the absolute volume method
6. Discuss handling, placing, finishing, and curing concrete
7. Discuss deformation and volume stability of concrete
8. Discuss durability of concrete
9. Discuss nondestructive testing and repair of concrete
10. Design special concrete types – FRC, HPC, etc.

**Notes:**

ACI web site <http://www.concrete.org/general/home.asp>

To sign up for free student e-Membership: <http://www.concrete.org/students/join.htm>

Spell out the school as Cleveland State University

PCA web site <http://www.cement.org/>

ASTM web site <http://www.astm.org/>

ASTM standards for this course: C39/C39M, C31/C31M, C42/C42M, C78, C143/C143M, C231, C469, C496/C496M, C1074, C138/C138M

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