

# Course Syllabus

UNIVERSITY OF CALIFORNIA

Department of Civil and Environmental Engineering

Spring Semester, 2018      Instructor: Paulo J.M. Monteiro

## **CE 165 CONCRETE MATERIALS, CONSTRUCTION, and SUSTAINABILITY**

**Tu., Th. 2:00-3:29pm**

**Room 406 Davis Hall**

<b>Date</b>	<b>Lecture Topic</b>
Jan. 16	Introduction; course organization
18	Concrete as a construction material
23	Sustainability of concrete

### **I. Selection of Materials**

Jan. 25	Different types of hydraulic cements
30	Different types of aggregates
Feb. 1	Air entraining and water-reducing admixtures
6	Chemical admixtures
8	Mineral admixtures

13 Sustainability

15 Fiber reinforced concrete

## **II. Concrete Processing**

Feb. 20 Ready-mixed concrete, batching and mixing

23 Transport and placement methods

27 Consolidation techniques

Mar. 1 Finishing

6 Curing

8 Early age properties

13 Hot-weather and cold-weather concreting

15 *Midterm Examination*

20 Quality assurance; accelerated and non-destructive testing

23 Non-destructive testing

## **III. Special Construction Methods**

April 3 Mass concrete construction

5 Roller-compacting

10 Tremie concreting

12	Shrinkage-compensating concrete floors ( <i>group report due</i> )
17	Repair and rehabilitation
19	Poster Presentation
24	Group Presentation
26	Group Presentation

**Important Note:** Due to the large number of students, the group presentation will also be given on April 27 afternoon. Please save the date.

**Useful Information:**

**Course Grade:** 10% Homework, 20% MT, 20% Project, 5% Presentation, 5% Poster, 40% Final

**Textbook:** Concrete: Structure, Properties and Materials by Mehta and Monteiro, Fourth Edition, McGraw-Hill, 2014. (The Library allows you to download it for free)

You will find comprehensive information on concrete at <http://monteiro.ce.berkeley.edu/>

**Office hours:** Monday 1-2pm, Tu Th noon-1:00pm at 725 Davis Hall.

**Final Exam:** Exam Group: 2 Mon 5/07/18 11:30–2:30 p.m.

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Homework policy: 50% penalty if late and returned during the following lecture. No points will be given after that.

**Midterm review policy:** I will be happy to discuss your midterm until the last day of classes.