

CE191 – Civil and Environmental Engineering Systems Analysis

URL: <http://bspace.berkeley.edu>

Lectures: Tuesdays and Thursdays, 8-9am in 544 Davis

Lab: Thursdays 2-5pm in 345 Davis

Instructors:

Professor Alexandre Bayen (bayen@berkeley.edu)
office hours in 642 Sutardja Dai Hall (CITRIS building): Tu – Th 9-10am.

GSI: Dan Work (dbwork@berkeley.edu)
office hours in 504 Davis Hall: Tu 10-11am, Tu 6-7pm.

Prerequisites: E7

Textbook:

Revelle, Whitlatch and Wright (2004): *Civil and Environmental Systems Engineering*, Second Edition, Pearson Prentice Hall, Inc. 2004.

Requirements:

1. Five mini-projects (laboratory assignments): 50 points
2. One midterm exam: 20 points
3. Final exam: 30 points

Objectives:

1. To encourage the development of a “systems perspective” necessary for intelligent planning and management of large-scale civil and environmental engineering systems.
2. To provide students with a set of quantitative tools of great value for civil and environmental engineering decision-making.
3. To strengthen students’ skills in the use of computer science techniques through the development and implementation of solution algorithms or the application of spreadsheets and optimization software.

Course contents:

The course is organized around five real-world large-scale CEE systems. For each of these systems, the problem provides the motivation for the study of a set of quantitative tools that can be used for planning or managing that system.

1. Water resource management
2. Planning future energy supplies
3. Scheduling in a construction project
4. Routing on a transportation network with real-time traffic
5. Optimal pollution tax rates