CalGeo℠
The California Geotechnical Engineering Association

Design Time Histories 2025

Mondays, February 10, 24 & March 3, 10, 17, 31 | 11:00 am - 12:30 pm Pacific | Virtual

REGISTER

Members	$450
Nonmembers	$750

Dr. Norm Abrahamson
Adjunct Professor
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This six-week class will cover development of time histories for use in dynamic analyses of structures including the following topics:

Week 1
- Selection of candidate seed time histories: What ranges of seismological parameters should be used?
- Use of simulated ground motions as seed time histories
- Description: Problem Set 1

Week 2
- Setting target ranges for secondary parameters, including period-dependent duration, Arias intensity, CAV, PGV, and near-fault parameters including velocity pulses and filtered incremental velocity metrics.
- Conditional ground-motion models versus correlation of epsilons
- Review: Problem Set 1; Description: Problem Set 2

Week 3
- Setting target ranges for the variability of the response spectral value
- Alternative approaches: scaling versus spectral matching

Week 3 (cont'd)
- Review: Problem Set 2; Description: Problem Set 3

Week 4
- Methods for evaluating if the scaled or matched time histories are realistic (median and variability)
- Plots and tables for documenting the design time histories
- Review: Problem Set 3; Description: Problem Set 4

Week 5
- Including static fault displacement (fling) in the time histories
- Review: Problem Set 4

Week 6
- Discussion of issues in implementation of recommended approaches