Discover Viterbi: Civil & Environmental Engineering with Prof. Lucio Soibelman

Viterbi School of Engineering
University of Southern California
Spring 2019
WebEx Quick Facts

Will I be able to get a copy of the slides after the presentation?

YES!

How can I ask a question during the information session?

1. Using the Q&A Panel, type a question in the box below the Ask drop-down menu.
2. Select a recipient from the Ask drop-down menu.
3. Click Send. We will respond as soon as we are able.
TODAY

- University of Southern California
- USC Viterbi School of Engineering
- Graduate Programs in Civil & Environmental Engineering
  - Program Overview
  - Application Criteria
- DEN@Viterbi
- Tuition & Fees
- Q&A
The University of Southern California

- Oldest Private University in the western U.S.
  - Founded in 1880
- 47,500 Students
  - 20,000 Undergraduates | 27,500 Graduates
- 4,451 Full-time Faculty
- Diverse Student Population
- Located in Los Angeles
Viterbi School at a Glance

Academic Departments
- 8 Academic Departments

Faculty
- 188 tenure-track faculty
- 16 Full-time, TT NAE Members (30 Total)
- 70+ NSF CAREER, National & Presidential Young Investigator

Student Populations (Fall 2018)
- 2,767 Undergraduate
- 5,922 Graduate students

Research
- Leader in funded research
- 35+ Research Centers
- More than $204M in research expenditures annually
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<tr>
<th>Category</th>
<th>Rank</th>
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<td>Ranked #1</td>
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<td>Ranked #2</td>
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USC Engineering: Points of Distinction

- International Reputation for Excellence
- The Trojan Family Network: 77,000+ (engineers) strong
- Unique engineering programs available: *Online, on site & on campus*
- Complete range of programs
  - Doctoral, Masters and Bachelors
  - Graduate Certificates
  - Short Courses
  - Custom Programs
The Viterbi School of Engineering: A Leader in Research

Viterbi School is a consistent leader in funded research in the U.S.

- Highly interdisciplinary research environment
- Diverse research areas such as robotics, software engineering, sensor networks, vision sciences, automated construction and photonics
- Over 35 research centers
- Industrial partnerships and collaboration
Meet Professor Lucio Soibelman

- Lucio Soibelman
  - Viterbi Dean’s Professor and Department Chair
  - Ph.D., Massachusetts Institute of Technology
  - Research Areas: Artificial Intelligence, Data Mining, Knowledge Discovery, Image Reasoning, Text Mining, Machine Learning, Multi-reasoning Mechanisms, sensors, sensor networks, and advanced infrastructure systems
Civil & Environmental Engineering: Program Offerings

- MS in Civil Engineering
- MS in Civil Engineering (Construction Engineering)
- MS in Civil Engineering (Structural Engineering)
- MS in Civil Engineering (Transportation Engineering)
- MS in Civil Engineering (Transportation Systems)
- MS in Civil Engineering (Water & Waste Management)
- MS in Environmental Engineering
- MS in Transportation Systems Management
- Masters in Construction Management

- Graduate Certificate in Transportation Systems

Available online via DEN@Viterbi
MS in Civil Engineering– Program Details

Program Requirements: 27 units selected under the direction of the student’s adviser

Specialty Areas
Students must complete a minimum of 18 units from the following four areas with a minimum of 3 units and a maximum of 6 units from each area

- Environmental Engineering & Water Resources
- Construction and Transportation
- Geotechnical Engineering
- Structural Engineering

Special Concentrations

- Geographic Information Science
- Public Works
MS in Civil Engineering (Construction Engineering) – Program Details

Program Requirements: 27 units

Required Courses (18 units)

- CE 501 | Functions of the Constructor
- CE 502 | Construction Accounting & Finance
- CE 569 | Project Controls
- CE 461 | Construction Estimating
- Choose one of the following options:
  - CE 462 | Construction Methods & Equipment and CE 469 | Sustainability
  - CE 470 | Building Information Modeling & Integrated Practice

Elective Courses (9 units)
MS in Civil Engineering (Structural Engineering) – Program Details

**Program Requirements: 27 units**

**Required Courses (15 units)**

- CE 507 | Mechanics of Solids
- CE 529a | Finite Element Analysis
- One of the following courses in structural design:
  - CE 537 | Advanced Reinforced Concrete *or*
  - CE 539 | Advanced Steel Structures
- CE 541a | Dynamics of Structures
- CE 526 | Engineering Mathematical Methods

**Elective Courses (12 units)**
Program Requirements: 27* units; Undergraduate Degree in Civil Engineering or Similar

Program Structure

- The Program consists of at least 27* units of course work
  - Students are advised on an individual basis and meet with the program director every semester to discuss options and finalize courses
  - Minimum of 15 units must consist of courses offered by or cross-listed in the Viterbi School of Engineering
  - Specialized transportation courses are offered by the Department, but students have additional options in other academic units, including the Marshall School of Business, Price School of Public Policy, Dornsife College, the Epstein ISE Dept.

* Some combinations of courses may total more
MS in Civil Engineering (Transportation Systems) – Program Details

Program Requirements: 28* units; Undergraduate Degree in Civil Engineering or Similar

Required Courses (16 units)

- CE 471 | Principles of Transportation Engineering
- CE 501 | Functions of the Constructor
- CE 579 | Introduction to Transportation Planning Law
- PPD/CE 633 | Urban Transportation Planning and Management
- SAE 515 | Sustainable Infrastructure Systems

Elective Courses (4 courses, at least 12 units)

Graduate Certificate in Transportation Systems also available.

* Some combinations of courses may total more
MS in Civil Engineering (Water & Waste Management) – Program Details

Program Requirements: 27 units

Required Courses (15 units)

- CE 451 | Water Resources Engineering
- CE 453 | Water Quality Control
- CE 476 | Design of Hydraulic Systems
- CE 501 | Functions of the Constructor
- SAE 515 | Sustainable Infrastructure Systems

Elective Courses (12 units)
**MS in Transportation Systems Management – Program Details**

**Program Requirements: 35 units**

**Required Courses (23 units)**

- SAE 515 | Sustainable Infrastructure Systems – or –
  SAE 541 | Systems Engineering Theory and Practice – or-
  SAE 549 | Systems Architecting

- CE 501 | Functions of the Constructor
- CE 582 | Transportation System Security and Emergency Management

- CE 584 | Intelligent Transportation Systems
- CE 585 | Traffic Engineering and Control
- CE 589 | Port Engineering: Planning and Operations
- SSCI 581 | Concepts for Spatial Thinking

**Area of Specialization (12 units)**
Masters of Construction Management – Program Details

*Program Requirements: A minimum of 33 units*

**Core Courses (16-17 units)**
- CE 501 | Construction Practices
- CE 502 | Construction Business
- CE 564 | Construction Planning and Preconstruction
- CE 569 | Project Controls

**Elective Courses (16 or more units)**
MS in Environmental Engineering – Program Details

Program Requirements: 27 units

Core Courses (3 courses)
- ENE 512 | Environmental Fluid Mechanics (Spring only)
- ENE 505 | Energy and Environment (Fall only)
- CE 505 | Data Management (Fall only)

Air or Water Concentration (4 courses)

Suggested Electives (2 course)
Application Criteria for Masters Programs

- Undergraduate degree (Bachelor of Science) in engineering, math, or hard science from a regionally-accredited university*
- Cumulative undergraduate GPA 3.0 or higher on a 4.0 scale is recommended
- Satisfactory scores on the general portion of the Graduate Record Examination (GRE) that are less than five years old
- Resume/CV and Supplemental Materials (Letters of Recommendation/Statement of Purpose)
- TOEFL/IELTS or PTE Score (International Applicants)

*Note: The Masters of Construction Management and MS in Transportation Systems Management will consider applicants from other majors.

Each program has unique application requirements. See specific information for your program(s) of interest: viterbigradadmission.usc.edu/programs/masters/msprograms/civil-environmental-engineering/
Application Deadlines: Spring 2020 & Fall 2020

Spring 2020
- Deadline to submit all required materials: September 15, 2019*
- Deadline for Scholarship Consideration (on-campus only): August 31, 2019

Fall 2020
- Deadline to submit all required materials: January 15, 2020*
- Deadline for Scholarship Consideration (on-campus only): December 15, 2020

A deadline extension for DEN@Viterbi applicants may be available. Please email DEN@Viterbi.usc.edu for more information.
Where Our Alumni Are Working

WHAT DO OUR STUDENTS DO?

WHAT DO OUR GRADUATES DO?
Course Delivery Methods

On-Campus Full Time

- 3 Classes/ Semester
- 1.5 – 2 years to complete program

Online Delivery Via DEN@Viterbi Full Time

- 1-2 Classes/ Semester
- 2.5 – 3 years to complete program
How DEN@Viterbi Works

The Viterbi School of Engineering uses a state-of-the-art, proprietary web-based delivery system that enables students from around the world to access classes live or on-demand.

DEN@Viterbi Students:

- View the same lectures as on-campus students, with fresh content every semester
- Participate in highly interactive discussions with professors and peers
- Submit homework electronically
- Take exams at proctored testing centers near their home or work (or at USC if in the Los Angeles area)
## DEN@Viterbi Overview

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<th>DEN@Viterbi Student</th>
<th>On-Campus Student</th>
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<tr>
<td><strong>Program Admission</strong></td>
<td>USC Graduate Application &amp; required materials</td>
<td>USC Graduate Application &amp; required materials</td>
</tr>
<tr>
<td><strong>Weekly Course Lectures</strong></td>
<td>Online with Interactivity</td>
<td>On USC’s Campus</td>
</tr>
<tr>
<td><strong>Online Course Archives</strong></td>
<td>✓</td>
<td>✓ *</td>
</tr>
<tr>
<td>(Lectures &amp; Course Documents)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assignments</strong></td>
<td>Submit electronically according to course deadlines</td>
<td>Submit during lecture or lab according to course deadlines</td>
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<td><strong>Exams</strong></td>
<td>Proctored location</td>
<td>USC’s campus</td>
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<tr>
<td><strong>Courses per Semester</strong></td>
<td>1-2</td>
<td>3-4</td>
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<tr>
<td>(Average)</td>
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<tr>
<td><strong>Degree Completion</strong></td>
<td>27-35 units with a 3.0 GPA or above</td>
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<tr>
<td><strong>USC Diploma</strong></td>
<td>✓</td>
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<tr>
<td>(No Distinction)</td>
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*DEN@Viterbi Sections Only

List of DEN@Viterbi Programs  [http://viterbi.usc.edu/DENDegrees](http://viterbi.usc.edu/DENDegrees)
DEN@Viterbi’s E-Learning System

DEN@Viterbi Classroom
DEN@Viterbi’s E-Learning System
DEN@Viterbi’s E-Learning System

Helium Porosity vs. Air Permeability

- Used to select porosity cut-offs, for reservoir rocks.
- Based on permeability values.
Student Interactivity & Group Meetings

- All DEN@Viterbi students are provided access to their own meeting rooms which can be used for several purposes:
  - Enable video communication (web and mobile)
  - Integrate phone conferencing
  - Integrate fixed room IP video systems
  - Desktop sharing
  - Set up meetings with faculty, teaching assistants and peers

- Call in during live lectures

- Participate in live chats and threaded discussion boards
**DEN@Viterbi**

Is there any difference between earning a Master’s degree on campus vs. via DEN@Viterbi?

**NO.**

DEN@Viterbi is a delivery method. Students adhere to the same:

- Admission Criteria
- Curriculum
- Exams and Homework
- Academic Standards & Graduation Requirements

You earn the *same diploma* whether you earn the degree on-campus or online through DEN@Viterbi.
DEN@Viterbi Additional Info

Limited Status

- Allows strong candidates to begin coursework before formal admission.

- **Maximum of 12 units** can be applied toward degree program once admitted.
  - Note: limited status does not guarantee admission.

- Get Started Summer 2019: [https://viterbigradadmission.usc.edu/denviterbi/getting-started/](https://viterbigradadmission.usc.edu/denviterbi/getting-started/)

Tuition Deferment Program

- Students supported by company can defer “up front” payment of tuition to end of the semester.

- Company must pay 75-100% of tuition to be eligible for program.

- For additional information: [https://viterbigrad.usc.edu/tuition-and-funding/employer-supported](https://viterbigrad.usc.edu/tuition-and-funding/employer-supported)
## Tuition & Fees (2018-2019)

<table>
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<tr>
<th>PER-COURSE FEES</th>
<th>Unit Cost</th>
<th>Tuition for 3-Unit Course</th>
<th>Tuition for 4-Unit Course</th>
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<tbody>
<tr>
<td>Tuition for 500/600 level course</td>
<td>$2,005</td>
<td>$6,015</td>
<td>$8,020</td>
</tr>
</tbody>
</table>

Degree Programs are 27-35 units (7-9 courses)

For an overview of additional fees, please visit: [https://viterbigradadmission.usc.edu/programs/masters/tuition-funding/tuition-funding-masters/](https://viterbigradadmission.usc.edu/programs/masters/tuition-funding/tuition-funding-masters/)
Getting Started

For those interested in taking classes on campus:

- Visit USC campus
- Start your application:
  http://www.usc.edu/admission/graduate/apply

For those interested in taking classes online via DEN@Viterbi:

- Start as a Limited Status Student in Summer 2019
  -or-
- Start your application:
  http://www.usc.edu/admission/graduate/apply
Contact Us

USC Viterbi School of Engineering
Graduate & Professional Programs

On Campus: viterbi.gradprograms@usc.edu
DEN@Viterbi: DEN@Viterbi.usc.edu

213.740.4488

http://viterbi.usc.edu/gradprograms