Discover Viterbi: Petroleum Engineering with Professor Iraj Ershaghi

Viterbi School of Engineering
University of Southern California
Fall 2019

USC Viterbi School of Engineering | USC University of Southern California

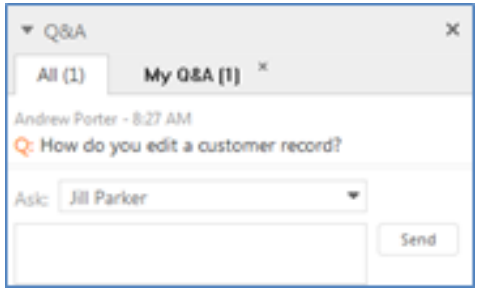
WebEx Quick Facts

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.

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Today's Program

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

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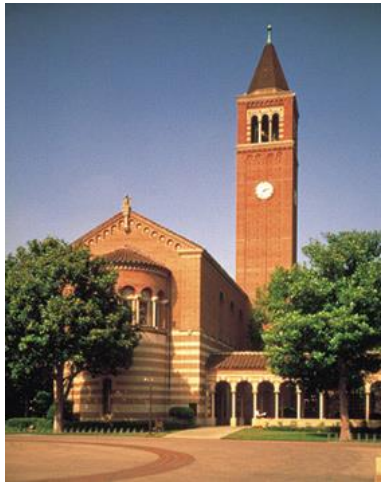

UNIVERSITY OF SOUTHERN CALIFORNIA

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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

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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 $207M in research expenditures annually

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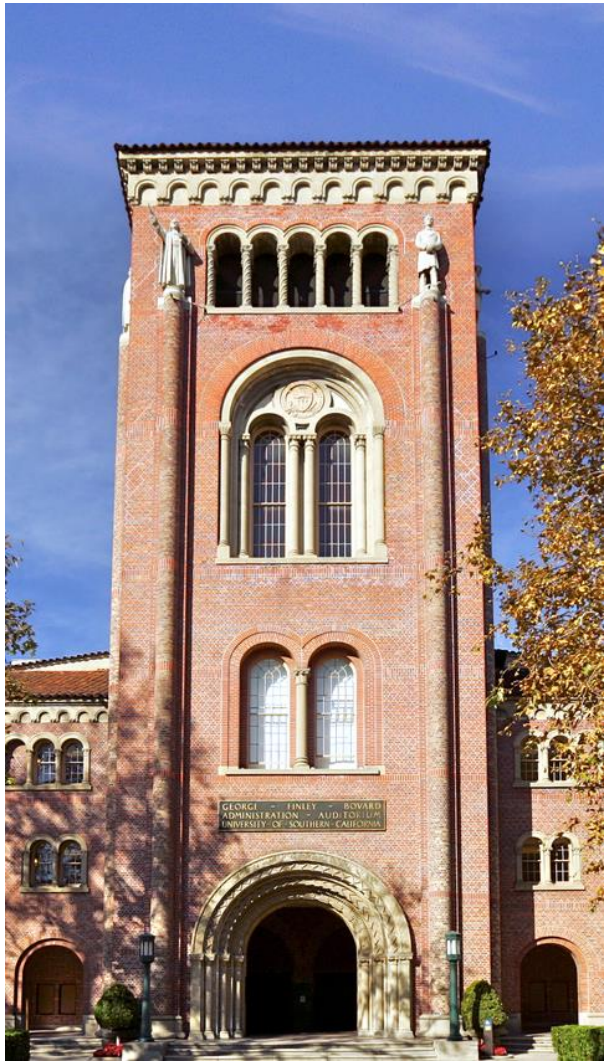
USC Engineering: Points of Distinction



- 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

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U.S. News & World Report, 2019

Best Engineering Graduate Schools

- **Top 10 Ranked** Graduate Engineering Program

Best Online Graduate Engineering Programs

- **Ranked #1** Online Graduate Computer Information Technology Program (Computer Science)
- **Ranked #2** Online Graduate Engineering Programs

Best Online Graduate Engineering Programs for Veterans

- **Ranked #1** Online Graduate Computer Information Technology Program (Computer Science) for Veterans
- **Ranked #2** Online Graduate Engineering Programs for Veterans

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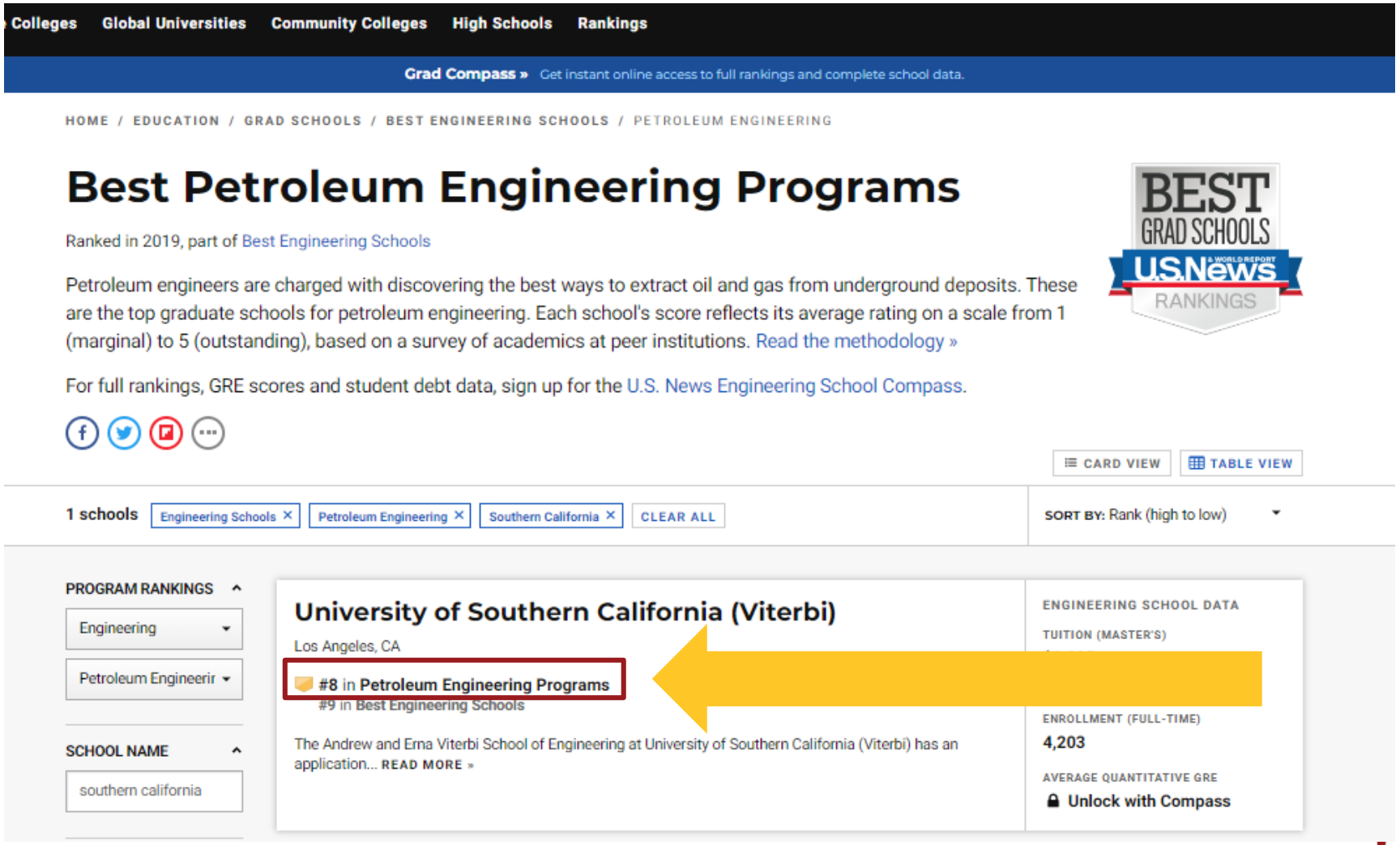
U.S. News & World Report, 2019



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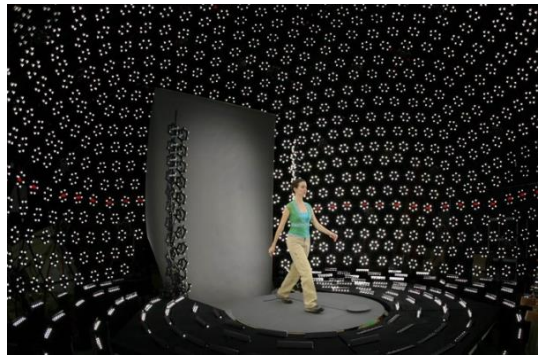
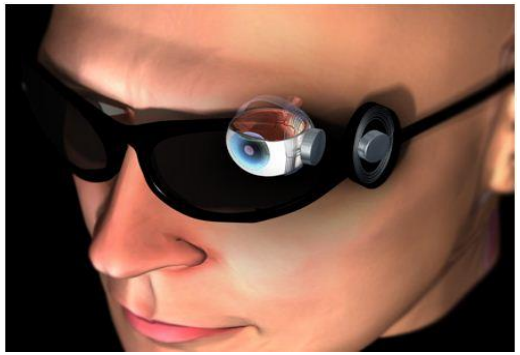
The Viterbi School of Engineering: A Leader in Research

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



Institute for Creative Technologies



Biomimetic Microelectronic Systems Engineering Research Center

National Center for Metropolitan Transportation Research

CREATE Homeland Security Center

- 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

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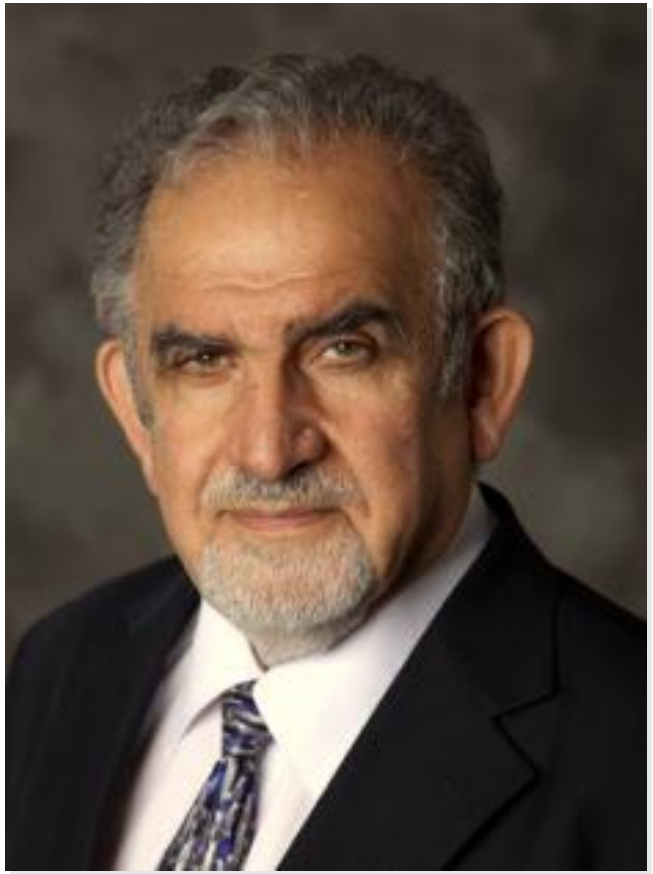
Meet Professor Iraj Ershaghi



Dr. Iraj Ershaghi

- Director of Petroleum Engineering
- Executive Director of the Chevron-USC Center for Interactive Smart Oilfield Technologies (CiSoft)
- Executive Director of UKC (USC-KOC) Center for Research and Education
- National Academy of Engineering Member

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What Petroleum Engineering Graduate Programs are Offered by USC?

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Petroleum Engineering: Program Offerings

- MS in Petroleum Engineering
- MS in Petroleum Engineering (Geoscience Technologies)
- MS in Petroleum Engineering (Smart Oilfield Technologies)
- MS in Petroleum Engineering / MS in Engineering Management (Dual Degree)

- Graduate Certificate in Petroleum Engineering (Smart Oilfield Technologies)
- Graduate Certificate in Petroleum Engineering (Unconventional Resources)

Available online via DEN@Viterbi

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MS in Petroleum Engineering – Program Details

Available online via DEN@Viterbi

Program Requirements: 30-32 units selected under the direction of the student's adviser

Required Courses (19 units)

- PTE 507 | Engineering and Economic Evaluation of Subsurface Reservoirs (3 units)
- PTE 508 | Numerical Simulation of Subsurface Flow and Transport Processes (3 units)
- PTE 517 | Testing of Wells and Aquifers (3 units)
- PTE 531 | Enhanced Oil and Gas Recovery (4 units)
- PTE 555 | Well Completion, Stimulation, and Damage Control (3 units)
- PTE 582 | Fluid Flow and Transport Processes in Porous Media (3 units)

Elective Courses (9 units)

See MS in Petroleum Engineering program page for a complete list of elective courses

https://viterbigradadmission.usc.edu/programs/masters/msprograms/petroleum-engineering/ms-petroleum-engineering/

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MS in Petroleum Engineering (Geoscience Technologies) – Program Details

Available online via DEN@Viterbi

Program Requirements: 35 units

Required Courses (19 units)

- PTE 507 | Engineering and Economic Evaluation of Subsurface Reservoirs (3 units)
- PTE 508 | Numerical Simulation of Subsurface Flow and Transport Processes (3 units)
- PTE 517 | Testing of Wells and Aquifers (3 units)
- PTE 531 | Enhanced Oil and Gas Recovery (4 units)
- PTE 555 | Well Completion, Stimulation, and Damage Control (3 units)
- PTE 582 | Fluid Flow and Transport Processes in Porous Media (3 units)

Take 4 out of 5 Courses Shown Below (12-13 units)

- PTE 502 | Advanced Reservoir Characterization (3 units)
- PTE 503 | Technology of Unconventional Oil and Gas Resources Development (3 units)
- PTE 504 | Geophysics for Petroleum Engineers (3 units)
- PTE 505 | Inverse Modeling for Dynamic Data Integration (3 units)
- PTE 572L | Applied Geostatistical Modeling for Subsurface Characterization (4 units)

Elective Courses (4 units)

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MS in Petroleum Engineering (Smart Oilfield Technologies) – Program Details

Available online via DEN@Viterbi

Program Requirements: 35 units

Required Courses (31 units)

- PTE 507 | Engineering and Economic Evaluation of Subsurface Reservoirs (3 units)
- PTE 508 | Numerical Simulation of Subsurface Flow and Transport Processes (3 units)
- PTE 517 | Testing of Wells and Aquifers (3 units)
- PTE 531 | Enhanced Oil and Gas Recovery (4 units)
- PTE 555 | Well Completion, Stimulation, and Damage Control (3 units)
- PTE 582 | Fluid Flow and Transport Processes in Porous Media (3 units)
- PTE 586 | Intelligent and Collaborative Oilfield Systems Characterization and Management (3 units)
- PTE 587 | Smart Completions, Oilfield Sensors and Sensor Technology (3 units)
- PTE 588 | Smart Oilfield Data Mining (3 units)
- PTE 589 | Advanced Oilfield Operations with Remote Immersive Visualization and Control (3 units)

Elective Courses (4 units)

See the program page for a complete list of elective courses https://viterbigradadmission.usc.edu/programs/masters/msprograms/petroleum-engineering/ms-pte-smart-oilfield-tech/

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MS in Petroleum Engineering/ Engineering Management (Dual Program) – Program Details

Available online via DEN@Viterbi

Program Requirements: 45 units

Required Courses (37 units from PTE and ISE combined)

- PTE 507 | Engineering and Economic Evaluation of Subsurface Reservoirs (3 units)
- PTE 508 | Numerical Simulation of Subsurface Flow and Transport Processes (3 units)
- PTE 517 | Testing of Wells and Aquifers (3 units)
- PTE 531 | Enhanced Oil and Gas Recovery (4 units)
- PTE 555 | Well Completion, Stimulation, and Damage Control (3 units)
- PTE 582 | Fluid Flow and Transport Processes in Porous Media (3 units)
- ISE 500 | Statistics for Engineering Managers (3 units)
- ISE 514 | Advanced Production Planning and Scheduling (3 units)
- ISE 515 | Engineering Project Management (3 units)
- ISE 544 | Management of Engineering Teams (3 units)
- ISE 561 | Economic Analysis of Engineering Projects (3 units)
- ISE 566 | Financial Accounting Analysis for Engineering (3 units)

Elective Courses (9 units)

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Graduate Certificate in Petroleum Engineering (Smart Oilfield Technologies) – Program Details

Available online via DEN@Viterbi

Program Requirements: 12 units

Required Courses (6 units)

- PTE 586 | Intelligent and Collaborative Oilfield Systems Characterization and Management (3 units)
- PTE 588 | Smart Oilfield Data Mining (3 units)

Additional courses – choose two (6 units)

- PTE 519 | Integrated Physical and Cyber Security for Oil and Gas Operations (3 units)
- PTE 587 | Smart Completions, Oilfield Sensors and Sensor Technology (3 units)
- PTE 589 | Advanced Oilfield Operations with Remote Immersive Visualization and Control (3 units)

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Graduate Certificate in Petroleum Engineering (Unconventional Resources) – Program Details

Available online via DEN@Viterbi

Program Requirements: 12 units

Required Courses (12 units)

- PTE 502 | Advanced Reservoir Characterization (3 units)
- PTE 503 | Technology of Unconventional Oil and Gas Resources Development (3 units)
- PTE 504 | Geophysics for Petroleum Engineers (3 units)
- PTE 572L | Applied Geostatistical Modeling for Subsurface Characterization (4 units)
  or
- PTE 591 | Petroleum Geochemistry (3 units)

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Where are USC Viterbi Petroleum Engineering alumni working?

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Where Our Alumni Are Working

WHAT DO OUR STUDENTS DO?

WHAT DO OUR GRADUATES DO?

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Can a student pursue a Petroleum Engineering graduate program online?

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Course Delivery Methods

Methods of Course Delivery

- **On-campus, full time**
  - 3 classes per semester
  - 1.5 – 2 years to complete

- **Online delivery via DEN@Viterbi**
  - 1-2 classes per semester
  - 2.5 – 3 years to complete degree

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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)

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DEN@Viterbi Overview

	DEN@Viterbi Student	On-Campus Student
Program Admission	USC Graduate Application & required materials	USC Graduate Application & required materials
Weekly Course Lectures	Online with Interactivity	On USC's Campus
Online Course Archives (Lectures & Course Documents)	✓	✓ *
Assignments	Submit electronically according to course deadlines	Submit during lecture or lab according to course deadlines
Exams	Proctored location	USC's campus
Courses per Semester (Average)	1-2	3-4
Degree Completion Requirements	27-37 units with a 3.0 GPA or above	27-37 units with a 3.0 GPA or above
USC Diploma (No Distinction)	✓	✓

*DEN@Viterbi Sections Only

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DEN@Viterbi's E-Learning System

DEN@Viterbi Classroom

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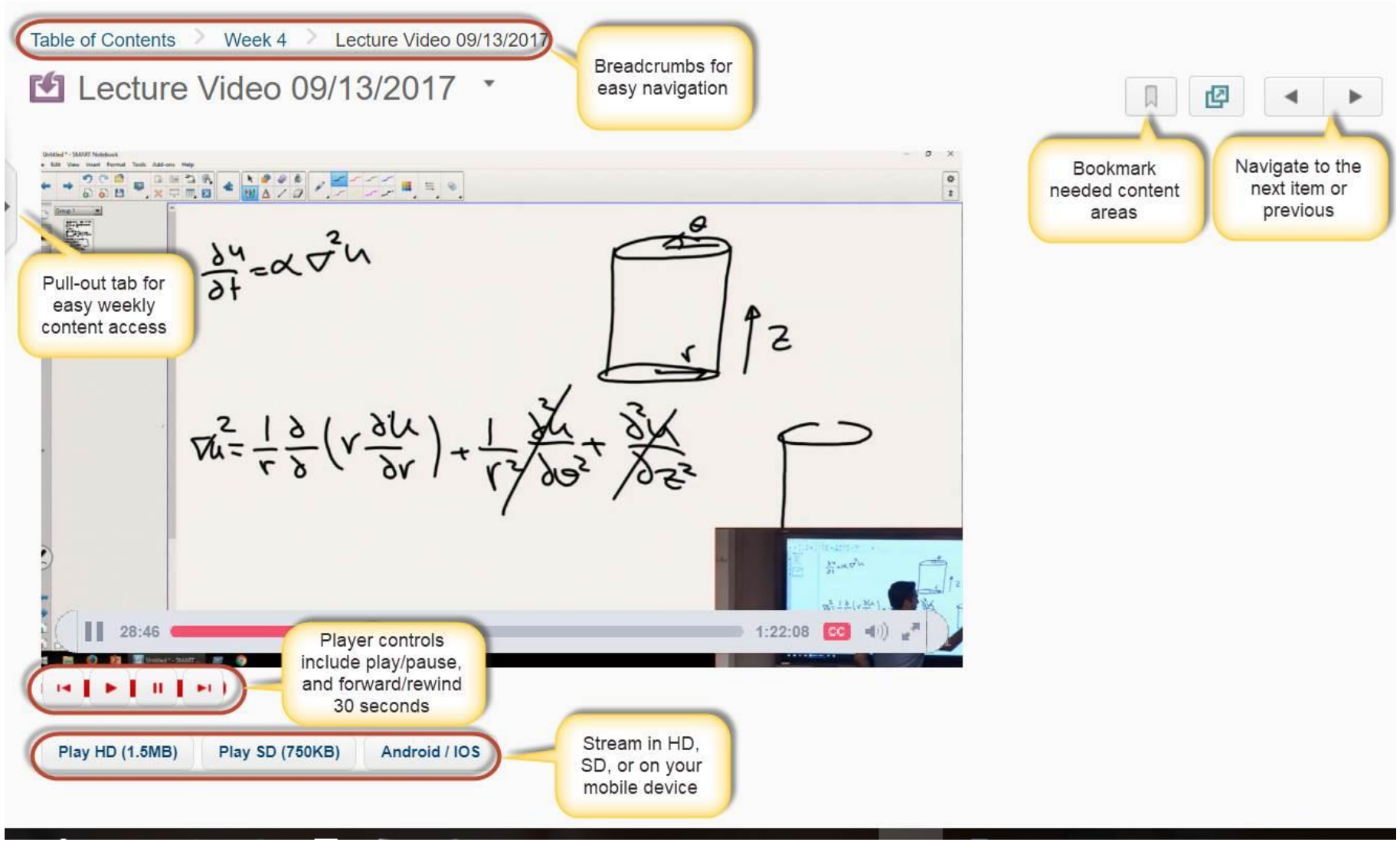
DEN@Viterbi's E-Learning System



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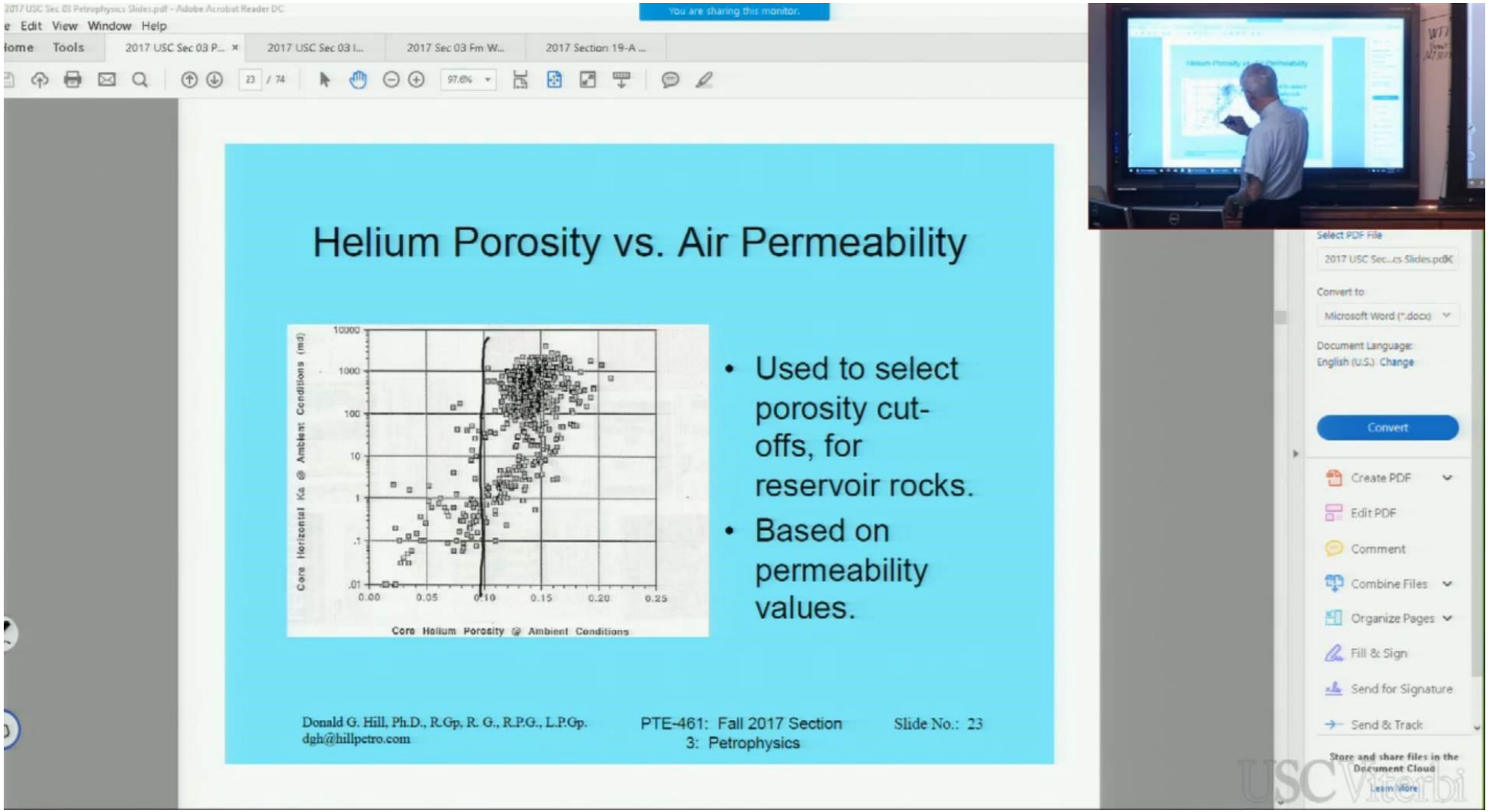
DEN@Viterbi's E-Learning System



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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

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DEN@Viterbi

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

Answer: NO. DEN@Viterbi is a delivery method. Students adhere to the:

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

Therefore…

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

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What are the Application Requirements and Tuition & Fees?

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Application Criteria for Graduate Programs

Each program has unique application requirements – please be sure to review specific information for your program(s) of interest:
https://viterbigradadmission.usc.edu/programs/masters/msprograms/petroleum-engineering/

General Application Criteria

- An undergraduate degree in Petroleum Engineering (or other engineering, math or hard science with assigned deficiencies) from a regionally accredited college or university
- A cumulative undergraduate GPA of at least 3.0 on a 4.0 scale is recommended *(not required)*
- Satisfactory scores on the general portion of the Graduate Record Examination (GRE) General Test that are less than five years old
- Resume/CV (Required)
- Personal Statement (Required)
- Letters of Recommendation (3 Required)
- TOEFL (International Applicants)

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Application Deadlines

Application Deadlines

Fall 2020

- Deadline to submit all required materials: January 15, 2020*
- Deadline for Scholarship Consideration (on-campus only): December 15, 2019

Spring 2021

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

** A deadline extension for DEN@Viterbi applicants may be available. Please email DEN@Viterbi.usc.edu for more information.*

Helpful Links:

List of DEN@Viterbi Programs
http://viterbi.usc.edu/DENDegrees

USC Graduate Application:
https://usc.liaisoncas.com

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DEN@Viterbi Additional Information

Limited Status

- Allows strong candidates with an undergraduate degree in engineering, math or a hard science from a regionally accredited institution with a *cumulative GPA of at least 3.0* (on a 4.0 scale) to begin coursework before formal admission.
- Courses ***(maximum of 12 units)*** can be applied toward degree program if admitted but ***Limited Status does not guarantee formal admission.***
- Get Started this **Spring 2020** - completing your DEN@Viterbi Profile: **viterbi.usc.edu/DENProfile**

Employer Reimbursement Deferment

Students supported by a company can defer payment of up to 90% of tuition until after the semester is over.

Program Eligibility

- Your employer reimburses you for tuition at the end of each term.
- Your student account is current.

Program Participation Requirements (required every semester prior to the settlement deadline each term)

- Complete and submit deferment application
- Pay 10% of tuition, 100% of all fees and a $100 application fee
- Sign and submit promissory note packet to uscsfs@usc.edu

For additional information: https://sfs.usc.edu/payment/employer-reimbursement/

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Tuition & Fees (2019-2020)

Example of tuition and fees for a DEN@Viterbi Student

PER-COURSE FEES	Unit Cost	Tuition for 3-Unit Course	Tuition for 4-Unit Course
Tuition for 500/600 level course	$2,075	$6,225	$8,300

PER-SEMESTER FEES	Cost	Total per semester
Engineering Access Fee	$35	$35
Norman Topping Student Aid Fund	$8	$8

** Additional fees include textbooks ($150 - 200) and exam proctoring fees ($40 - 100)*

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DEN@Viterbi Scholarship

Merit-based scholarships awarded to outstanding students pursuing a master's program fully online via DEN@Viterbi

Scholarship Details

- Partial scholarships ranging from 1-4 units of tuition are available for students pursuing a Viterbi master's program fully online and who receive partial or no tuition reimbursement funds from their employer.
- Funding provided during awarded academic year. Applicants can reapply each year for future scholarship consideration.
- For information on future DEN@Viterbi Scholarship options, please email DEN@Viterbi.usc.edu.

More Information & Application:
http://viterbi.usc.edu/gradscholarships

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Chevron-USC Partnership Fellowships

Chevron Corporation awards competitive fellowships to outstanding incoming Master's students.

Scholarship Details

- **Award Amount:** $25,000 (paid over multiple years) and continual contact with Chevron executives, with opportunities for future internships and employment
- **Eligibility:** Must be a new or PDP (progressive degree program), full-time, residential (on-campus) Master's student. Two scholarships awarded to students in the MS in Petroleum Engineering (Smart Oilfield Technologies), and one to a student in either the MS in Chemical Engineering, MS in Materials Science or MS in Materials Engineering (two elective courses in Petroleum Engineering must be taken).
- Cumulative undergraduate GPA of 3.3 or higher (on a 4.0 scale).
- Must be a citizen or permanent resident of the U.S. or its territories.

More Information & How to Apply:
http://viterbi.usc.edu/gradscholarships

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Getting Started

For those interested in taking classes on campus:

- Visit USC campus
- Start your application: https://gradadm.usc.edu/apply/

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

- Start your application: https://gradadm.usc.edu/apply/ -or-
- Start as a Limited Status Student as early as Spring 2020
  Complete the DEN@Viterbi Profile: viterbi.usc.edu/denprofile

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Contact Us

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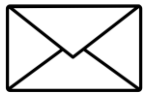
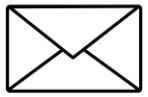
Admission & Student Engagement


On Campus: viterbi.gradadmission@usc.edu


DEN@Viterbi: DEN@Viterbi.usc.edu


213.740.4488


http://viterbi.usc.edu/gradprograms

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