

MICHELLE “CHELLE” GUCKENHEIMER

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

Portland State University

1930 SW 4th Avenue, Suite 200

Portland, OR 97207

Michelle.guckenheimer@gmail.com

503.939.9665

EDUCATION

PORTLAND STATE UNIVERSITY

Master of Science in Civil and Environmental Engineering

Expected December 2024

Specialty: Geotechnical Engineering

Thesis: *A Procedure for Triaxial Testing at High Stresses with Ottawa Sand*

Advisors: Diane Moug

GPA 3.23

PORTLAND STATE UNIVERSITY

Bachelor of Science in Civil and Environmental Engineering

Awarded June 2019

PORTLAND COMMUNITY COLLEGE

Associates in Applied Science in Civil Mechanical Engineering Technology

Awarded December 2012

INDUSTRY EXPERIENCE

GREENFIELD GEOTECHNICAL

June 2022 to March 2023

Consultant Engineering Staff

Portland, Oregon

- Assisted with EPA and Portland Metro geotechnical investigation projects
- Performed construction observation, using GPS/RTK field work, processed field data to create Field Observation Reports and Site Visit Reports
- Assisted in geotechnical and environmental investigations, including desk study, soil sampling, field soil classification and preparation, CPT & ERT testing, mudrotary and sonic drilling and sampling, Erosion Assessment (BEHI method), pre-lab soil classification, assessment and documentation, creating reports
- Worked with subcontractors to obtain samples and environmental data using on ground and overwater environmental and soil sampling methods
- Performed regional statistical analysis with qGIS and spatial data to create maps and figures in support of regional seismic hazard assessments

GRI

Engineering Assistant/Intern

June 2019 to September 2019

Engineering Staff

September 2019 to December 2021

Beaverton, Oregon

- Conducted construction observation, testing and documentation of: drilled shafts, open hole shaft, excavations, micropiles, mass grading, cement amendment, tiebacks, hollow core tiebacks, temporary shoring, HSA's, foundations, retaining structures testing & installation, shallow foundations, ground anchors, driven and vibratory piles, AC pavement assessment, sinkhole assessment
- Provided contractor or client with technical field reports documenting daily observations and conditions, construction progress and engineering recommendations
- Worked with municipalities, drillers and other subcontractors to ensure best outcome from CO and field investigations

- Performed field investigations included geotechnical and environmental drilling, piezometers installation, cone penetration testing, environmental sampling, hand augurs, DCP's, infiltration testing, test pits, mud rotary, geoprobe, sonic coring, DSM & CSM coring and assessment, undisturbed (SHELBY) and disturbed (grab, modified and SPT) sample collection
- Performed Geotechnical and Transportation laboratory testing in an ASTM certified laboratory. Performed tests including Atterberg Limits, Organic Content (ash test), Unconfined Compression Strength, DSS Sample preparation, torvane, sieve analysis, hydrometer testing, 1D consolidation (odeometer) for multiple materials, fines and moisture contents, CBR, Proctor Compaction Test- on fine and coarse materials, PID testing
- Translated raw lab data into gINT, creating final boring logs and stick figures for final geotechnical reports
- Reviewed invoices, locate requests, office studies for field investigation & field work for project managers

PUBLICATIONS

Greenfield, M. W., **Guckenheimer, M.**, Wade, A., Wilson, J. M., Hitchcock, C., Kottke, A. R., & Boone, M. "A Tool to Evaluate Liquefaction and Resulting Permanent Ground Deformation in the San Francisco Bay Area". *Geo-Risk* (2023) pp. 285-295.

TEACHING EXPERIENCE

PART TIME FACULTY, PORTLAND COMMUNITY COLLEGE, ENGINEERING TRANSFER DEPARTMENT

ENGR101 Lecture & Lab: Engineering Fundamentals

September to December 2024

Assisted with program realignment by leading integration of civil engineering lecture and lab content into the course curriculum and including up-to-date mechanical engineering introduction experience.

Course Learning Objectives:

- Introduce basic engineering problem solving, analysis and design.
- Cover basic concepts of curve fitting, statistics, electricity, and mechanics, including vector algebra.
- Utilize spreadsheet and computer programming applications as problem solving tools.
- Introduce non-technical aspects of engineering, such as registration laws and ethics.
- Perform group-based engineering problem solving in a lab setting.

PART TIME FACULTY, PORTLAND COMMUNITY COLLEGE, CIVIL & CONSTRUCTION ENGINEERING TECHNOLOGY DEPARTMENT

CCET 215 Lecture & Lab: Construction Materials

September to December 2022

This was the first class after a program redesign. I wrote updated lecture and lab content and implemented new curriculum to include a wider range of construction materials such as brick, cement, glass, plastics, non-ferrous metals and wood. Each material's properties were discussed in engineering terms. Coordinated a field trip to a pre-cast concrete manufacturer to observe the manufacturing and concrete testing in a production setting. Provided student feedback and helped to assist conceptual understanding during weekly office hours. Designed assignments that encouraged group work, communication and shared experiences using round-robin lab report partners weekly. Emphasized the importance of specifications such as ASTM's, USCS, AASHTO with lab activities, current construction processes, materials and guest lecturer testimonials. Facilitated class specific industry advisors & department networking. Hosted guest speakers that offered student mentor opportunities. Highlighted diversity, equity, inclusion and how that applied to Civil Engineering as an industry.

Course Learning Objectives:

Michelle Guckenheimer - Curriculum Vitae
Portland State University

- Covers properties, production, processing, and testing of soil, aggregate and concrete in civil engineering construction.
- Learn concepts of quality assurance, specifications, measurements and calculations, terminology, and random sampling.
- Focuses on testing procedures common to construction in the northwest United States
Labs included: Visual Classifications, Moisture Content, Percent Fines Atterberg Limits, Standard and Modified Proctor, Sand Cone & Speedy Moisture Testing for field density values, Sieve - Gradation & Analysis, Splitting & Tarping & Bulk Sampling, Tensile Testing ASTM E8 Method, Rockwell Hardness, Density, Fine Aggregate Permeability, Coarse Aggregate Specific Gravity, Direct Simple Shear

TEACHING ASSISTANT & GRADER & TUTOR, PORTLAND STATE UNIVERSITY

Courses Supported:

S2024	CE 211	Plane Surveying – Grader
F2023	CE 447/547	Slope Stability – Grader
F2019	CE 445/545	Geo-Env Engr w/ Geosynthetics – Grader
F2019	CE 440/540	Geosynthetics Infrastructure Engineering – Grader
SUM2018	CE 485/585	Environmental Cleanup & Restoration – Grader
SUM2017	CE 211	Plane Surveying -Grader
SUM2017	EAS 212	Strengths of Materials - TA & Grader
SP2017	CE 212	Plane Surveying - Grader & Tutor
WNT2017	EAS212	Strengths of Materials- Grader & Tutor
SP2016	CE212	Plane Surveying -TA & Grader

- Assisted faculty members with classroom and lab instruction, grading, record keeping
- Demonstrated correct use of survey equipment in lab and in field, enforce laboratory rules
- Graded to a high standard, including teamwork, significant figures, free body diagrams, correct Engineering approach used, reporting to final values correctly
- Corresponded with students and provided tutoring and support during scheduled and unscheduled office hours

LABORATORY & SAFETY EXPERIENCE

INSTRUCTIONAL SUPPORT TECHNICIAN, PORTLAND COMMUNITY COLLEGE

Engineering & Civil and Construction Engineering Technician Departments

October 2023 to June 2024

September 2012 to June 2015

- Communicate, assist and train lab-technicians and instructors on lab processes, experiments and industry standards for ENGR and CCET labs
- Set up established laboratory experiences for engineering classes and modify laboratory experiences to achieve desired student experiences
- Adhere to purchasing guidelines, tracks expenditures, reconciles bank statements and negotiate pricing with vendors, research alternative suppliers, assist with grant purchases, asset management from purchase to surplus
- Participate in staff and department development meetings, assist in outreach and encourage industry engagement to the programs and other higher educational institutions
- Maintain and inventory equipment, materials, write manuals, supplies, perform or schedule repairs on equipment, checks out equipment, supplies &/or materials to students & instructors, coordinates interdepartmental -intercollege and external donations

- Establish and enforce procedures for the use of equipment, supplies, materials, machinery, PPE and storage & use in lab area
- Handle, store and dispose of hazardous materials following regulatory agency protocols; EPA, DEQ regulations

CHEMICAL AND SAFETY DATA SHEET SPECIALIST, PORTLAND COMMUNITY COLLEGE

PCC – All Campuses and Departments

September 2014 to February 2016

- Assisted in re-writing PCC's Chemical Safety Training Manual, and presenting annual and monthly training for Safety and Risk Department
- Assisted PCC compliance with new international GHS guidelines and GHS training
- Expanded SDS database from 5,000 to 7,000 SDS through PCC-wide inventory, stakeholder communication, expedited purchase, implementation and training of a new electronic data management system; performed ongoing management of the database

TRAININGS AND WORKSHOPS ATTENDED

GEO-CONGRESS

ASCE, Los Angeles, C.A. Geo-Institute

March 2023

Topics of Interest:

- Alaskan permafrost melting & code isn't updated to climate changes. The challenge is how to adjust current infrastructure and design using that melting material for foundation systems.
- The earthquakes in Türkiye, and how that affected the areas, reconnaissance results from the field about what structures were on liquifiable soil and what continued to stay habitable and why.
- Women in engineering and how to connect intercontinentally as engineers

HAZWOPER, *National Environmental Trainers*

June 2022

First Aid, AED, CPT, *Red Cross*

June 2022

NUCLEAR GAUGE TRAINING, *Troxler*

June 2019

INSTRUMENTATION & MONITORING, CURRENT STATE OF PRACTICE & EMERGING TECHNOLOGIES, *Oregon Department of Transportation*

November 2019

CHEMICAL SAFETY TRAINING, *Safety & Risk Department, Portland Community College*

Attended in 2012-2013, 2023

Co-Taught 2014-2016

SERVICE

ELEMENTARY SCHOOL SUMMER CAMP OUTREACH DAY -GIGSO

July 2024

Forest Grove Steam Academy visited PSU Geotech lab where we demonstrated and led hands on activities about liquefaction, strength of soils, water in soils - our researchers seepage tank, and single degree of freedom systems under different excitations. The main event was a shake table activity where students build marshmallow-toothpick structures then tested at different real earthquake vibrations to see if their design assumptions would hold up.

MIDDLE SCHOOLER OUTREACH DAY AT PSU-GIGSO

April 2024

Students from the Portland Metro area visited the PSU Geotech lab where we demonstrated and led hands on activities which exemplified liquefaction, strength of soils, water in soils, and earthquake shaking using a shake table.

HIGHSCHOOL STUDENT OUTREACH DAY

April 2024 & October 2023

Roosevelt HS visited the PCC Engineering Lab where we demonstrated some parts of the CCET program that make it unique. Assisted with an interactive surveying demo using robotic total stations and GPS's, plan reading – taking a 1d drawing and making a 3d structure from it, construction materials demos including identification lab, Atterberg limits demos, and density.

INDUSTRY ADVISORY BOARD MEETINGS

2019, 2021, 2022, 2023- current

Assists the CCET program at PCC with industry related questions to keep the current program relative to active projects and needs. Quarterly to bi-annual meetings.

ORGANIC GARDEN CLUB / LEARNING GARDEN PLANT SALE

June 2014

Coordinated with community members, volunteers, local garden societies, plant shops and PCC for a take-what-you-can-dig plant sale in preparation for re-grading project of the PCC Sylvania Learning Garden. All proceeds went back into the re-purchasing of plants for the new garden space.

OMSI Maker Faire, Science Technology Engineering & Math Event

September 13-14, 2014

Co-coordinated event, and volunteered at the PCC STEAM booth, engaging kids, students, families and industry representatives with hands on activities. Some activities were button making, 3d-printing pens, hand crank tensile testing zip ties & discussing factor of safety and robotic performances.

THE OREGONIAN “HACK THIS THEN THAT”

August 26, 2014

Lab technician & classroom instructor and assistant for a summer STEM camp in the Maker Space for minority girls who learned manufacturing processes, wearable tech, basic programing for Arduino systems. My participation was featured in the following articles:

<https://www.pcc.edu/news/2014/09/wearable-tech-2/>

https://www.biztrib.com/news/hack-this-then-that/article_3f280401-f0e0-599d-9cb5-59095eaf9492.html

5000 ACRES INITIATIVE TREE WELL PROJECT WITH Depave

June 21, 2013

Major sponsors Tualatin Riverkeepers, Clean Water Services retrofit project at the PCC Sylvania campus parking lot. Aided in the removal of ~600 sf of impervious surfacing during the depaving phase of the 5000 Acres Initiative stormwater study and project from the project location. In a later phase this was replaced with trees and specially engineered soils. The intention of the project is to show that by providing this type of stormwater facility & without losing exiting parking area there will be a reduction in surface runoff resulting in improved water quality in the Tualatin Basin.

WILLOWBROOK FOOD PANTRY

March 2012 – September 2012

Volunteered to pickup donations from nearby grocery stores, deliver items and stock pantry shelves weekly

LEADERSHIP EXPERIENCE

GEO-INSTITUTE GRADUATE STUDENT ORGANIZATION, PSU CHAPTER

March 2023 to Present

- Founding member- Treasurer, Spring 2024
- Webmaster, Summer 2024

Organized and arranged travel, transportation and meal planning for seven graduate students and three undergraduate researchers to attend the Pacific Northwest Geotechnical Graduate Student Symposium hosted at

OSU in May 2024. Assisted with other duties as needed. Co-built our GIGSO website and solicited content from previous graduates and currently enrolled GSO's for informative news on what our active group has been doing.

FUNDRAISING MANAGER, ENGINEERS WITHOUT BOARDERS, PSU CHAPTER *September 2017 to June 2019*

- Co-Managed (2018) then managed the Engineers without Borders (EWB) Coffee Cart, scheduled volunteers, provided training, cash handling, purchasing & inventory to fundraise for PSU's chapter to travel for our project builds.
- Provided reports to the officer's meetings and worked with other student groups to help provide a platform for co-fundraising (EERI).

CERTIFICATIONS AND ACCOLADES

PORTLAND STATE UNIVERSITY

Outstanding Graduate Student

Awarded 2024

PROFESSIONAL AFFILIATIONS

- American Society of Civil Engineering (ASCE). Member ID: 10838469
- Deep Foundations Institute (DFI). Member ID: 45273