

## **Umaima Al Aqtash, Ph.D.**

1820 Thomas Dr.

Las Cruces, NM, 88001

Phone: (+1) 575-6442845

E-mail: umaimaq@nmsu.edu

---

### **Education:**

***Ph.D. in Civil Engineering***, emphasis in Geotechnical Engineering, July 2014.

Department of Civil Engineering, New Mexico State University (NMSU), Las Cruces, New Mexico. Advisors: Dr. Paola Bandini and Dr. Sonya Cooper.

Dissertation Title: An experimental and numerical study of the moisture effects on soil strength and performance of adobe walls.

Courses: Continuum Mechanics, Deep Foundations, Slope Stability Analysis, Statistical Inference, and Structural Dynamics.

***Master of Science in Civil Engineering (MSCE)***, emphasis in Geotechnical and Structural Engineering, December 2008.

Civil Engineering Department, NMSU. Advisor: Dr. Paola Bandini.

Courses: Concrete Design, Wood and Masonry Design, Finite Element Analysis, Advanced Mechanics of Materials, Steel Design, Advances in Concrete Technology, Foundation Design, Design of Earth Dams, Advanced Soil Mechanics, and Pavement Analysis and Design.

***B.S. in Architectural Engineering***, 1994 – 2000, Jordan University of Science and Technology, Irbid, Jordan.

### **Work Experience:**

***College Assistant Professor***, Civil Engineering Department, New Mexico State University, Las Cruces, NM, August 2019- present

- Researcher at the Center for Bio-mediated and Bio-inspired Geotechnics (CBBG).
- Trainer and supervisor of graduate students in experimental characterization of earthen materials and finite element modeling of adobe structural systems.

***Assistant Professor***, Architectural Engineering Department, Hashemite University, Jordan, September 2015- present

- Instructor for undergraduate courses: Architectural Design Studio for 3<sup>rd</sup> year students; Building Materials; Structural Systems; Building finishing; Workshop Drawings; Quantity Surveying; Professional Practice; Mechanics-Statics; Reinforced Concrete and Steel Design; and Surveying.
- Developer and Instructor for a graduate course: Building Technology and Advanced Structural Systems.
- Supervisor of undergraduate senior design projects: Cruise Terminal, Center of Creativity and Discovery, Youth Activity Center, Al Badia Tourist Gate, and Food Hub.
- Academic advisor for 5 graduate students.
- Member of several departmental and college committees.

**Teaching Assistant and Lecturer**, Department of Civil Engineering, NMSU, Spring 2007–Fall 2013.

- Instructor (taught independently): Mechanics-Statics.
- Lecturer, tutor, and grader for: Geology for Engineers Laboratory, Mechanics-Statics, Mechanics of Materials, Civil Engineering Materials, Structural Analysis, Soil Mechanics, Pavement Analysis and Design, and Foundation Design.

**Architectural Designer**, Palm Real Estate Company, Jordan, 2001–2005.

- Lead architect: meeting clients, creating architectural design, preparing the workshop drawings. Supervising junior architects.

**Engineer in Training**, Irbid Municipality, Jordan, 2000–2001.

### **Publications and Presentations:**

Al Aqtash, U., and Bandini, P. (2020). Wall thickness and water content contribution to the out-of-plane instability of adobe walls, *REHABEND 2020: Euro-American Congress on Construction Pathology, Rehabilitation Technology and Heritage Management*, Granada, Spain, September 2020 (In press).

Al Aqtash, U., Bandini, P., and Cooper, S. L. (2020). Lateral strength of traditional adobe walls affected by moisture: A numerical parametric study. *Inter. J. Architectural Heritage* (In review).

Al Aqtash, U., Bandini, P., and Cooper, S. L. (2017). Numerical approach to model the effect of moisture in adobe masonry walls subjected to in-plane loading. *International Journal of Architectural Heritage*, 11(6), 805-815. DOI: 10.1080/15583058.2017.1298010.

Al Aqtash, U., Bandini, P., and Cooper, S. (2017). Effect of moisture on the out-of-plane lateral strength of residential adobe masonry walls. *Proc., Earth USA 2017, 9<sup>th</sup> Inter. Conf. on Architecture and Construction with Earthen Materials*, Santa Fe, New Mexico, September 29-October 1.

Al Aqtash, U., and Bandini, P. (2015). Prediction of unsaturated shear strength of an adobe soil from the soil-water characteristic curve. *Construction and Building Materials*, 98, 892–899. DOI: 10.1016/j.

Wosick, E., Gebremariam, T., Weldon, B., Bandini, P., and Al-Aqtash, U. (2014). Strength characteristics of typical adobe material in the southwestern United States, *9<sup>th</sup> International Masonry Conference*, Guimarães, Portugal, July 7-9.

Al Aqtash, U., and Bandini, P. *Prediction of Unsaturated Shear Strength of an Adobe Soil from the Soil-Water Characteristic Curve*. Geo-Poster Student Competition, 2014 Geo-Congress, Atlanta, GA. (Poster presentation)

### **Technical skills:**

- Standard soil and materials testing.
- Field investigation techniques and log interpretation.
- Finite element analysis program: ABAQUS.
- Slope stability analysis program: STABL.
- Architectural drafting programs: AutoCAD, 3D Studio Max.

**Committees and outreach participation:**

- NMSU Diversity and Inclusion Lead in the CBBG's Innovation Diversity and Education Activities (IDEA) Group. 2020-present.
- Member of the Curriculum revision and development committee, for the Architectural engineering program at HU. Ensuring the program compatibility with the local accreditation, and preparing the required files for the international equivalency to the NAAB-USA (National Architectural Accreditation Board). 2016-now.
- Faculty Advisor: Jordanian Engineering Association, Entrepreneurship program. The program aims to train new architectural engineering graduates on leadership and management skills. Initiated in 2019.
- Engaged and supported the ASCE program that foster an appreciation and understanding of science, technology, engineering and mathematics (STEM) at the K-12 level, 2014-2015, Omaha, Nebraska.
- Volunteering Judge for the Graduate School Research Conference at New Mexico State University, March 2011, November 2019.
- Panelist and session moderator at the event "Creating the future: Women in engineering" at New Mexico State University, October 2010.

**Awards and Honors:**

- Graduate faculty status at NMSU to serve as members of graduate committees in the CE Department, Spring 2020.
- ASCE Geo-Institute Travel Grant, 2014 Geo-Poster Competition, February 2014. (Placed 5th out of 25 participating posters)
- Graduate Assistantship Award, Graduate School, NMSU, Spring 2009, Spring 2010.
- Irbid Municipality Recognition, Jordan, February and May 2001.
- Contemporary Bahraini House Design Competition, 1997, ranked in top 5 designs.

**References:**

Dr. Paola Bandini (M.S.C.E. and Ph.D. Dissertation advisor)  
Wells-Hatch Associate Professor  
Department of Civil Engineering, New Mexico State University  
Phone: (575) 646-2471  
E-mail: [paola@nmsu.edu](mailto:paola@nmsu.edu)

Dr. Sonya L. Cooper (Ph.D. Dissertation co-advisor)  
Regents Professor, Dean of College of Health and Social Sciences  
New Mexico State University  
Phone: (575) 646-4691  
E-mail: [socooper@nmsu.edu](mailto:socooper@nmsu.edu)

Dr. Brad Weldon  
Harold Foreman Associate Professor  
Civil Engineering Department, New Mexico State University  
Phone: (575) 646-1167  
E-mail: [bweldon@nmsu.edu](mailto:bweldon@nmsu.edu)