

# CURRICULUM VITAE

January 2022

## **Ebrahim Babaeian, Ph.D.**

Assistant Professor

Soil and Water Sciences Department (SWSD)  
Institute of Food and Agricultural Sciences (IFAS)  
University of Florida (UF)  
Gainesville, FL 32611

Email: [ebabaeian@ufl.edu](mailto:ebabaeian@ufl.edu)

Google Scholar Profile: <https://scholar.google.com/citations?user=BUqGrogAAAAJ&hl=en>

Research-Gate profile: [https://www.researchgate.net/profile/Ebrahim\\_Babaeian](https://www.researchgate.net/profile/Ebrahim_Babaeian)

## **I. Education**

**Ph.D.** Tarbiat Modares University, Tehran, Iran

Major: Agricultural Engineering, Soil Science

Minor: Soil Physics and Conservation

Year: 2009-2014

Dissertation Title: Modeling soil hydraulic properties at different spatial scales using satellite remote sensing.

**M.Sc.** Tarbiat Modares University, Tehran, Iran

Major: Agricultural Engineering, Soil Science

Minor: Soil and Water Sciences

Year: 2007-2009

Thesis Title: Investigating the effect of different chelating agents on phytoremediation of lead contaminated soils.

**B.Sc.** Shahrekourd University, Shahrekourd, Iran

Major: Agricultural Engineering, Soil Science

Year: 2003-2007

## **II. Areas of Expertise/Research Interests**

- Landscape Analysis and Modeling
- Soil, Water and Aquifer Remediation
- Nutrient, Pesticide and Waste Management

My research program focuses on developing fundamental understanding of mass and energy distribution and transport in soil, toward enhancing management and sustainability of environment. I am particularly interested in developing novel theoretical and practically applicable tools for characterizing land surface variables and processes using ground and remote sensing observations. I am also interested in multiscale observations and data fusion techniques coupled with soil physics in order to monitor spatiotemporal dynamics of soil physical properties and processes in natural and managed ecosystems. I am eager to develop physics-informed and data-driven techniques for enhanced modeling of soil physical/hydraulic properties

and processes, nowcasting and forecasting of the water and energy cycle components in the context of the changing global climate.

### III. Professional Experience

- **Assistant Professor**

Department of Soil and Water Sciences, University of Florida

Date: Jan. 2022 to Present

- **Research Assistant Professor (Career-track)**

Department of Environmental Science (Formerly known as Dept. of Soil, Water and Environmental Science), University of Arizona

Date: Feb. 2019 to Dec. 2021

- **Postdoctoral Research Associate**

Department of Soil, Water and Environmental Science (SWES), University of Arizona

Date: 2016 to Jan. 2019

- **Research Scholar**

Institute for Bio and Geoscience (IBG-3), Jülich, Germany

Date: 2013 to 2014

### IV. Publications

#### Book Chapters

1. Sadeghi, M., **Babaeian, E.**, Arthur, E., Jones, S., Tuller, M. 2018. Soil Physical Properties and Processes. In: Kutz, M. (ed.) Handbook of Environmental Engineering. Wiley, Hoboken, NJ, pp: 137-207. ISBN: 1118712943.
2. Sadeghi, M., **Babaeian, E.**, Ebtehaj, A.M., Jones, S., Tuller, M. 2018. Remote Sensing of Environmental Variables and Fluxes. In: Kutz, M. (ed.) Handbook of Environmental Engineering. Wiley, Hoboken, NJ, pp: 249-302. ISBN: 1118712943.

#### Peer-Reviewed Journal Articles

##### Published

1. **Babaeian, E.**, Paheding, S., Siddique, N., Devabhaktuni, V.K., & Tuller, M. 2021. Estimation of root zone soil moisture from ground and remotely sensed soil information with multisensor data fusion and automated machine learning. Remote Sensing of Environment. <https://doi.org/10.1016/j.rse.2021.112434>.
2. **Babaeian, E.**, Sadeghi, M., Gohardoust, M.R., Arthur, E., Effati, Jones, S.B., Tuller, M. 2021. The Feasibility of Shortwave Infrared Imaging and Inverse Numerical Modeling for Rapid Estimation of Soil Hydraulic Properties. Vadose Zone Journal. [doi.org/10.1002/vzj2.20089](https://doi.org/10.1002/vzj2.20089).
3. Sadeghi, M., Ebtehaj, A., Crow, W.T., Gao, L., Purdy, A.J., Fisher, J.B., Jones, S.B., **Babaeian, E.**, Tuller, M. 2020. Global Estimates of Land Surface Water Fluxes from SMOS and SMAP Satellite Soil Moisture Data. Journal of Hydrometeorology. <https://doi.org/10.1175/JHM-D-19-0150.1>.

4. **Babaeian, E.**, Sidike, P., Newcomb, M.S., Maimaitijiang, M., White, S.A., Demieville, J., Ward, R.W., Sadeghi, M., LeBauer, D.S., Jones, S.B., Sagan, V. and Tuller, M. 2019. A New Optical Remote Sensing Technique for High-Resolution Mapping of Soil Moisture. *Front. Big Data* 2:37. doi: 10.3389/fdata.2019.00037.
5. **Babaeian, E.**, Sadeghi, M., Jones, S., Montzka, C., Vereecken, H., Tuller, M. 2019. Ground, Proximal, and Satellite Remote Sensing of Soil Moisture. *Reviews of Geophysics*. doi: 10.1029/2018RG000618.
6. Sadeghi, M., Tuller, M., Warrick, A.W., **Babaeian, E.**, Parajuli, K., Gohardoust, M., Jones, M. 2019. An Analytical Model for Estimation of Land Surface Net Water Flux from Near-Surface Soil Moisture Observations. *Journal of Hydrology*. 570, 26-37.
7. **Babaeian, E.**, Sadeghi, M., Franz, T., Tuller, M., Jones, S. 2018. Mapping soil moisture with the OPTical TRapezoid Model (OPTRAM) based on long-term MODIS observations. *Remote Sensing of Environment*. 211, 425-440.
8. Sadeghi, M., **Babaeian, E.**, Tuller, M., Jones, S. 2018. Particle size effects on soil reflectance explained by an analytical radiative transfer model. *Remote Sensing of Environment*. 210, 375-386.
9. Sadeghi, M., **Babaeian, E.**, Tuller, M., Jones, S. 2017. The Optical Trapezoid Model: A novel approach to remote sensing of soil moisture applied to Sentinel-2 and Landsat-8 observations. *Remote Sensing of Environment*. 198, 52-68.
10. Sadeghi, M. Sheng, W., **Babaeian, E.**, Tuller, M., Jones, S. 2018. High resolution shortwave infrared imaging of water infiltration into dry soil. *Vadose Zone Journal*. doi:10.2136/vzj2017.09.0167.
11. Sheng, W., Rong, Z., Sadeghi, M., **Babaeian, E.**, Robinson, D.A., Tuller, M., Jones, S.B. 2017. A TDR array probe for monitoring near-surface soil moisture distribution. *Vadose Zone Journal*. doi:10.2136/vzj2016.11.0112.
12. **Babaeian, E.**, Homae, M., Montzka, C., Vereecken, H., Norouzi, A.A. and M.Th. van Genuchten. 2016. Soil moisture prediction of bare soil profiles using diffuse spectral reflectance information and vadose zone modeling. *Remote Sensing of Environment*. 187, 218-229.
13. **Babaeian, E.**, Homae, M., Vereecken, H., Montzka, C., Norouzi, A.A. and M.Th. van Genuchten. 2015b. A comparative study of multiple approaches for predicting the soil water retention curve: Hyperspectral information versus basic soil properties. *Soil Science Society of America Journal*. doi:10.2136/sssaj2014.09.0355.
14. **Babaeian, E.**, Homae, M. Montzka, C., Vereecken, H. and Norouzi, A. A. 2015a. Towards retrieving soil hydraulic properties by hyperspectral remote sensing. *Vadose Zone Journal*. doi: 10.2136/vzj2014.07.0080.
15. **Babaeian, E.**, Homae, M. and Rahnemaie, R. 2016. Chelate-enhanced phytoextraction and phytostabilization of lead contaminated soils by carrot (*Daucus carota*). *Archives of Agronomy and Soil Science*. doi:10.1080/03650340.2015.1060320.

*Conference Presentations and Published Abstracts*

2021

1. **Babaeian, E.**, Paheding, S., Siddique, N., Devabhaktuni, V.K., and TULLER, M. 2021. Forecasting of Evapotranspiration from Ground and Remote Sensing Observations with Deep Learning. AGU Fall Meeting, New Orleans, LA, Dec. 13-17, 2021.
2. **Babaeian, E.**, Gohardoust, M.R., and TULLER, M. 2021. High Resolution Three-Dimensional Mapping of Vegetation Water Content via Fusion of SWIR Reflectance and Canopy Laser Topography. AGU Fall Meeting, New Orleans, LA, Dec. 13-17, 2021.
3. **Babaeian, E.**, Paheding, S., Siddique, N., Devabhaktuni, V.K., and TULLER, M. 2021. Application of Long Short-Term Memory Deep Learning for Forecasting of Evapotranspiration from Ground and Satellite Observations. ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, UT, Nov. 7-10, 2021.
4. **Babaeian, E.**, Gohardoust, M.R., and TULLER, M. 2021. A New Approach to Short-Wave Infrared Remote Sensing of Plant Canopy Water Content. ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, UT, Nov. 7-10, 2021.
5. Bandai, T., Sadeghi, M., **Babaeian, E.**, TULLER, M., JONES, S.B., and Ghezzehei, T.A. 2021. Characterization of Unsaturated Water Flow in Soils Using Short-Wave Infrared Imaging through Inverse Modeling. ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, UT, Nov. 7-10, 2021

2020

6. **Babaeian, E.**, French, A.N., Saber, M., Sanchez, C.A., & Tuller, M. 2020. A New Crop Water Stress Index for Desert Agriculture Derived from Satellite Observations and Soil Hydraulic Parameters. AGU Fall Meeting, Dec. 1-17, 2020. San Francisco, CA, USA. (Oral)
7. **Babaeian, E.**, Paheding, S., Siddique, N., Devabhaktuni, V.K., & Tuller, M. 2020. Application of Deep Learning for Regional Evapotranspiration Projections based on Satellite and Weather Observations. AGU Fall Meeting, Dec. 1-17, 2020. San Francisco, CA, USA.
8. **Babaeian, E.**, French, A.N., Saber, M., Sanchez, C.A., & Tuller, M. 2020. A New Remote Sensing-Based Crop Water Stress Index for Irrigation Scheduling. SSSA, CSSA Annual Meeting, Nov. 9-13, 2020. Phoenix, AZ, USA. (Invited Talk)
9. **Babaeian, E.**, Gohardoust, M.R., White, S., & Tuller, M. 2020. Evaluation of the SoilVUE TDR Soil Moisture and Temperature Profiling Sensor. SSSA, CSSA Annual Meeting, Nov. 9-13, 2020. Phoenix, AZ, USA. (Oral)
10. **Babaeian, E.**, Paheding, S., Siddique, N., Devabhaktuni, V.K., & Tuller, M. 2020. Root Zone Moisture Retrievals from Ground and Remotely Sensed Soil Data with AutoML. SSSA, CSSA Annual Meeting, Nov. 9-13, 2020. Phoenix, AZ, USA.
11. Van Haren, J.L.M., Kuehnhammer, K., Kübert, A., Dubbert, M., Tuller, M., **Babaeian, E.**, Beyer, M. Meredith, L.K., Werner, C. 2019. Water cycling (pools and movement) through an enclosed tropical forest in response to drought. EGU Fall Meeting 2020. May 3-8, 2020. Vienna, Austria.
12. Condorelli, G., Newcomb, Groli, E.L., N. ZENDONADI, M. MACCAFERRI, E. FRASCAROLI, E. **Babaeian, E.**, M.TULLER, O. MULLER, T.C. MOCKLER, N. SHAKOOR, J.WHITE, R. WARD, and R. TUBEROSA, 2020. Dissecting the QTLome for Osmotic Adjustment and Chlorophyll

Fluorescence in Field Grown Durum Wheat. Plant and Animal Genome XXVIII Conference, San Diego, CA, Jan. 11-15, 2020.

## 2019

13. **Babaeian, E.**, Newcomb, M., Sidike, P., Ward, R., Sagan, V., Tuller, M. 2019. Remote Sensing of Crop Water Stress and Water Use Efficiency. SSSA, CSSA Annual Meeting, Nov. 10-13, 2019. San Antonio, TX, USA. (Oral)
14. **Babaeian, E.**, White, S.A., Tuller, M. 2019. Field Evaluation of the ecoTech Tensiomark Matric Potential Sensor for Hydraulic Soil Characterization. SSSA, CSSA Annual Meeting, Nov. 10-13, 2019. San Antonio, TX, USA.
15. **Babaeian, E.**, Ward, R., Newcomb, M., Sadeghi, M., Jones, S. B., and Tuller, M. 2018. A new unmanned Aircraft-Assisted Optical Trapezoid Model for Soil Moisture Assessment. AGU fall meeting. Dec. 10-14, 2018. Washington DC, USA.
16. **Babaeian, E.**, Sadeghi, M., Jones, S. B., and Tuller, M. 2019. Relating Evapotranspiration Rate, Soil and Plant Temperature, and SWIR Reflectance for Root Water Uptake Estimation. SSSA, CSSA Annual Meeting, Jan. 6-9, 2019. San Diego, CA, USA.
17. **Babaeian, E.**, Newcomb, M., Ward, R., Sadeghi, M., Jones, S. B., and Tuller, M. 2019. High Resolution Unmanned Aerial Systems Imaging for Soil Moisture Assessment for Precision Agriculture Applications. SSSA, CSSA Annual Meeting, Jan. 6-9, 2019. San Diego, CA, USA.
18. Sadeghi, M., **Babaeian, E.**, Tuller, M., and Jones, S. B. 2019. Advancing Hydrological Remote Sensing Using New Principles of Soil Physics. SSSA, CSSA Annual Meeting, Jan. 6-9, 2019. San Diego, CA, USA.
19. Sadeghi, M., **Babaeian, E.**, Tuller, M., and Jones, S. B. 2019. Soil Texture Effects on Spectral Reflectance. SSSA, CSSA Annual Meeting, Jan. 6-9, 2019. San Diego, CA, USA.
20. Jones, S. B., Naruk, C., Sheng, W., Zhou, R., Sadeghi, M., Parajuli, K., **Babaeian, E.**, Tuller, M. 2019. Determination and Validation of Surface Soil Moisture Using Novel Gravimetric-, Dielectric- and SWIR Reflectance-Based Approaches. SSSA, CSSA Annual Meeting, Jan. 6-9, 2019. San Diego, CA, USA. (Oral)

## 2018

21. Jones, S.B., Sheng, W., Zhou, R., Sadeghi, M., **Babaeian, E.**, Tuller, M. 2018. Soil-Water Content and Water Flux Profiles Determined by SWIR Imaging and TDR Array. EGU General Assembly, Vienna, Austria.
22. **Tuller, M.**, Robinson, D.A., **Babaeian, E.**, Sadeghi, M., Zhou, R., Sheng, W., Jones, S.B. 2018. High Resolution Monitoring of Near-Surface Soil Hydrodynamics using a Novel TDR Array. EGU General Assembly, Vienna, Austria.

## 2017

23. **Babaeian, E.**, Sadeghi, M., Franz, T.B., Jones, S.B., Tuller, M. 2017. Validation of SMAP root zone soil moisture estimates with improved cosmic-ray neutron probe observations. AGU fall meeting. Dec. 11-15, 2017. New Orleans, USA. (Oral)
24. Sadeghi, M., **Babaeian, E.**, Tuller, M., Jones, S.B. 2017. Optical remote sensing of evapotranspiration. AGU fall meeting. Dec. 11-15, 2017. New Orleans, USA.

26. **Babaeian, E.**, Sadeghi, M., Jones, S.B., Tuller, M. 2017. Evaluation of novel optical trapezoid model for estimation of large-scale root zone soil moisture based on MODIS satellite observations and reference Cosmic-ray measurements. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA.
26. **Babaeian, E.**, E., Sadeghi, Gohardoust, M.R., Arthur, E., Jones, S.B., Tuller, M. 2017. Application of Shortwave Infrared Imaging for Estimation of Soil Hydraulic Properties. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA.
27. Sadeghi, M., Sheng, W., **Babaeian, E.**, Jones, S.B., Tuller, M. 2017. Application of Shortwave Infrared Imaging for Estimation of Soil Water Content and Flux Profiles. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA.
28. Sadeghi, M., **Babaeian, E.**, Tuller, M., Jones, S.B. 2017. Effects of Particle Size on Soil Reflectance. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA.
29. Gholoubi, A., Sadeghi, M., Jones, S.B., **Babaeian, E.**, Tuller, M. 2017. A Novel Remote Sensing Approach to Quantifying Soil Stability. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA.
30. Ghafari, E., Sadeghi, M., **Babaeian, E.**, Jones, S.B., Tuller, M. 2017. New Physical Algorithms for Downscaling SMAP Soil Moisture. AGU fall meeting. Dec. 11-15, 2017. New Orleans, USA.
31. Sheng, W., Zhou, R., Sadeghi, M., **Babaeian, E.**, Tuller, M., Anderson, S.K., Jones, S.B. 2017. Printed Circuit Board Time Domain Reflectometry Sensors for Near-Surface Soil Moisture Measurement. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA. (Oral)
32. Effati, M., Bahrami, H.A., **Babaeian, E.**, Tuller, M. 2017. Application of satellite remote sensing for mapping and monitoring of saline dust emission sources in the Urmia lake watershed in Iran. SSSA, ASA, CSSA Annual Meeting, Oct. 22-25, 2017. Florida, USA.

## 2016

33. **Babaeian, E.**, Sadeghi, M., Sheng, W., Zhou, R., Jones, S., Tuller, M. 2016. Relating surface reflectance and near-surface soil moisture to improve ground-truth calibration of optical remote sensing. SSSA, ASA, CSSA Annual Meeting. November 7-9, 2016. Phoenix, USA.
34. **Babaeian, E.**, Sadeghi, M., Jones, S., Tuller, M. 2016. High resolution mapping of surface soil moisture with hyperspectral line-scan imaging. SSSA, ASA, CSSA Annual Meeting. November 7-9, 2016. Phoenix, USA.
35. Sadeghi, M., **Babaeian, E.**, Tuller, M., Jones, S. 2016. A novel optical approach to satellite-based remote sensing of soil moisture. SSSA, ASA, CSSA Annual Meeting. November 7-9, 2016. Phoenix, USA. (Oral)
36. Sadeghi, M., Tabatabaenejad, A., Tuller, M., **Babaeian, E.**, Jones, S. 2016. A new solution to Richard's equation for application to P-band radar remote sensing of root zone soil moisture. SSSA, ASA, CSSA Annual Meeting. November 7-9, 2016. Phoenix, USA.
37. **Babaeian, E.**, Sadeghi, M., Tuller, M., Jones, S. 2016. A novel optical model for remote sensing of near-surface soil moisture. AGU Fall Meeting 2016. December 12-16, 2016. San Francisco, USA.
38. **Babaeian, E.**, Sadeghi, M., Jones, S., Tuller, M. 2016. A comprehensive laboratory study to improve ground truth calibration of remotely sensed near-surface soil moisture. AGU Fall Meeting 2016. December 12-16, 2016. San Francisco, USA.

39. Sadeghi, M., Tabatabaenejad, A., Tuller, M., **Babaeian, E.**, Jones, S. 2016. Application of Richard's equation for P-band radar remote sensing of root zone soil moisture. AGU Fall Meeting 2016. December 12-16, 2016. San Francisco, USA.

## 2014

40. **Babaeian E.**, Homae M., Vereecken H., Montzka C., Norouzi A.A., van Genuchten M.Th. 2014. Retrieving soil hydraulic properties by diffuse spectral reflectance data in Vis-NIR-SWIR range. AGU fall meeting, San Francisco, USA.
41. **Babaeian, E.** Homae, and Norouzi, A.A. 2014. Using visible-near infrared spectroscopy to predict some soil properties in a semi-arid region of Iran. 20<sup>th</sup> World Congress of Soil Science, June 8-13, 2014, Jeju, Korea.
42. **Babaeian, E.** Homae, M. Vereecken, H. Montzka, C. and Norouzi, A.A. 2014. Using hyper-spectral data to estimate the van Genuchten-Mualem soil hydraulic properties. 20<sup>th</sup> World Congress of Soil Science, June 8-13, 2014, Jeju, Korea.
43. **Babaeian, E.** Homae, M. Norouzi, A.A. and M. Dehghani. 2014. Retrieving soil surface water content from ENVISAT/ASAR data. 20<sup>th</sup> World Congress of Soil Science, June 8-13, 2014, Jeju, Korea.

## 2012

44. **Babaeian E.**, and Homae, M. 2012. Estimating Soil Hydraulic Properties of undisturbed soils Using Infiltration Method, 8<sup>th</sup> International Congress of Soil Science, 15-17 May 2012, Çeşme-İzmir-TURKEY
45. **Babaeian E.**, and Homae, M. 2012. Chelate-induced Phytoextraction of Lead Contaminated Soils by Land Cress (*Barbarea Verna*), 8<sup>th</sup> International Congress of Soil Science, 15-17 May 2012, Çeşme-İzmir-TURKEY
46. **Babaeian E.**, Homae, M., and Rahnemaie, R. 2012. Chelate-enhanced Phytoextraction and Phytostabilization of Lead Contaminated Soils by Carrot, *Daucus Carrota*, 8<sup>th</sup> International Congress of Soil Science, 15-17 May 2012, Çeşme-İzmir-TURKEY
47. **Babaeian, E.**, Zare, A.A., Mallah, S., Bahrami, H.A., and Bahrami, A. 2012. Dust Storm Monitoring and its Relation with Global Warming and Climate Change, 8<sup>th</sup> International Congress of Soil Science, 15-17 May 2012, Çeşme-İzmir-TURKEY
48. **Babaeian, E.**, Bahram, A., Bahrami, H.A., and Sharifi, F. 2012. Climatic Controls of Dust Emissions in Western Iran: An Examination based on Dust Storm Frequency from 1975 to 2005, 8<sup>th</sup> International Congress of Soil Science, 15-17 May 2012, Çeşme-İzmir-TURKEY

## 2011

49. **Babaeian E.**, and Homae, M. 2011. Enhancing Lead Phytoextraction of Carrot Using Different Chelating Agents. Environmental Pollution and Public Health, May 13-15, 2011, Wuhan, China.

## V. Funded Competitive Grant Proposals

### *2016-2018, \$650,000, NSF-EAR-Hydrologic Sciences*

Title: Novel in Situ Measurement and Remote Sensing Techniques for Characterization of Near-Surface Soil Hydrology (Collaborative project)

PDs: Scott B. Jones (Utah State University), Markus Tuller (University of Arizona).

Collaborators: Morteza Sadeghi; **Ebrahim Babaeian**

**2017-2018; \$134,000; DoE Advanced Research Projects Agency-Energy (ARPA-E) & UA**

Title: Novel Approaches to Remote Sensing of Earth Surface Properties and Processes; Applicable to Agricultural and Natural Resources Management (A part of the Project titled: A reference phenotyping system for energy sorghum)

Co-PD: Markus Tuller (University of Arizona)

Collaborator: **Ebrahim Babaeian** (University of Arizona)

**2020-2022, \$500,000, USDA-NIFA 2020**

Title: A Novel Approach to Remote Sensing of Evapotranspiration to Improve Water Use Efficiency Across Crop Production Systems

PD: Markus Tuller (University of Arizona)

Co-PD: **Ebrahim Babaeian** (University of Arizona)

**2019-2020, \$15,410, Yuma Center of Excellence for Desert Agriculture (YCEDA) & CALS**

Title: Evaluation of a Novel Approach to Near Real-Time Estimation of Crop Water Consumption from Satellite and Drone Observations.

PD: Markus Tuller (University of Arizona)

Co-PD: **Ebrahim Babaeian** (University of Arizona)

## VI. Teaching

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|-------------|---|
| Fall 2021   | <b>Modeling of Mass and Energy Flow in Soils</b> (ABE/ENVS/HWRS 506) (Graduate course); Department of Environmental Science, The University of Arizona  |
| Spring 2021 | <b>Soil Physics Laboratory</b> (ENVS 470/570) (Graduate & Undergraduate); Department of Environmental Science, The University of Arizona  |
| Spring 2020 | <b>Soil Physics</b> (ENVS 470/570) (Graduate & Undergraduate); Department of Environmental Science, The University of Arizona   |
| Spring 2020 | <b>Soil Physics Laboratory</b> (ENVS 470/570) (Graduate & Undergraduate); Department of Environmental Science, The University of Arizona  |
| Spring 2019 | <b>Soil Physics</b> (SWES 470/570) (Graduate & Undergraduate); Department of Soil, Water and Environmental Science, The University of Arizona   |
| Spring 2019 | <b>Soil Physics Laboratory</b> (SWES 470/570) (Graduate & Undergraduate); Department of Soil, Water and Environmental Science, The University of Arizona  |
| Fall 2019   | <b>Modeling of Mass and Energy Flow in Soils</b> (ABE/ENVS/HWRS 506) (Graduate course), Department of Soil, Water and Environmental Science, The University of Arizona (co-taught with Markus Tuller) |
| Spring 2018 | <b>Soil Physics</b> (SWES 470/570) (Graduate & Undergraduate); Department of Soil, Water and Environmental Science, The University of Arizona   |
| Spring 2018 | <b>Soil Physics Laboratory</b> (SWES 470/570) (Graduate & Undergraduate); Department of Soil, Water and Environmental Science, The University of Arizona  |
| Fall 2018   | <b>Modeling of Mass and Energy Flow in Soils</b> (ABE/ENVS/HWRS 506) (Graduate course), Department of Soil, Water and Environmental Science, The University of Arizona (co-taught with Markus Tuller) |
| Spring 2012 | <b>Soil and Environmental Physics</b> (Undergraduate); Department of Soil and Water, Faculty of Agriculture, Payam-Noor University, Tehran, Iran  |



## VII. Teaching Assistant

Fall 2010      **Advanced Soil Physics** (Undergraduate course, soil physics seminars), Department of Soil Science, Tarbiat Modares University, Tehran

## VIII. Advising and Mentoring

- Brenda, N Ibarra-Castillo. 2019. A novel approach for estimation of farm scale actual crop water consumption from remotely-sensed surface soil moisture. The University of Arizona, Tucson, USA.
- Shokri, Shekoofeh. 2019. Estimation and monitoring of soil moisture content at farm scale using unmanned aerial vehicles and satellites for management and accurately planning of irrigation for precision Agriculture. Chamran University of Ahvaz, Iran.
- Moghadami, Mostafa, Ph.D. student, 2016. Title: Estimating soil erosion form forest soils tranches using hyperspectral information. Department of Forest science, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran
- Effati, Mohaddese, visiting Ph.D. student from Tarbiat Modares University, 2017. Identifying and classifying saline dust storm sources using soil spectroscopy and remote sensing in Urmia Lake, Iran. Soil Water and Environmental Science Department, The *University of Arizona*, Tucson, USA.
- Juan R. Gonzalez Cena, Ph.D. student, 2017. Title: Evaluation of sequential and conventional flood irrigation methods under field conditions, Soil Water and Environmental Science Department, The *University of Arizona*, Tucson, USA.
- Dastourani, Ali, M.Sc. student. 2016. Title: Estimating some physicochemical properties of Hormoz island soils using soil spectroscopy. Department of Soil Science, Tarbiat Modares University, Tehran, Iran.
- Karimi, Salahodin, M.Sc. student, 2016. Title: Prediction of physical and mechanical properties of soil using soil spectral reflectance data. Department of Soil Science, Kordestan University, Kordestan, Iran.
- Hoseini, Vida, M.Sc. student, 2018. Title: Fractal-based estimation of soil water characteristics using soil spectral reflectance data. Department of Soil Science, Kordestan University, Kordestan, Iran.

## IX. Honors and Awards

- Outstanding Ph.D. student Award
- Outstanding M.Sc. student Award
- Outstanding B.Sc. student Award
- Outstanding Dissertation Award, Water, Drought, Erosion and Environment council of Vice-presidency for Science and Technology, National Festival of Water Technologies, 2015, Tehran, Iran

## X. Conference Session Organization and Chair

- Poster Session – Agriculture, Forestry and Natural Resources Monitoring with Smart Unmanned Aircraft Systems. AGU Meeting, San Francisco, 1-17 Dec. 2020.
- Poster Session - Smart Farming and Land Management Enabled by Remotely Sensed Big Data. AGU Meeting, San Francisco, 9-13 Dec. 2019.

- Oral & Poster Sessions - Advances in Remote Sensing of Land Surface Properties and Processes, SSSA-CSSA Annual Meeting, San Diego, California, Jan. 6–9, 2019.
- Symposium – Proximal and Remote Sensing Techniques in Soil Physics and Hydrology, ASA-CSSA-SSSA Annual Meeting, Tampa, Florida, October 22–25, 2017.
- Oral & Poster Sessions – Proximal and Remote Sensing Techniques in Soil Physics and Hydrology, ASA-CSSA-SSSA Annual Meeting, Tampa, Florida, October 22–25, 2017.
- Symposium – Remote Sensing of Land Surface and Vadose Zone Hydrologic Processes, ASA-CSSA-SSSA Annual Meeting, Phoenix, Arizona, November 6–9, 2016.
- Oral & Poster Sessions – Remote Sensing of Land Surface and Vadose Zone Hydrologic Processes, ASA-CSSA-SSSA Annual Meeting, Phoenix, Arizona, November 6–9, 2016.

#### **XI. Professional Memberships**

- American Geophysical Union (AGU)
- Soil Science Society of America (SSSA)
- International Society for Photogrammetry and Remote Sensing (ISPRS)

#### **XII. Journal Peer Review Services**

- Remote Sensing of Environment (RSE)
- Water Resources Research (WRR)
- Journal of Hydrology (JH)
- Earth Science Reviews (ESR)
- Vadose Zone Journal (VZJ)
- Soil Science Society of American Journal (SSSAJ)
- ISPRS Journal of Photogrammetry and Remote Sensing
- Canadian Journal of Soil Science (CJSS)
- ASPRS Photogrammetric Engineering & Remote Sensing (PERS)
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- Remote Sensing (RS)
- ISPRS International Journal of Geo-Information
- Irrigation and Drainage
- Applied Geomatics
- International Journal of Remote Sensing (IJRS)
- International Journal of Remote Sensing and Remote Sensing Letters
- Soil Science and Plant Nutrition Journal (SSPNJ)

#### **XIII. Other Professional Services**

- Earth Week & Soil Water and Environmental Science (ENVision) Graduate Student Oral Competition Judge, March. 27<sup>th</sup>, 2021. The University of Arizona, Tucson. USA.
- Graduate Student Oral & Poster Competition Judge. Soil Physics & Hydrology Division, Session Title: Measurement Advances for Determination of Soil Physical Properties and Processes. SSSA, CSSA Annual Meeting, Nov. 9-13, 2020.
- Graduate Student Oral & Poster Competition Judge. Soil Physics & Hydrology Division, Session Title: Advances in Soil Physics and Hydrology Oral. SSSA, CSSA Annual Meeting, Nov. 9-13, 2020.
- Earth Week & Soil Water and Environmental Science (SWES-x) Graduate Student Oral Competition Judge, March. 27<sup>th</sup>, 2019. The University of Arizona, Tucson. USA.

- Earth Week & Soil Water and Environmental Science (SWES-x) Graduate Student Poster Competition Judge, March. 28<sup>th</sup>, 2019. The University of Arizona, Tucson. USA.
- Soil Water and Environmental Science Department Graduate Student Poster Competition Judge, Oct. 4<sup>th</sup>, 2017. The University of Arizona, Tucson. USA.
- Soil Water and Environmental Science Department Research Symposium, Graduate Student Poster Competition Judge, March 31<sup>st</sup> - April 1<sup>st</sup>, 2016. The University of Arizona, Tucson. USA.