

## MAJDI ABOU NAJM

### Academic Qualifications

PhD	Water resources management and hydrology, Purdue University, West Lafayette, Indiana, 2009
ME	Environmental and Natural Resources Engineering, American University of Beirut, Beirut, Lebanon, 2000
BE	Civil & Environmental Engineering, American University of Beirut, Lebanon, 1998

### Work experience

Date	University/Company	Position last held
02-12 to present	American University of Beirut, Lebanon	Assistant Professor, Civil & Environmental Engineering Department
01-11 to 01-12	Massachusetts Institute of Technology (MIT)	Visiting Scientist, Civil & Environmental Engineering
12-10 to 01-12	Oregon State University	Research Assistant Professor, Sr. Researcher, Biological & Ecological Engineering
12-08 to 12-10	Purdue University, IN	Research Associate, Department of Agricultural & biological Engineering
2005 to 2008	Purdue University, IN	Graduate Research Assistant, Department of Agricultural & biological Engineering
2000 to 2005		Environmental Engineering and Regional Planning Consulting in Nigeria and Lebanon
1998 to 2000	American University of Beirut, Lebanon	Graduate Research Assistant, Department of Civil & Environmental Engineering
1995 to 1997	American University of Beirut, Lebanon	Lab Assistant at the Soil Mechanics Lab, Department of Civil & Environmental Engineering

### Selected Publications

#### Peer Reviewed Journal Publications

1. Mortada S, **M. Abou Najm**, Yassine A, El Fadel M, Alamiddine I, (2018) Towards sustainable water-food nexus: An optimization approach, *Journal of Cleaner Production*, doi: 10.1016/j.jclepro.2018.01.020. 187:408-418
2. R. Stewart and **M. Abou Najm**, A comprehensive model for single ring infiltration 1: Influence of initial water content and soil hydraulic properties (2018), *Soil Science Society of America Journal*. doi: 10.2136/sssaj2017.09.0313. 82:548-557
3. R. Stewart and **M. Abou Najm**, A comprehensive model for single ring infiltration 2: Estimating field-saturated hydraulic conductivity (2018), *Soil Science Society of America Journal*. doi: 10.2136/sssaj2017.09.0314. 82:558-567
4. I. Alameddine, A. Fayyad, **M. Abou Najm**, M. El-Fadel (2018) Sustainability of basin level development under a changing climate. *International Journal of Sustainable Development and Planning*. 13(3):394-405.
5. R. Stewart and **M. Abou Najm**, A brief overview of field measurements of soil cracks (2018), *Soil Science Society of America Journal*. doi:10.2136/sssaj2018.01.0044. 82:547-547
6. R. Quba'a, I. Alameddine, M. El-Fadel, **M. Abou Najm** (2018) Modeling the Depletion of Groundwater Storage over Time in the Levant: Lessons Learned from a Water Stressed Region, *Environmental Earth Sciences*, In Press
7. Safi A., Rachid G., El-Fadel M., Doummar J., **Abou Najm M.**, Alameddine I. (2018) Synergy of climate change and local pressures on saltwater intrusion in coastal urban areas: effective adaptation for policy planning, *Water International*, doi: 10.1080/02508060.2018.1434957
8. G. Rachid, M. El-Fadel, **M. Abou Najm**, I. Alameddine. (2017) Towards a framework for the assessment of saltwater intrusion in coastal aquifers. *Environmental Impact Assessment Review*. 67:10-22

9. D. Abdulbaki, M. Al-Hindi, A. Yassine, **M. Abou Najm**, (2017) An optimization model for the allocation of water resources, *Journal of Cleaner Production*. 164 (2017) 994e1006
10. M. Tomaszekiewicz, **M. Abou Najm**, R. Zurayk, M. El-Fadel, (2017) Dew as an Adaptation Measure to Meet Water Demand in Agriculture and Reforestation, *Agricultural and Forestry Meteorology*. doi: 10.1016/j.agrformet.2016.09.009
11. **M. Abou Najm** and N. Atallah, (2016) Non-Newtonian Fluids in Action: Revisiting Hydraulic Conductivity and Pore Size Distribution of Porous Media, *Vadose Zone journal*. doi: 10.2136/vzj2015.06.0092
12. R. Quba'a, M. El-Fadel, **M. Abou Najm**, I. Alameddine, (2017) Comparative assessment of joint water development initiatives in the Jordan River basin, *International Journal of River Basin Management*. DOI: 10.1080/15715124.2016.1213272
13. M. Tomaszekiewicz, **M. Abou Najm**, D. Beysens, I. Alameddine, E. Bou Zeid, M. El-Fadel, (2016) Projected climate change impacts upon dew yield in the Mediterranean basin. *Science of the Total Environment*. doi:10.1016/j.scitotenv.2016.05.195. (566–567): 1339–1348
14. Stewart, R.; **Abou Najm, M.**; Rupp, D.; and J. Selker, (2016) Modeling multi-domain hydraulic properties of shrink-swell soils, *Water Resources Research*. DOI: 10.1002/2016WR019336
15. Stewart, R.; Rupp, D.; **Abou Najm, M.**; and J. Selker, (2016) A unified model for soil shrinkage, subsidence, and cracking. *Vadose Zone Journal*, doi: 10.2136/vzj2015.07.0104
16. H. Kassem, D. Al Hassanieh, M. Mrad, G. Chehab, and **M. Abou Najm** (2016) Method to Investigate Mix Design Parameters of Pervious Concrete Mixtures, *Journal of the Transportation Research Board*, No. 2577, pp. 43–52. DOI: 10.3141/2577-06
17. M. Tomaszekiewicz, **M. Abou Najm**, D. Beysens, I. Alameddine, M. El-Fadel, (2015) Dew as a Sustainable Non-Conventional Water Resource: A Critical Review. *Environmental Reviews*. DOI: 10.1139/er-2015-0035
18. N. Atallah, M. El-Fadel, S. Ghanimeh, P. Saikaly, **M. Abou Najm**, (2014) Performance optimization and validation of ADM1 simulations under anaerobic thermophilic conditions, *Bioresource Technology*. 174: 243–255.
19. M. Tomaszekiewicz, **M. Abou Najm**, M. El-Fadel (2014). Development of a groundwater quality index for seawater intrusion in coastal aquifers. *Environmental Modeling & Software*. 57: 13-26.
20. Stewart, R. D., **M. R. Abou Najm**, D. E. Rupp, John W. Lane, Hamil C. Uribe, Jose Luis Arumí, and J. Selker. (2014). Hillslope runoff thresholds in shrink-swell clay soils. *Hydrological Processes*.
21. M. El-Fadel, M. Tomaszekiewicz, M. Adra, S. Sadek, **M. Abou Najm** (2014) GIS-based assessment for the development of a groundwater quality index towards sustainable aquifer management. *Water Resources Management*. DOI 10.1007/s11269-014-0683-2
22. R.D. Stewart, **M. Abou Najm**, D. Rupp, J. Selker (2014) Nondestructive Quantification of Macropore Volume using Shear-Thinning Fluid. *Soil Science Society of America Journal*. doi:10.2136/sssaj2013.08.0346
23. Stewart, R.; Rupp, D.; **Abou Najm, M.**; and Selker, J. (2013) Modeling effect of initial soil moisture on sorptivity and infiltration. *Water Resources Research*. DOI: 10.1002/wrcr.20508
24. Jung, S.; Drnevich, V.; **Abou Najm, M.** (2013) New Methodology for Density and Water Content by Time Domain Reflectometry. *ASCE Journal of Geotechnical & Geo-environmental Engineering*. 139:659-670.
25. Jung, S.; Drnevich, V.; **Abou Najm, M.** (2013) Temperature Corrections for Time Domain Reflectometry Parameters. *ASCE Journal of Geotechnical & Geo-environmental Engineering*. 139:671-683.
26. Stewart, R. D., **M. R. Abou Najm**, D. E. Rupp, J. S. Selker. (2012). An image-based method for determining bulk density and the soil shrinkage curve, *Soil Science Society of America Journal*, 76(4): 1217-1221.
27. Stewart, R. D., **M. R. Abou Najm**, D. E. Rupp, J. S. Selker. (2012). Measurement tool for dynamics of soil cracks, *Vadose Zone Journal*, doi: 10.2136/vzj2011.0048. Vol. 11 No. 2.
28. **Abou Najm, M.** Jesiek, J. Sant, G. Lura, P. Mohtar, M. (2012). Assessing the Role of the Pore Solution Concentration on Horizontal Deformations in an Unsaturated Soil Specimen during Drying. *Geoderma*. 187-188:31-40.

29. Sanders, E. C., **M. R. Abou Najm**, R. H. Mohtar, E. Kladvko, and D. Schulze (2012), Field method for separating the contribution of surface-connected preferential flow pathways from flow through the soil matrix, *Water Resour. Res.*, 48, W04534, doi:10.1029/2011WR011103
30. **Abou Najm, M.**, J. D. Jabro, W. M. Iversen, R. H. Mohtar, and R. G. Evans (2010). New method for the characterization of three-dimensional preferential flow paths in the field, *Water Resources Research*, 46, W02503, doi:10.1029/2009WR008594.
31. **Abou Najm, M.**, Mohtar, R., Cherkauer, K., and French, B. (2010). Effect of integrating hydrologic scaling on students learning and decision making experiences. *Advances in Engineering Education Journal* Volume 2, Number 1, 20 Pages.
32. **Abou Najm, M.**, R. H. Mohtar, J. Weiss, and E. Braudeau (2009), Assessing internal stress evolution in unsaturated soils, *Water Resources Research*, 45, W00C11, doi:10.1029/2007WR006484
33. **Abou-Najm, M.** and El-Fadel M. (2004). Computer-Based Interface for an Integrated Solid Waste Management Optimization Model, *Journal of Environmental Modeling and Software*, Volume 19, Number 12, 1151-1164.
34. **Abou Najm M.**, El-Fadel M., Ayoub G. El-Taha M. and Al-Awar F. (2002). An optimization model for regional integrated solid waste management: I. Model formulation, *Waste Management & Research*, 20, 37-45, 2002.
35. **Abou Najm M.**, El-Fadel M., Ayoub G. El-Taha M. and Al-Awar F. (2002). An optimization model for regional integrated solid waste management: II. Model application and sensitivity analysis, *Waste Management & Research*, 20, 46-54.
36. El-Fadel M. and **Abou Najm, M.** (2002). Economic and environmental optimization of integrated solid waste management systems, *Journal of Solid Waste Technology and Management*, 28, 4, 222-232.
37. El-Fadel M., **Abou Najm M.** and Sbayti H. (2000). Air quality control at congested urban intersections, USDOT, *Journal of Transportation and Statistics*, 3, 2, 85-103.

#### **Book Chapters**

38. R. Stewart and **M. Abou Najm**, Field measurement of soil cracks (2017), *Methods of Soil Analysis*. Volume 2(1). doi:10.2136/msa2015.0043
39. **M. Abou Najm**, H. Hasan, I. Alameddine, A. Fayyad, M. El-Fadel (2017) Onsite graywater reclamation towards alleviating water shortages at the household level. *WIT Transactions on Ecology and the Environment*. 216: 87-99.
40. R. Quba'a, M. El-Fadel, I. Alameddine, **M. Abou Najm** (2017) The role of groundwater in water allocation along the Jordan river basin. *WIT Transactions on Ecology and the Environment*. 221:97-108. DOI: 10.2495/RBM170111
41. R. Quba'a, M. El-Fadel, I. Alameddine, **M. Abou Najm** (2017) A positive apportionment framework towards enhancing cooperation in the Jordan river basin. *WIT Transactions on Ecology and the Environment*. 220:3-13. DOI: 10.2495/WRM170011
42. El-Fadel, M.; Tomaszewicz, M.; **Abou Najm, M.** (2013) Sustainable coastal aquifer management in urban areas: The role of groundwater quality indices. 4<sup>th</sup> Global Forum on Urban Resilience & Adaptation. Resilient Cities 2013. Bonn, Germany May 31-June 2, 2013.
43. El-Fadel M., **Abou Najm M.**, Maroun, R., Lichaa El-Khoury D., Bou-Fakr Eldin R., and El-Samra R. (2012). DSS for Wastewater Management at a River Basin Scale. *IWA World Congress on Water, Climate and Energy* May 13-18 2012, Dublin, Ireland.
44. El-Fadel M., Maroun R., Aldeen R.B.F., El-Khoury D.L. and **Abou Najm M.A.** (2011). Lebanon: Health Valuation of Water Pollution at the Upper Litani River Basin. In: Nriagu JO (ed.) *Encyclopedia of Environmental Health*, volume 3, pp. 436-447 Burlington: Elsevier.
45. El-Fadel M., **Abou Najm M.** and Sbayti H. Intersection management alternatives: I. Air quality impacts. In Urban Transport V: Urban Transport and the Environment for the 21st Century, (Sucharov L.J., ed.) WIT Press, Southampton, UK, 83-92, 2000.
46. El-Fadel M., Sbayti H. and **Abou Najm M.** Intersection management alternatives: II. Noise impacts. In Urban Transport V: Urban Transport and the Environment for the 21st Century, (Sucharov L.J., ed.) WIT Press, Southampton, UK, 513-522, 2000.

#### **ASTM Standards**

47. **ASTM Standard: D 6780 - 12:** Water Content and Density of Soil In situ by Time Domain Reflectometry (TDR).

#### **Patents and Patents Applications**

48. Time Domain Reflectometry for Characterizing Soils. US 2013/0110398 A1.
49. Time Domain Reflectometry for Characterizing Soils (2017). US 9,696,292 B2.

50. Copyrighting of “Btifroz” campaign: a citizen-science approach to solid waste separation at the source at community scale.

#### ***Conferences (Papers and Abstracts with Oral or Poster Presentations)***

51. R. Khattar, **M. Abou Najm**, M. Al-Hindi, A. Yassine, F. Hamzeh. Water-Energy-Food-Carbon Nexus: An Optimization Approach. Abstract # EGU 2018-10371, ERE1.2 – Energy and environmental system interactions – Policy and modelling. EGU General Assembly 2018. Vienna 8-13 April, 2018.
52. C Basset, **M. Abou Najm**, R. Stewart, S Hauswirth, G. Saad. Physically based model for extracting dual permeability parameters using non-Newtonian fluids. Abstract # EGU 2018-10309, SSS7.3/HS8.3.11 – Soil water Infiltration. Measurements, assessment and modeling. EGU General Assembly 2018. Vienna 8-13 April, 2018.
53. Z. Chamas, **M. Abou Najm**, M. Al-Hindi, A. Yassine, F. Hamzeh. Incorporating Nitrogen in the water-energy-food nexus: an optimization approach. Abstract # EGU 2018-10421, ERE1.1 Energy, Resources & the Environment. EGU General Assembly 2018. Vienna 8-13 April, 2018.
54. S. Bouarafa, R. ANGULO JARAMILLO, L. LASSABATERE and **M. Abou Najm**. Single ring Beerkan infiltration of Newtonian and non-Newtonian fluids for hydraulic SuDS (Sustainable Drainage Systems) characterization. Abstract # EGU 2018-991, SSS7.3/HS8.3.11 – Soil water Infiltration. Measurements, assessment and modeling. EGU General Assembly 2018. Vienna 8-13 April, 2018.
55. C Basset, **M. Abou Najm**, R. Stewart, S Hauswirth. Physically based model for extracting dual permeability parameters using non-Newtonian fluids. AGU Abstract #H431-1771. 2017 Fall Meeting, AGU, New Orleans, Louisiana. 11-15 December, 2017
56. F Naseer, O Awoleke, D Misra, **M Abou Najm**. Effect of Temperature on Guar Gum Rheology of Different Concentrations. AGU Abstract #H431-1768. 2017 Fall Meeting, AGU, New Orleans, Louisiana. 11-15 December, 2017
57. **M. Abou Najm** and S. Hauswirth. Experimental evidence for use of Non-Newtonian fluids for pore structure characterization. Abstract ID#: EGU2017-11692. 2017 Annual Meeting, EGU, Vienna. April 23-26, 2017
58. Safi A., El-Fadel M., Doummar J., **Abou Najm M.**, Alameddine I. Optimal data acquisition strategy for sampling of future hydraulic head: Uncertainty minimization in model predictions. Abstract ID#: EGU2017-14656. 2017 Annual Meeting, EGU, Vienna. April 23-26, 2017
59. **M. Abou Najm** and S. Hauswirth. Non-Newtonian fluids for pore structure characterization of sand columns. Abstract ID#: 171280. 2016 Fall Meeting, AGU, San Francisco, Calif. 12-16 Dec
60. I. Alameddine, R. Nasr, **M. Abou Najm**. Estimating river discharge rates through remotely sensed thermal plumes. Abstract ID#: 172050. 2016 Fall Meeting, AGU, San Francisco, Calif. 12-16 Dec
61. M. Tomaszewicz, **M. Abou Najm**, M. El-Fadel, R. Zurayk & D.A. Beysens. 2016. Dew as an adaptation measure to meet reforestation demand. 7<sup>th</sup> International Conference on Fog, Fog Collection and Dew; Wrocław, Poland, 24-29 July, 2016.
62. M. Tomaszewicz, **M. Abou Najm**, D.A. Beysens, M. El-Fadel, I. Alameddine & E. Bou Zeid. 2016. Projected climate change impacts upon dew yield in the Mediterranean basin. 7<sup>th</sup> International Conference on Fog, Fog Collection and Dew; Wrocław, Poland, 24-29 July, 2016.
63. **M. R. Abou Najm**, N. Atallah, Clément Roques, J. S. Selker, Stewart, R. D., D. E. Rupp, G. Saad, M. El-Fadel. 2016. Smart Fluids in Hydrology: Use of Non-Newtonian Fluids for Pore Structure Characterization. Geophysical Research Abstracts, EGU General Assembly 2016. EGU2016-11283. Vienna, Austria, 17–22 April 2016
64. S. Mortada, **M. R. Abou Najm**, A. Yassine, I. Alameddine, M. El-Fadel. 2016. On the Water-Food Nexus: an Optimization Approach for Water and Food Security. Geophysical Research Abstracts, EGU General Assembly 2016. EGU2016-11330. Vienna, Austria, 17–22 April 2016
65. **M. R. Abou Najm** and C. Higgins. 2016. Toward Nexus Equation: A Conceptual and Mathematical Framework for Water-Energy-Food Nexus. Geophysical Research Abstracts, EGU General Assembly 2016. EGU2016-11304. Vienna, Austria, 17–22 April 2016
66. **M. R. Abou Najm**, N. Atallah, Clément Roques, J. S. Selker, Stewart, R. D., D. E. Rupp, G. Saad, M. El-Fadel. 2015. Smart Fluids in Hydrology: Use of Non-Newtonian Fluids for Pore Structure Characterization, Abstract H057-7848 presented at 2015 Fall Meeting, AGU, San Francisco, Calif. 14-18 Dec.
67. C. Higgins and **M. R. Abou Najm**. 2015. Toward the Nexus Equation: A Conceptual and Mathematical Framework for Energy-Water-Food Nexus Analysis, Abstract GC31H-06-ID75475 presented at 2015 Fall Meeting, AGU, San Francisco, Calif. 14-18 Dec.
68. C. Roques, J. Selker, T. Le Borgne, Y. Meheust, **M Abou Najm**, W. Rochefort, P.Davy, O. Bour, M. Loiseau, S. Givens, B. Herring (2015) The Use of Shear-Thinning Fluids as “Smart” Tracers to Infer Fracture Network Properties. H13A-1466. Session: Advances and Breakthroughs in Hydrogeology III Posters. Abstract presented at 2015 Fall Meeting, AGU, San Francisco, Calif. 14-18 Dec.

69. N. Momjian, **M. Abou Najm**, I. Alameddine, M. El-Fadel, Groundwater Vulnerability to Seawater Intrusion along Coastal Urban Areas: A Quantitative Comparative Assessment of EPIK and DRASTIC, (2015) European Geosciences Union (EGU) General Assembly, Vienna, Austria, 12 – 17, April 2015
70. **M. Abou Najm**, N. Momjian, I. Alameddine, M. El-Fadel, Spatial Analysis of Groundwater Quality in Karstic Aquifers under Urbanization Stress: A Methodological Assessment, (2015) European Geosciences Union (EGU) General Assembly, Vienna, Austria, 12 – 17, April 2015
71. Safi A., El-Fadel M., Doummar J., **Abou Najm M.**, Alameddine I. (2015) Modeling heterogeneity impact on saltwater intrusion in coastal aquifers. 42nd IAH Congress - AQUA2015 - Hydrogeology: Back to the Future. September 13 - 18, 2015, Rome.
72. Rachid G., El-Fadel M., Alameddine I., **Abou Najm M.** (2015) Hydro-geochemical and geo-statistical analysis towards understanding the freshwater-saline water mixing dynamics. 42nd IAH Congress - AQUA2015 - Hydrogeology: Back to the Future. September 13 - 18, 2015, Rome.
73. El-Fadel M., Maroun R., **Abou Najm M.** (2015) Assessment of wastewater investment plans using DSS. *35th Annual Conference of the International Association for Impact Assessment: Impact Assessment in the Digital Era*, 20-23 April 2015, Florence, Italy.
74. Stewart, R. D., D. E. Rupp, **M. R. Abou Najm**, and J. S. Selker. 2015. Modeling Hydraulic Properties and Hydrologic Processes in Shrink-swell Clay Soils, Abstract ID# 58350 presented at 2015 Fall Meeting, AGU, San Francisco, Calif. 14-18 Dec.
75. Rachid G., El-Fadel M., **Abou Najm M.**, Alameddine I. (2015) Vulnerability indices for SWI assessment. *35th Annual Conference of the International Association for Impact Assessment: Impact Assessment in the Digital Era*, 20-23 April 2015, Florence, Italy.
76. R. Quba'a, M. El-Fadel, I. Alameddine, **M. Abou Najm** (2015) Water Allocation towards Constructive Engagement along the Jordan River Basin. XV<sup>th</sup> World Water Congress, International Water Resources Association (IWRA) *Global Water, A Resource for Development: Opportunities, Challenges and Constraints*. Edinburgh, Scotland, 25 - 29<sup>th</sup> May 2015
77. R. Quba'a, M. El-Fadel, **M. Abou Najm**, I. Alameddine (2015) Evaluating Joint Water Development in the Lower Jordan River Basin using Multi-Criteria Decision Analysis. 9th World Congress of EWRA *Water Resources Management in a Changing World: Challenges and Opportunities*. Istanbul, Turkey, 10 - 13<sup>th</sup> June 2015
78. Maalouf, A., El-Fadel, M., **Abou Najm, M.**, & Alameddine, I. (2015). Impact of management alternatives on emissions from the waste sector: A comparative assessment of GHG accounting models. *Proceedings Sardinia 2015, Fifteenth International Waste Management and Landfill Symposium*. S. Margherita di Pula, Cagliari, Italy : CISA Publisher, Italy
79. Fayad, A., Alameddine, I., **Abou Najm, M.**, El-Fadel, M. (2014) Developing a Hydrologic Information System: Towards promoting sustainable standardization. . 11th International Conference on Hydroinformatics. New York, USA. August 17 – 21, 2014.
80. Alameddine, I., Fayad, A., **Abou Najm, M.**, El-Fadel, M. (2014) Climate change at a river basin scale: integration of supply- and demand-side adaptation plans. 13th IWA Specialized Conference on Watershed and River Basin Management. San Francisco, CA, USA. 9-12 September 2014.
81. Stewart, R. D., **M. R. Abou Najm**, D. E. Rupp, and J. S. Selker. 2013. Analytical models for imbibition and flow in moisture-dependent preferential pathways, Abstract H11I-1260 presented at 2013 Fall Meeting, AGU, San Francisco, Calif. 9-13 Dec.
82. Stewart, R. D., D. E. Rupp, **M. R. Abou Najm**, and J. S. Selker. 2013. Improved understanding and prediction of runoff thresholds, presented at 2013 AGU Chapman Conference on Soil-mediated Drivers of Coupled Biogeochemical and Hydrological Processes Across Scales, Tucson, Ariz. 21-24 Oct.
83. El-Fadel M., Tomaszekiewicz M., and **Abou Najm M.** Sustainable coastal aquifer management in urban areas: The role of groundwater quality indices. 4th Global Forum on Urban Resilience & Adaptation, Bonn, Germany May 31-June 2, 2013.
84. **Abou Najm M.**, Tomaszekiewicz M., Saleh N., Ghizzawi F., Eid J., and El-Fadel M. Dew as a Potential Climate Change Adaptation Measure under Water Scarcity. 6th International Conference on Fog, Fog Collection and Dew, Yokohama, Japan May 19-24, 2013.
85. Tomaszekiewicz M., **Abou Najm M.**, and El-Fadel M. Air Conditioning Condensate from Atmospheric Moisture: An adaptation measure in a changing climate. 6th International Conference on Fog, Fog Collection and Dew, Yokohama, Japan May 19-24, 2013.
86. John W. Lane, Jr., **Majdi Abou Najm**, John Ong, Ryan Stewart, David Rupp, John Selker, Margaret Allen, Sean F. Buckley, Ashley Houle, Daven Quinn. ERIM (Electrical Resistivity Infiltration Monitoring): A Non-invasive Method for Detection of Preferential Flow in Soils. 2012 Fall Meeting. AGU.
87. John S. Selker, Ryan D. Stewart, David E. Rupp, **Majdi Abou Najm**. Runoff Thresholds in Shrink-Swell Clay Soils. Abstract H41G-1252, 2012 Fall Meeting. AGU.

88. Ryan D. Stewart, Daniel Moreno, **Majdi Abou Najm**, David E. Rupp, John S. Selker. Now Ain't that Swell? A New Method for Measuring Hydraulic Conductivity in Swelling Soils. Abstract H11I-1292, 2012 Fall Meeting. AGU.
89. Drnevich, V., **Majdi Abou Najm**, Jung, S. New generation TDR for water content and dry density of soils. Purdue Geotechnical Society (PGS). April 2012. West Lafayette, IN.
90. **Abou Najm, M.R.**, R.D. Stewart, D.E. Rupp, J.S. Selker, J.W. Lane, F. Casanova, J. Arumí, and D. Rivera (2011), The power of research exploration within education: lessons from an international field hydrology course, Abstract E11A-0765 presented at 2011 Fall Meeting, AGU, San Francisco, Calif. 5-9 Dec.
91. Rupp, D.E., R.D. Stewart, **M.R. Abou Najm**, J.S. Selker, F. Selker, and N. Van De Giesen (2011), Holey buckets! Monitoring plot-scale runoff, Abstract H11G-1153 presented at 2011 Fall Meeting, AGU, San Francisco, Calif. 5-9 Dec.
92. Selker, J.S., J.W. Lane, D.E. Rupp, R. Hut, **M.R. Abou Najm**, R.D. Stewart, N. Van De Giesen and F. Selker (2011), The answer is blowing in the wind: using wind induced resonance of trees to measure time varying canopy mass, including interception, Abstract H11G-1155 presented at 2011 Fall Meeting, AGU, San Francisco, Calif. 5-9 Dec.
93. Drnevich, V., **Abou Najm, M.**, Jung, S. New Generation TDR for Identifying and Characterizing Engineering Properties of Soils. SAGEEP 2011, April 10-14, 2011, Charleston, South Carolina. **Invited Authors.**
94. Stewart, R., **Abou Najm M.**, Rupp, D., Selker, J. Field Method for Measuring the Shrinkage/Swelling Dynamics of Cracks Using a Low-Cost "Crack-o-meter". 2010 Fall Meeting. AGU.
95. **Abou Najm M.**, Stewart, R., Rupp, D., Selker, J. Clod-o-meter: A New Method for the Calculation of Shrinkage/Swelling Curves for Soil Clods by Integrating an Open Source Software Solution and Digital Imagery Analysis. 2010 Fall Meeting. AGU.
96. Jabakhanji, R., Mohtar, R., **Abou Najm M.** Coupling Soil Water Movement and Discrete Element Method for Evaluating the Effects of Cracking on Soil Hydraulic Properties across Laboratory and Field Scales. 2010 Fall Meeting. AGU.
97. Sanders E, **Abou Najm M.**, Mohtar R, Kladvko E, Schulze D. Characterizing Flow through the Soil Matrix and Preferential Flow Pathways (PFPs). Proceedings of the American Society of Agricultural & Biological Engineers (ASABE) 2010 Annual International Meeting, Pittsburg, Pennsylvania, June 20-June 23, 2010.
98. Sanders E, **Abou Najm M.**, Mohtar R, Kladvko E, Schulze D. Field Characterization of Preferential Flow and Matrix Flow in Clay Loam Soils Planted Corn. Proceedings of the Partnership between US and Middle East Higher Education Institutions to Build Capacity in Integrated Water Resource Management Expertise Workshop, Amman, Jordan, March 14-March 17, 2010.
99. **Abou Najm M.**, Mohtar R, Jabro J., Jesiek, J., Sanders, E. New Methodology for 3D visualization and Modeling of the Cracking Behavior of Soil at the Field Scale. Proceedings of the ASABE 2009 Annual International Meeting Reno, Nevada, June 20-June 24, 2009.
100. **Abou Najm M.**, Mohtar R., Braudeau E., Weiss J. New methodology to assess soil internal stress-strain interaction. 2008 Fall Meeting. AGU.
101. El-Fadel, M., Maroun, R., **Abou Najm M.**, Bu Fakhr Aldeen, R., Khouri, D. DSS for investment options with damage cost valuation of water pollution at the river basin scale. 2008 Fall Meeting. AGU.
102. **Abou Najm M.**, Mohtar C, Mohtar R, Drnevich V. Improving TDR Measurements through Accounting for Soil Structural Properties. Proceedings of the American Society of Agricultural & Biological Engineers (ASABE) 2008 Annual International Meeting Providence, Rhode Island, June 29-July 2, 2008.
103. **Abou Najm M.**, Mohtar R, Jabro J. Characterizing Soil Cracking at the Field Scale. Proceedings of the ASABE 2008 Annual International Meeting Providence, Rhode Island, June 29-July 2, 2008.
104. **Abou Najm, M.**, Mohtar, R., Weiss, J., and Braudeau, E. The Restrained Ring Method: A New Tool for soil characterization. Proceedings of the ASABE 2008 Annual International Meeting Providence, Rhode Island, June 29-July 2, 2008.
105. **Abou Najm, M.**, Mohtar, R., Jabro, J., Schulze, D., Weiss, J., Iversen, B., Cherkauer, K. Braudeau, E. Towards a better understanding of the cracking behavior in soils. First International Conference on Hydropedology. PennState. July, 2008.
106. Mohtar, R., Braudeau, E., **Abou Najm M.** Salahat, M. Martin, P. Kamel®: A new Soil Water Modeling Paradigm. EGU General Assembly 2008 Vienna June 13-18.
107. **Abou Najm, M.**, Mohtar, R., Weiss, J., and Braudeau, E. New Tool to Assess Internal Stresses in Soils: The Restrained Ring Method. 2008 Kirkham Conference. Invited Speaker. University of California at Davis. February 24-26, 2008.
108. **Abou Najm, M.**, Mohtar, R., Weiss, J., and Braudeau, E. Assessing Residual Stress Development in Unsaturated Soils. Ecological sciences and engineering symposium, Purdue University, West Lafayette, IN. 2007.
109. Braudeau, E., Salahat, M., Mohtar, R., and **Abou Najm M.** The tensiometric curve measurement and modeling. Soil system sciences SSS12Transport in preferential flow domains of the soil porous system; European Geosciences Union General Assembly, Vienna, 2007.

110. Rahbeh, M., Mohtar, R., and **Abou Najm, M.** Mass transfer processes during advective air movement in contaminated heterogeneous soils. Computing Research Institute (CRI) of Purdue University. April 5, 2007 CRI Poster session MSEE Atrium.
111. **Abou Najm, M.**, Mohtar, R., Weiss, J., and Braudeau, E.: Assessing soil residual stresses and their effect on cracking behavior. Proceedings of the ASABE 2007 Annual International Meeting. Paper Number: 072215. Session Number: 305-2. June 17-20 Minneapolis, Minnesota.
112. **Abou Najm, M.**, Mohtar, R., Cherkauer, K., and French, B.: Integrating large-scale hydrologic modeling into student learning and decision making. Proceedings of the ASABE 2007 Annual International Meeting. Paper Number: 078007. Session Number: 141-2. June 17-20 Minneapolis, Minnesota.
113. Braudeau, E., Mohtar, R., Ronin, M., **Abou Najm, M.**, Salahat, M., Day, C., Mallory, J., and Conklin, A.: KamelSoil®: A model for soil characterization from basic soil textural properties. Proceedings of the ASABE 2007 Annual International Meeting. Paper Number: 072214. Session Number: 305-1. June 17-20 Minneapolis, Minnesota.
114. Braudeau, E., Salahat, M., Mohtar, R., and **Abou Najm M.**: Soil water potential: measurement and modeling of the tensiometric curve. Geophysical Research Abstracts, Vol. 9, 11275, 2007, SRef-ID: 1607-7962/gra/EGU2007-A-11275, C European Geosciences Union 20075.
115. **Abou-Najm. M.** and El-Fadel M. A Linear Programming Model for the Economic and Environmental Optimization of Integrated Solid Waste Management, Proceedings of the Sixteenth International Conference on Solid Waste Technology and Management, Philadelphia, PA U.S.A. (December,2000).
116. **Abou Najm M.**, El-Fadel M., El-Taha M., Ayoub G. and Al-Awar F. Regional integrated solid waste management: An optimization model for northern Lebanon, NCSR & LAAS 14th Science Meeting, November 23-26, 2000, Beirut, Lebanon.
117. El-Fadel M. and **Abou Najm M.** Air quality impact assessment for optimal grade separation at congested intersections, NCSR & LAAS 13th Science Meeting, November 2-4, 1999, LAU, Beirut, Lebanon.

#### **Technical Reports/Thesis**

118. El-Fadel M., Doummar J., Abou Najm M., **Alameddine I.**, Momjian N., Bahnan A., Majzoub A., Rachid G., and Maroun R. 2015. Managed Aquifer Recharge: IWRM for Preventing Seawater Intrusion. Final Report, German Society for International Cooperation.
119. El-Fadel M., Zurayk R., Massoud M., Chaaban J. Abou Najm M., **Alameddine I.**, Jamali D., et al. 2015. Climate change and saltwater intrusion along the eastern Mediterranean: Socio-economic vulnerability and adaptation. Final Report, International Development Research Center.
120. M. El-Fadel, I. Alameddine, **M. Abou Najm** et al. A Collaborative Approach Towards Integrated Water Resources Management in the Litani River Basin: Opportunities for Climate Change Adaptation and Socio-Economic Growth. Award Number - AID-OAA-A-11-00012. US Agency for International Development Research Center. Annual Report-1, June 2012 - May 2013.
121. M. El-Fadel, G. Rachid, **M. Abou Najm**, I. Alameddine et al. Climate Change and Saltwater Intrusion Along the Eastern Mediterranean: Socio-Economic Vulnerability and Adaptation. Grant no: 104899-001. International Development Research Center. 2<sup>nd</sup> Interim Report, November 2012 – October 2013.
122. **M. Abou Najm**. Soil-water interaction: lessons across scales. PhD Dissertation. Purdue University, West Lafayette, IN. 2009.
123. **M. Abou Najm**. Economic and environmental optimization of solid waste management in Lebanon, ME Thesis, AUB, 2000.
124. The regional development plan of the riverine area of Delta State, Nigeria: Conclusions-Recommendations-Proposals, Report submitted to Delta State Government, Nigeria (411 Pages).
125. Decision support system for the investment in wastewater treatment plants in the upper litani basin: methodology and analysis, Litani water quality management project, Litani basin management advisory services (BAMAS), Bureau for Asia and the Near East, U.S. Agency for International Development, Contract No: Lag-I-00-99-00017-00, September 2005.
126. El-Fadel M., Zeinati M., Abou Ibrahim A., Bou-Zeid E. and **Abou Najm M.** EIA Training Manual, Solid Waste Management, American University of Beirut, Ministry of Environment, World Bank, 2001.
127. El-Fadel M. and **Abou-Najm. M.** Environmental and economic indicators for integrated solid waste management. University Research Board, United States Agency for International Development (USAID), Department of Civil and Environmental Engineering, American University of Beirut, Lebanon, 2000.
128. El-Fadel M., **Abou Najm M.** and Sbayti H. Air quality modeling at grade intersections proposed in the Greater Beirut Area, USAID, Department of Civil and Environmental Engineering, American University of Beirut, Lebanon, 1999.

129. El-Fadel M., Sbayti H. and **Abou Najm M.** Noise modeling at grade intersections proposed in the Greater Beirut Area, USAID, Department of Civil and Environmental Engineering, American University of Beirut, Lebanon, 1999.
130. El-Fadel M., **Abou Najm M.** and Sbayti H. Air and noise impacts at parking facilities, USAID, Department of Civil and Environmental Engineering, American University of Beirut, Lebanon, 1999.

### Selected Funded Research

<i>Title</i>	<i>Funding Agency (year)</i>	<i>Amount</i>
Scarcity Amid Abundance: Understanding Trade-offs in the Food-Energy-Water Nexus in the Willamette River Basin, (Investigator/Senior Personnel with Chad Higgins (PI) from Oregon State University)	USA National Science Foundation, INFEWS Program (2017-2020)	\$1,828,428
Composting organic waste: university support for participatory Integrated Solid Waste Management, (PI)	Australian Embassy (2018)	\$24,000
Citizen Science for improved Integrated Solid Waste Management, Phase 2 (CS-ISWM) (PI)	DFID (UK Aid) and Mercy Corps (2016-2017)	\$93,560
Citizen Science for improved Integrated Solid Waste Management, Phase 3 (CS-ISWM) (PI)	Ford Middle East & North Africa (2017-2018)	\$5,500
A New Approach for Porous Media Characterization (PI)	AUB-URB (2015-2017)	\$18,200
<b>University Support for Participatory Integrated Solid Waste Management Plan and Practices (USforISWM)</b> (Co-PI with N. Saliba, S. Talhouk, N. Yehya, S. Zeineddine, M. Al Hindi)	USAID (2017-2018)	\$193,921
Citizen Science for improved Integrated Solid Waste Management, Phase 1 (CS-ISWM) (PI)	DFID (UK Aid) and Mercy Corps (2016-2017)	\$59,400
Unraveling the Hyperthermia Mechanism in Magnetic Nanoparticles: Towards an Improved Cancer Thermal Therapy (Co-PI with P. Karam and R. Nasr)	AUB Collaborative Stimulus Fund (2017-2019)	\$40,000
Managed Aquifer Recharge: IWRM for Preventing Seawater Intrusion in Hazmieh, Beirut – Lebanon (Co-PI with M. El Fadel and I Alameddine)	GIZ (2014-2015)	\$91,000
Closing the loop: potentials of unconventional water resources in Lebanon and the MENA region (PI)	AUB-URB (2012-2014)	\$19,800
Extending the Remote Sensing Capabilities for Improved Water Resources Management (PI with I. Alameddine)	AUB-FEA (2013-2014)	\$38,000
Review of studies on the proposed Qaisamani Dam, Hammana, Lebanon (Co-PI with M. El Fadel et al)	Hammana Municipality, Lebanon (2014)	LL 20,000,000
Climate Change and Saltwater Intrusion along the Eastern Mediterranean: Socio-Economic Vulnerability and Adaptation (Collaborator with M. El Fadel (PI), I. Alameddine, R. Zurayk, J. Chaaban, D. Jamali, M. Massoud)	IDRC (2011-2014)	\$507,000
A Collaborative Approach Towards Integrated Water Resources Management in the Litani River Basin: Opportunities for Climate Change Adaptation and Socio-Economic Growth (Collaborator with M. El Fadel (PI), M. Massoud, I. Alameddine, R. Zurayk, J. Chaaban, D. Jamali)	NSF USAID PEER (2011-2014)	\$208,000
Towards concerted sharing: development of a regional water economy model in the Jordan River Basin Project (Co-PI with M. El-Fadel & I. Alameddine)	Centre for World Food Studies of the VU University, Amsterdam	Euro 28,400



Unconventional water resources: feasibility and prospects from dew and fog (PI)	CNRS (2012-2013)	LL 12,000,000
Scale and Time Dependence of the Hydrology of Sites with Expansive Soils (Investigator/Senior Personnel with J. Selker & D. Rupp)	NSF, Hydrologic Sciences (2010-2013)	\$479,981
Reduction of waste consumption and pollution in the corn masa production process (Co-PI)	EPA-P3 (2009)	\$9,112
Utilizing geophysical methods for the characterization of clay fracture networks and their corresponding hydration processes (Co-PI with J. Selker & D. Rupp)	CUAUSI, USA (2011)	\$3,430

#### Graduate Students: Advising and Committee Service (Completed)

1. Emily Sanders MS, Purdue University, Characterizing flow through the soil matrix and preferential flow paths (May, 2009).
2. Sochan Jung PhD, Purdue University, New generation TDR for moisture sensing and soil characterization (September 2011).
3. Ryan Stewart, PhD, Oregon State University, Characterization of hydrologic parameters and processes in shrink-swell clay soils (May 2013).
4. Abbas Fayad, ME, American University of Beirut, Modeling the Impacts of Climate Change on the Upper Litani Basin Using an Integrated Hydrologic Information System (May 2013).
5. Nanor Momjian, MS, American University of Beirut, Groundwater Vulnerability to Seawater Intrusion with Climate Change Impact: Comparison of Groundwater Vulnerability Assessment (**Advisor**; December 2014).
6. Nabil Atalla, ME, American University of Beirut, Solver for a new theory for revisiting hydraulic conductivity and pore size distribution of porous media (**Advisor**; March 2015). **Winner of Abdul Hadi Debs Award (University level award)**
7. Dunia Abdulbaki, ME, American University of Beirut, An Optimization Model for Treatment and Allocation of Water Resources (April 2015). **Winner of BLF Best Thesis Award (Faculty level award)**
8. Amani Maalouf, MS, American University of Beirut, A UOD (Upstream-Operating-Downstream) approach for assessing emissions from MSW management: Development, validation, and policy analysis (Co-Advisor; April 2015).
9. Lea Korban, MS, American University of Beirut, A pretreatment process for brackish water and brine desalination (September 2015).
10. Marlene Tomaszkiwicz, PhD, American University of Beirut, Unconventional water resources: feasibility and prospects from dew and fog (**Advisor**, December 2015).
11. Sara Mortada, ME, American University of Beirut, Food Security and the Water- Food Nexus: An Optimization Approach (**Advisor**, January 2016).
12. Hisham Hasan, ME, American University of Beirut, Feasibility of grey water reclamation and reuse in urban coastal areas: impact on saltwater intrusion reversal. (**Advisor**, February 2016).
13. Amani Majzoub, MS, American University of Beirut, Effects of saltwater intrusion on domestic water uses in the Hazmeyeh Area (February 2016)
14. Anwar El-Chami, ME, American University of Beirut, Potentials for renewable energy in the MENA region. (**Advisor**, June, 2016).
15. Renalda El Samra, PhD, American University of Beirut, Climate change impacts on water resources and the agricultural sector in the Litani River Basin (August, 2016).
16. Rony Nasr, ME, American University of Beirut, Estimating river discharge rate using remotely sensed thermal plumes (**Advisor**, February 2017).
17. Rola Qubaa, PhD, American University of Beirut, A positive apportionment framework for water allocation in contested trans-boundary river basins: energy as welfare catalyst (April, 2017).
18. Sania El Nakib, MS, American University of Beirut, Pollutant load estimation for river management strategies: a case study of Beirut river (committee member)

#### Graduate Students: Graduate Committees External Examiner:

19. Laura Minet, ME, McGill University, Testing the Robustness of Land-Use Regression Models for Atmospheric Nitrogen Dioxide and Ozone Using Data from Fixed and Mobile Monitoring Campaigns (March 2016)

### **Graduate Students: Advising and Committee Service (On-going)**

20. Christelle Basset, ME, American University of Beirut, Physically-based dual permeability modeling using non-Newtonian fluids (Advisor)
21. Reem Khatar, ME, American University of Beirut, Introducing the Nitrogen and Phosphorous cycles to the water-food-energy nexus (Advisor).
22. Zeinab Chamas, ME, American University of Beirut, Formulating the role of energy and carbon in the water-food-energy nexus (Advisor).
23. Fatima Mansour, PhD, American University of Beirut, Agent-based modeling for human-centered water-food-energy nexus (Advisor).
24. Fawad Naseer, ME, University of Alaska, Fairbanks, Temperature effect on flow of non-Newtonian fluids (Committee member)
25. Amir Safi, PhD, American University of Beirut, Modeling saltwater intrusion along the coastline of Lebanon (committee member).
26. Grace Rachid, PhD, American University of Beirut, Socioeconomics of water quality under saltwater intrusion (committee member).

### **Visiting Scholars**

27. Matt Auch, New insights on the tortuosity of porous materials (Visiting Scholar Advisor, 2016-2017).

### **Professional Licenses**

EIN (USA)

Lebanese Syndicate of Engineers

### **Professional Society Membership**

Tau Beta Pi: Member, 2006;

Alpha Epsilon: Member, 2008;

AGU: Member, 2008;

EGU: Member 2016;

ASCE (American Society of Civil Engineers): Associate Member, 2013; SSSA: Member, 2014

### **Awards and Honors**

1. Certificate of Appreciation, AUB, In recognition of outstanding support for students requesting special accommodation (May, 2017),
2. Delegate, The 2017 Maltese Presidency of the Council of the European Union: Technical-Level Meeting on Strengthening Euro-Mediterranean Cooperation through Research and Innovation (May 3<sup>rd</sup>, 2017, Malta)
3. Certificate of outstanding and innovative scientific research proposal, AUB, In recognition of being a recipient of the Collaborative Research Stimulus Award (March, 2017),
4. AUB Faculty Representative: First prize: Most Civically Engaged Campus in the MENA Region Award, Ma'an Foundation, American University of Cairo, Cairo, Egypt. November 2015
5. Editorial Board Member: ASTM Geotechnical Testing Journal
6. SSSAJ Journal cover: March-April 2014 issue
7. CSA feature article on Nondestructively Quantifying Macropore Volume using Shear-Thinning Fluid (May 2014)
8. Honorable Mention: EPA P3 2010 Projects Award Ceremony, Washington DC, for work on the project: Reduction of waste consumption and pollution in the corn masa production process.
9. Certificate of Achievement, Purdue University, 2010: Founding officer for the Graduate Student Association in Purdue's Department of Agricultural & Biological Engineering.
10. Outstanding Graduate Student Award, College of Engineering, Purdue University, 2009.
11. Outstanding Graduate Student Award, Agricultural & Biological Engineering Department, Purdue University, 2007.
12. Travel Award for the 2008 Kirkham conference at the University of California, Davis.
13. Travel Award for the first international conference on hydrogeology, Penn State, 2008.

14. Special initiatives Fellowship: Purdue University, Agricultural & Biological Engineering Department.
15. Recipient of the Hariri Foundation scholarship covering all my undergraduate studies at the American University of Beirut.

## **Institutional and Professional Services**

### ***Invited Talks***

1. Bar Elias Btifroz: a citizen-science campaign for solid waste management at the community scale. American University of Beirut, Nature Conservation Center Day. May 8, 2018.
2. Nexus and education: building nexus-community @ AUB. American University of Beirut, World Water Day. March 22, 2018.
3. Towards *nexus* community @ AUB. American University of Beirut, Town Hall Meeting on Water-Energy-Food Nexus. February 7, 2018.
4. Towards *nexus-thinking* approach: challenges and lessons learned. Final regional policy workshop on the water-energy nexus. Economic and Social Commission for Western Asia (ESCWA). Beirut, Lebanon. December 11, 2017.
5. Towards sustainable water-energy-food nexus: the role of sustainable design, AUB, Sustainable Design Week, October 4-6, 2017
6. Humanitarian Engineering: opportunities for poverty alleviation, AUB 16<sup>th</sup> FEA Conference, April 20<sup>th</sup>, 2017
7. Towards sustainable water-energy-food nexus: the role of soil biophysics, UC Davis, LAWR Department, February 22<sup>nd</sup>, 2017
8. Transforming aid from relief to sustainability: lessons from the WASH sector, AUB4Refugees Forum, January 27, 2017
9. Non-Newtonian Fluids in Action: Revisiting Flow in Porous Media. AUB Engineering, October 13<sup>th</sup>, 2016
10. Practical solutions for the solid waste management crisis in Lebanon, Issam Fares Institute for Public Policy and International Affairs, AUB, October 6<sup>th</sup>, 2016
11. Non-Newtonian Fluids in Action: Revisiting Flow in Porous Media. Texas A&M, July 7<sup>th</sup>, 2016
12. Non-Newtonian Fluids in Action: Revisiting Flow in Porous Media. Virginia Tech, April 17<sup>th</sup>, 2015
13. Non-Newtonian Fluids in Action: Revisiting Flow in Porous Media. Oregon State University, April 28<sup>th</sup>, 2015
14. Dry Sanitation and the Syrian Refugee Crisis in Lebanon, Stanford University, July 10, 2014
15. A Policy Forum Addressing the Impact of the Syrian Refugee Crisis on Lebanon, *The Refugee Research and Policy in the Arab World Program*, Issam Fares Institute for Public Policy and International Affairs, AUB, May 19th, 2014
16. Wooster College, International Water Conference, Wooster, Ohio. May 25<sup>th</sup>, 2013.
17. American University of Beirut, Department of Civil & environmental Engineering. Beirut, Lebanon. January 3, 2013.
18. Massachusetts Institute of Technology. Cambridge, MA, USA. October 25, 2011.
19. American University of Beirut, Department of Civil & environmental Engineering. Beirut, Lebanon. May 3, 2011.
20. University of Alaska, Fairbanks, Department of Geologic Engineering, Fairbanks, Alaska. April 4, 2011.
21. Purdue University, Department of Civil & Environmental Engineering, West Lafayette, IN. November 15<sup>th</sup>, 2010.
22. Northeastern University, Department of Civil & Environmental Engineering, Boston, MA. October 15<sup>th</sup>, 2010.
23. University of Illinois at Urbana Champaign: Department of Civil & Environmental Engineering. January 28, 2010.
24. Oregon State University, Department of Biological and Ecological Engineering. June-2009.
25. USDA's ARS-NPARRL, June 18<sup>th</sup>, 2008. Sidney, Montana.
26. Nigerian National space Research & Development Agency (NASRDA). Abuja, Nigeria. 2005.

### ***Professional Training***

1. *Towards concerted sharing: development of a regional water economy model in the Jordan River Basin.*  
Module 1: 18 to 28<sup>th</sup> August, 2014. Centre for World Food Studies; Vrije Universiteit, Amsterdam, The Netherlands;  
Module 2: 1-12 June, 2015. Centre for World Food Studies; Vrije Universiteit, Amsterdam, The Netherlands.
2. *Blended learning*, American University of Beirut, Spring 2013
3. **Mini-Executive MBA**, Krannert School of Management, Applied Management Principles, May 15-26, 2006.
4. **ABET** Institute for the Development of Excellence in Assessment Leadership, January 5-8, 2015
5. *Microeconomics 3 credit course*, UC Berkeley Online Course, 2004.

### ***Reviewer in the Following Journals***

Journal of Hydrology  
ASCE Journal of Geotech. & Geoenviron. Engineering  
Applied Engineering in Agriculture  
USDA-ARS Internal Review  
Transactions of ASABE

Materials & Structures, Springer  
Vadose Zone Journal  
ASTM Geotechnical Testing Journal  
Smart Structures and Systems  
Computers and Electronics in Agriculture

Journal of the Air & Waste Management Association  
PLOS-One  
SOIL  
Water Resources Research  
Soil & Tillage Research

Atmospheric Research  
Water  
Earth Science Reviews  
Soil Science Society of America Journal (SSSAJ)

***Proposals and File Reviewer with the Following Agencies***

Agricultural Experiment Station, University of Puerto Rico  
Czech Science Foundation  
United States Department of Agriculture

National Council for Scientific Research in Lebanon  
Al-Quds Academy for Scientific Research

***Editorial Service***

1. Member of Editorial Board for ASTM Geotechnical Testing Journal (2015-2018)
2. Guest Editor, Vadose Zone Journal, Special Section: Non-uniform flow across scales: from characterization to measurement and modeling (2017-2018)

***Convening/Co-convening of Technical Sessions in International Meetings***

1. EGU General Assembly, 2017: SSS7.2/HS8.3.10: Preferential flow and mass transfers in vadose zone, Co-convenor
2. EGU General Assembly, 2017: HS8.3.1: Vadose zone hydrology: General Session, Co-convenor
3. EGU General Assembly, 2018: SSS7.2/HS8.3.10: Preferential flow and mass transfers in soils and porous fractured media, Co-convenor
4. EGU General Assembly, 2018: HS8.3.1: Vadose zone hydrology: General Session, Co-convenor

***Entrepreneurship Judging/Panel Service***

1. AUB IBDA 2018: Jury member on university wide competition of best and most creative sustainable ideas, April 2018, American University of Beirut
2. AUB Engineering Student Conference IDEAS: Jury member, April 2018, American University of Beirut
3. AUB Goes Hult 2018, with theme: Harnessing the Power of Energy. Mentor & Judge, American University of Beirut
4. USAID Scholarships: University Scholarship Program/ Leadership Assessment Approach: assessed and individually interviewed 30 scholarship applicants (May/June 2017)
5. Innovate for Lebanon Competition, Judge, May 26, 2017.
6. Hult Prize 2017, Lebanon, Mentor & Judge, American University of Beirut
7. Samir & Claude Abillama Eco-Entrepreneurship Award, 2016, Judge, American University of Beirut (Prize of \$20,000)
8. Samir & Claude Abillama Eco-Entrepreneurship Award, 2015, Judge, American University of Beirut (Prize of \$20,000)

***Committee Service (Department, Faculty, or University wide)***

1. Committee Member: AUB's General Education Taskforce (committee tasked with designing the general education requirements for Experiential Service Learning / Civic Engagement Task Force).
2. Committee Member: AUB-AREC taskforce (committee tasked with major overhaul of AUB-farm's (AREC) role in AUB's agricultural mission).
3. Organizing Committee Member: IBDA 2018: university wide competition of best and most creative sustainable ideas. This competition is going national in 2018 inviting several top universities in Lebanon to participate (April 27, 2018)
4. ASTM: Collaboration on WK57572, Revision of ASTM D6780/D6780M Standard Test Method for Water Content and Density of Soil In situ by Time Domain Reflectometry (TDR)
5. Organizing Committee Member: The First AUB Summer School on Humanitarian Engineering Solutions for Health in Conflict (July 6-8, 2017)
6. Executive Board Member: Nature Conservation Center, AUB (2016-Ongoing)
7. Executive board Member: Leadership, Equity, and Diversity Initiative (LEAD) committee, AUB (2017-ongoing)
8. Steering Committee Member: AUB4Refugees: a university (AUB) wide initiative to follow-up on refugee-related interventions, (2016-ongoing)
9. Committee Member: Students Affairs Committee of Faculty of Engineering & Architecture, AUB (2016-ongoing)
10. Committee Member: ABET-Accreditation Committee, passed re-accreditation cycle and successful visit and reaccreditation process during 2015-2016 academic year (2013-2017)

11. Faculty Representative: I represented the entire AUB faculty in the Most Civically Engaged University Competition in the MENA region, taking place in Cairo. AUB won first place (November 2015).
12. Committee Member: Graduate Open House, Faculty representative for AUB-wide committee to organize the annual graduate open house (2012-2016)
13. Committee Member: cheating ad-hoc committee of Faculty of Engineering & Architecture, AUB (2014-2015)
14. Committee Member: Undergraduate curriculum committee of Faculty of Engineering & Architecture, AUB (2014-2015)
15. Co-Advisor: Civil Engineering Society Co-Advisor (2013-2015)
16. Committee Member: Graduate Studies and Professional Development. Agricultural & Biological Engineering Department, Purdue University (2009-2010).
17. Committee Member: Awards Committee. Agricultural & Biological Engineering Department, Purdue University (2009-2010).

#### ***Workshops & Courses Prepared***

1. **Abou Najm, M.** and G. Bayram. Solid waste management recycling Coordination Group (SWM/R-CG). A recycling coordination group that we invited to address the solid waste management crisis in Lebanon. Attended by major funding agencies and donors. Organized by AUB and Mercy Corps. Nov. 15<sup>th</sup>, 2016
2. Yehya, N. and **Abou Najm, M.** Full-day workshop on training volunteer for conducting IRB-approved comprehensive survey on health and environmental conditions. Masabki Hotel, Chtaura, Lebanon August 21, 2015
3. Selker, J., **Abou Najm, M.**, Rupp, D., Stewart, R., Uribe, H. International undergraduate field course, Chillan, Chile. January 2<sup>nd</sup>-15<sup>th</sup>, 2011. Sponsored by NSF and Oregon State University.
4. Mohtar, R., Cherkauer, K., French, B. **Abou Najm, M.**, and Braudeau, E. How can large scale hydrologic modeling enhance student learning and decision making. ASABE 2008 Annual International Meeting Providence, Rhode Island, June 29-July 2, 2008.

#### ***Town Hall Meetings and Awareness***

1. N. Saliba, M. Abou Najm, N. Yehya, S. Talhouk, S. Zeineddine, G. Chammas. University Support for Integrated Solid Waste Management Plans and Practices. May 26, 2018. Attended by Heads and Members of 6 municipalities within the proximity of Lebanon's biggest landfill.
2. Campaign leader for *Bar Elias Btifroz* or Bar Elias Separates. This is a waste separation campaign for the town of Bar Elias.
3. Solid Waste: from Household to Municipal Integrated Management. Ras El Matn, Lebanon. Attended by head of municipality, municipal council member, and town sheriff, and the general public. July 21, 2017
4. University Support for Participatory Integrated Solid Waste Management Plan and Practices (USforISWM), A'bay, Lebanon. Attended by heads of municipalities, municipal council member, and town sheriffs (mukhtars) of Shehhar region (6 municipalities). July 15, 2017
5. Stakeholders meeting for waste separation at the source in the town of Bar Elias: organizer and leader of more than ten meetings to recruit volunteers and members of communities to support and launch the waste separation at the source campaign in the town of Bar Elias (August-October, 2017).
6. Environment-Health coupling: studying the impacts of pollution on health, Qaroun, Lebanon. Attended by head of municipality, municipal council member, and town sheriff, and the general public. July, 2016
7. Environment-Health coupling: studying the impacts of pollution on health, Bodnayel, Lebanon. Attended by head of municipality, municipal council member, and town sheriff, and the general public. August, 2016
8. Environment-Health coupling: studying the impacts of pollution on health, Lebanese University, Faculty of Public Health, Zahle, attended by heads of municipalities, municipal council member, and town sheriffs (mukhtars) of upper Litani river basin. Nov. 11, 2014.