Dr. ASHRAF CHAMSEDDINE

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EDUCATION

From 09/2013 to 07/2019 **American University of Beirut (AUB)** ***Beirut, Lebanon***
Doctor in Philosophy – **Ph.D.**
Ph.D. in Environmental and Water Resources Engineering (EWRE)

From 09/2008 to 07/2010 **American University of Beirut (AUB)** ***Beirut, Lebanon***
Masters in Chemistry - Analytical Chemistry – **MSc.**
Distinction

From 09/2004 to 06/2008 **American University of Beirut (AUB)** ***Beirut, Lebanon***
Bachelor in Chemistry – **BS**
Dean's Honor list

From 09/1995 to 07/2004 **Brummana High School (BHS)** ***Brummana, Lebanon***
Lebanese Baccalaureate Life Sciences, Official in 2004
Graduated with Honors

EXPERIENCE

From 09/ 2015 to present **Independent Consultancy** ***Beirut, Lebanon***
Position held: **Consulting (Senior Environmental Consultant & Air Quality Expert)**

- Consulting of environmental science and engineering projects, executing environmental guidelines projects, environment impact assessment (EIA), water and sanitation hygiene (WASH), solid waste treatment, indoor air quality (IAQ) modeling, monitoring and management in critical environments such as schools, hospitals and residential buildings, ambient air quality monitoring and management, air pollution control, geographic information system applications (GIS), occupational health & safety, wastewater treatment and surface water quality modeling.

From 09/2014 to present **Lebanese American University (LAU)** ***Beirut, Lebanon***
Position held: Assistant Professor at the Natural Sciences Department

- Teaching Food Sciences courses including Food Analysis ***NUT323*** & ***NUT313*** and Industrial Food Production ***NUT345*** (Nutrition Department) for *Fall, Spring and Summer'14, '15,'16, '17 18 & '19 semesters*.
- Teaching General Chemistry Laboratory ***CHM101*** & Organic Chemistry Laboratory I ***CHM313*** (Chemistry Department) for *Fall & Spring '16, '17 & '18 semesters*.
- Mentoring and advising undergraduate students in their senior projects as well as graduate students and helping them in their research projects and theses.

From 09/2012 to 2018 **American University of Beirut (AUB)** ***Beirut, Lebanon***
Position held: **Technical Laboratory Manager, PhD- Candidate - EWRE - Engineering**

- PhD Dissertation Title: "Determinants of Indoor Air Quality in Hospitals: Impact of ventilation systems with Indoor-Outdoor Correlations and Health Implications." PhD Advisor: Prof. Mutasem El-Fadel, Chair Committee: Prof. (Dean)Alan Shihadeh
- Technical Manager of the Environmental and Water Center Laboratory, Solid Waste Laboratory and Air Quality Laboratory at AUB for a period of 5 - 6 years.
- Management of Engineering accounts and procurement of air quality & water quality equipment for the Water Center,
- Purchasing equipment and field monitoring machines for the Air Quality and Solid Waste Laboratory at AUB.
- Mentoring and training undergraduate and graduate master students on air quality and water quality and modeling projects.
- Involved in developing Environmental Engineering / Chemical & Health Sciences technical operations and laboratory standard operating procedures (SOP) of HPLC, GC-MS, IC, SEM and AAS equipment.
- Indoor Air Quality (IAQ) monitoring, ambient air and indoor air monitoring and field sampling of bio-aerosols (viruses and bacteria) and air pollutants such as TSP, PM_{10}, $PM_{2.5}$ and toxic gaseous species (TVOC, SO_2, NO/NO_2, CO & CO_2) in outdoor and indoor critical environments such as apartments, offices, homes, residential buildings, schools and hospitals.

- Over six years of experience in water treatment, solid waste (domestic and municipal) treatment and management.
- Microbiological monitoring of bacteria, molds, fungi, and viruses in critical indoor environments such as hospitals and healthcare facilities.
- Teaching Air Pollution Control and Air Quality Modeling courses.
- Preparation of presentations of research findings for international conferences and program outcomes
- Preparation progress reports for Institutional Review Board (IRB) for several human-subject research projects
- Write-up of research proposals for national and regional/international external funding.

From 09/2015 to present **University of Balamand (UoB) – Part Time** ***Beirut & Souk El Garb, Lebanon***

Position held: Part-time faculty (lecturer) at the Faculty of Health Sciences

- Teaching ***PDHP203***: Basic Chemistry Laboratory for *Fall '16, '17 & '18 semesters*.
- Teaching ***CHEM203***: Basic Chemistry Laboratory for *Fall '16, '17 semesters.*
- Teaching ***FHSC227***: Organic Chemistry Laboratory I for *Fall '15 semester*.

From 10/2016 to 06/2017 **Phoenicia University (PU) – Part Time** ***Zahrani District, Lebanon***

Position held: Part-time faculty (lecturer) at the Public Health & Basic Sciences Department

- Teaching General Principles of Chemistry course (for engineering and public health students) ***CHEM201*** for *Fall & Spring '16 &'17 semesters*.
- Teaching Basic Organic Chemistry course (for public health students) ***CHEM209*** for *Fall & Spring '16 &'17 semesters*.
- Teaching Fundamentals in Environmental Health course (for public health students) ***PBBL220*** for *Spring '17 semester*.

From 07/2011 to 06/2012 **NALCO** ***Doha, Qatar***

Position held: **Chemical Application Engineer – Full Time**

- Conduct Laboratory tests on oil, sludge and water samples in Chemistry Laboratories
- Attending international workshops in Oil & Gas field particularly oilfield chemicals (OFC), leadership skills, and sales training sessions
- Executing projects in Oil & Gas field, namely Oil Field Chemicals (OFC) and providing chemical solutions; i.e. chemicals to problems (corrosion, emulsions, scale, hydrates etc…) in oil & gas field that are faced by Nalco clients such as Maersk, Qatar Petroleum (QP), Total, Qatar Gas (QG), Oxy Petroleum, Shell and Dolphin Energy

From 10/2008 to 07/2010 **American University of Beirut (AUB) – Full Time** ***Beirut, Lebanon***

Position held: **Graduate and Teaching Assistant**

- Solubility of Aerosols in the Eastern Mediterranean: The Effect of Acidic and Basic Gaseous Species on Aerosol Solubility. A masters research study done during my graduate studies at AUB (2008 – 2010) – Masters' Thesis Advisor: Prof. Najat Saliba (recipient of *L'Oréal UNESCO For Women in Science Award*)
- Teaching introductory and Analytical/Physical Chemistry laboratory courses (***CHEM 216 & 206***) for Sophomore, Junior and Senior students for a period of five semesters i.e. 2 years
- Graduate Assistant Researcher, full scholarship for pursuing master degree in Analytical Chemistry, two years of research and development of monitoring techniques in Atmospheric and Analytical Chemistry Laboratories and Environmental Research Technology

From 08/2016 to present **MIT Technology Review – Arab Edition – Part Time** ***Beirut, Lebanon***

Position held: Technical and academic writer

- Writing academic and research reports about industrial food production and food management in Lebanon, air pollution control and air quality management.

From 06/2008 to 09/2008 **American University of Beirut Medical Center - Intern** ***Beirut, Lebanon***

Position held: **Diet Aid Supervisor (Intern)**

- Maintaining healthy and safe food for AUBMC patients. Applying safety measures in order to provide clean and healthy environment with proper food delivery.

From 09/2007 to 12/2007 **American University of Beirut – Environmental Core Lab - Intern** ***Beirut, Lebanon***

Position held: **Research Assistant (Intern)**

- Conducting chemical tests related to water treatment and sanitation, bacteria counts, UV/VIS and GC Analysis at the AUB Environmental Core Lab.

RESEARCH INTERESTS

- ***Environmental & Water Resources Engineering***: Environmental Impact Assessments, ambient air monitoring, indoor air quality (IAQ) management; Surface water quality; Green-house gas (GHG) emissions and climate change implications; Waste and air quality management, Bio-aerosols monitoring and sampling of viruses, bacteria, fungi and molds.
- ***Physical & Analytical Chemistry***: Thermodynamics, Quantum Chemistry, Kinetics and Material Science Atmospheric Chemistry; Analytical Chemistry; Physical and Wet Chemistry; Industrial Food Production; Food Analysis; Environmental Science.
- ***Microbiology and Virology***: Monitoring of bacteria and viruses in critical indoor environments and studying the evolutionary dynamics and antiviral drug susceptibility of influenza viruses and investigating the interplay between influenza virus and the sphingolipid pathway and as well as virus-pathogen interactions.
- ***Computational Modeling (Chemical & Environmental Sciences)***: Air and water quality modeling using Computational Fluid Dynamics (CFD), ANSYS – FLUENT, CALPUF, CONTAM, AERMOD and GIS.
- ***Food Chemistry, Food Safety and Processing***: Assessing the effects of processing technologies on the quality of locally made foods, in addition to identifying and preventing the occurrence of toxic residues in foods manufactured and marketed across Lebanon and the region

ACADEMIC RECORD

The coursework completed during PhD:

Course Number	Course Title (Ph.D. Environmental & Water Resources Engineering)
CHEN 612	*Desalination*
CIVE 672	*Introduction to Geographic Information System (GIS)*
ENSC 620	*Water and Wastewater Treatment*
ENSC 690	*Seminar: Environmental Sciences*
CHEM 352C	*Special Topic: Renewable Energy*
CIVE 655	*Surface Water Quality Modeling & Management*
CIVE 656	*Air Pollution and Control*
CIVE 654I	*Solid Waste Management*
CIVE 657	*Experimental Design and Statistical Analysis for Engineers*

SUMMARY SKILLS

COMPUTER SKILLS: MS Word, Excel, PowerPoint, Access, Internet use, Visual Basic, Gauss View, and Gaussian, Chem-Draw ANSYS Fluent (Computational Fluid Dynamics, CFD), CONTAM, Geographic Information System (ArcGIS), MATLAB, and R.
LANGUAGES: Fluent in English, Arabic and preliminary knowledge in French (writing, reading and speaking).
SOFT SKILLS: Leadership, Communication, Team-Building, Organizational, Management, Public Speaking.
RESEARCH SKILLS / SOFTWARE: ArcGIS, ANSYS Fluent, CONTAM, AERMOD, R, MATLAB, Gauss View, Chem-Draw, QA/QC design deliverables, AutoCAD, WaterCAD, SewerCAD, StormCAD.
TECHNICAL SKILLS: High experience in Wet Chemistry, Atmospheric Chemistry Analysis, Air Quality and Environmental Monitoring. Expertise in UV/VIS Spectroscopy, Ion Chromatography (IC), Gas Chromatography (GC), HPLC-MS, Scanning Electron Microscopy (SEM) and Atomic Absorption Spectroscopy (AAS).
OTHER: Tutoring SAT, GRE and MCAT as well as Chemistry, Physics and Engineering courses for sophomores, juniors, seniors and graduate university students.

AWARDS / CERTIFICATES / ACHIEVEMENTS

NALCO – T-BOSIET OPITO certified (**2011**)
NALCO – H_2S/Breathing Apparatus (H_2S/BA) Certificate – MAERSK OIL QATAR & OXY (2011)
NALCO – ISSOW Certificate – OXY (**2011**)
NALCO - Oilfield Chemical (OFC) Technical Certificate (**2011**)
NALCO - Leadership Skills Certificate (**2012**)
NALCO - The Counselor Salesperson (CSP) Certificate (**2012**)
NALCO - Defensive Driving Course Certificate (**2012**)
AUB - National Council for Scientific Research (CNRS) Doctoral Scholarship Award (**2013**) (http://www.aub.edu.lb/news/2013/Pages/cnrs-phd.aspx)
AUB – Center for Teaching and learning (CTL) - Faculty Seminar on Learning and Teaching Excellence (**2014**)
ISAIQ Indoor Air 2016 – Ghent University - ISIAQ Student Award – The award is given only for high contributing research papers (**2016**)
AUB - Collaborative Institutional Training Initiative (CITI) – Human Subject Research certified – "Biomedical Research – Basic/Refresher" (**2017**)
AUB - Collaborative Institutional Training Initiative (CITI) – RCR certified - "Responsible Conduct of Research for Engineers" (**2017**)

PUBLICATIONS

- A. Chamseddine, I. Alameddine, M. Hatzopoulou, and M. El-Fadel. (**2019**). Seasonal variation of air quality in hospitals with indoor – outdoor correlations. *Building and Environment*, 148, 689 – 700.
- Saliba, N. A. and Ashraf Chamseddine. (**2012**). Uptake of acid pollutants by mineral dust and their effect on aerosol solubility. *Atmospheric Environment*, 46, 256 – 263.
- Ashraf Chamseddine, Ibrahim Alameddine and Mutasem El-Fadel. (**2016**). Spatial variation of indoor air quality in hospitals - Impact of ventilation mode on potential exposure. *Accepted paper* and presented in *Indoor Air 2016 Conference* held from July 3 – 8 in Ghent, Belgium. (This paper is extended to journal paper)
- Ashraf Chamseddine, Ibrahim Alameddine and Mutasem El-Fadel. (**2016**). Development of an indoor air quality index for risk assessment in hospitals. *Accepted paper* and presented in *Indoor Air 2016 Conference* held from July 3 – 8 in Ghent, Belgium. (This paper is extended to journal paper)
- Ashraf Chamseddine, Ibrahim Alameddine and Mutasem El-Fadel. (**2016**). Development of a water quality index. *Accepted paper* and was presented at *2016 AWRA Annual Conference* held from November 13 – 17 in Orlando, Florida USA.
- A. Chamseddine & M. El –Fadel. (**2015**). Exposure to air pollutants in hospitals: indoor – outdoor correlations. *Sustainable Development*, Vol. 2, 707 - 716. *WIT Transactions on the Built Environment*, Vol. 168, © 2015 WIT Press doi: 10.2495/SD150622.

Submitted Manuscripts:

- Chamseddine A., Soudani N., Kanafani Z., Alameddine I., Dbaibo G., Zaraket H., and El-Fadel M. (**2019**). Measurement of influenza virus and respiratory syncytial virus inside patient rooms: A CFD model exploring transmission routes. Submitted to: *Journal of Hospital Infection*
- Chamseddine A., Alameddine I., and El-Fadel M. (**2019**). What index is more suitable for air quality assessment within hospitals? Submitted to: *Environmental Impact Assessment (EIA) Reviews*

REFERENCES

- **American University of Beirut - AUB**:
  - Prof. Mutasem El-Fadel, *email:* mfadel@aub.edu.lb, *Phone*: +961- 1 -350000 *ext*. 3470, *Mobile*: +961- 03 – 288 338
  - Prof. Alan Shihadeh (Dean), *email*: as20@aub.edu.lb , *Phone*: +961- 1 -350000 *ext*. 3400, *Mobile*: +961- 71 – 300 725
  - Prof. Najat Saliba, *email*: ns30@aub.edu.lb , *Phone*: +961- 1 -350000 *ext*. 3992, *Mobile*: +961- 03 – 764 846
  - Dr. Hassan Zaraket, *email*: hz34@aub.edu.lb , *Phone*: +961- 1 -350000 *ext*. 7712, *Mobile*: +961- 78 – 861 989
  - Dr. Ibrahim Alameddine, *email*: ia04@aub.edu.lb, *Phone*: +961- 1 -350000 *ext*. 3429, *Mobile*: +961- 76 - 012 012
- **Lebanese American University - LAU**:
  - Dr. Hussein Hassan, *email*: hussein.hassan@lau.edu.lb, *Phone*: +961- 1 -786456 *ext*. 1609, *Mobile*: +961- 71 – 191 445