



Name: Dr. Jean Henri El Achkar

Rank: Assistant Professor - Petroleum Engineering

Personal Information

Nationality:	Lebanese
AU Joining Date:	05 Sep 2021
E-Mail Address:	j.achkar@au.edu.kw

Professional Information

Education:

Qualification: Executive Certificate
Major: Oxford Leading Sustainable Corporations Programme.
University: Saïd Business School, University of Oxford, UK
Year: 2024

Qualification: Doctorate
Major: Chemical Engineering
University: University of South Brittany, France
Year: 2014/2017

Qualification: Doctorate
Major: Biochemistry
University: Saint Joseph University of Beirut, Lebanon
Year: 2014/2017

Qualification: Masters
Major: Biochemistry
University: Saint Joseph University of Beirut
Year: 2011/2013

Qualification: Bachelor
Major: Earth and Life Sciences
University: Lebanese University
Year: 2008/2011

Specialization:	Chemical and Environmental Engineering Bioprocess Engineering Sustainability and Resources Management Renewable energy Biofuels and Bioenergy
Current Academic Position:	Assistant Professor - Petroleum Engineering - AU Kuwait Visiting Fellow - LSE Middle East Center - London
Current Professional Positions:	Regional Coordinator at AGYA (Arab-German Young Academy of Sciences and Humanities), academy based in Berlin. Ambassador at One Young World, UK.
Previous Administrative Position Held:	September 2019 - May 2020: Team Manager at the Chair for Education on Eco-Citizenship and Sustainable Development, Diane Foundation, Beirut
Previous Academic Positions Held:	September 2020 - August 2021: Assistant Professor, Chemical and Petroleum Engineering Department, Faculty of Engineering, Beirut Arab University September 2017 - July 2020: Senior Lecturer and Post-doctoral Researcher at the Higher School of Engineers of Beirut and the Faculty of Sciences, Saint Joseph University of Beirut February 2014 - August 2016: Researcher at the University of South Brittany, France
Fellowships And Honors:	May 2025: Australian Ambassador Excellence Prize for research project titled "Turning CO ₂ from enemy to ally: Simulation and optimization of CO ₂ -to-methanol conversion for a sustainable future." Australian Embassy, Kuwait. December 2024: Kuwait Fellowship at The London School of Economics and Political Science (LSE). September 2023: 3rd Prize, Carbon Neutrality Cup Competition organized by the Gulf Petrochemical and Chemicals Association. Bahrain. November 2022: Gold Engineering Excellence Award 2022, Category: Energy Conservation. Tamilnadu Engineers Forum, Kuwait. July - August 2022: Visiting Scholar, United Nations University, Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Germany July 2021: One Young World ambassador, UK January 2021: Audi AG Environmental Foundation Award, Germany October 2019: Green Talents Award from the German Federal Ministry of Education and Research, BMBF

	December 2017: Berytech Incubation and Business Support First Prize March 2017: Lebanese Industrial Research Achievement, “LIRA” fund award from the Lebanese Ministry of Industry 2014 - 2017: PhD Scholarships from the National Council for Scientific Research in Lebanon (CNRS-L) and the French Institute - Cooperation Service of the French Embassy
Teaching Experience:	September 2021 - Present: Assistant Professor, Petroleum Engineering, College of Engineering, Australian University - Kuwait September 2020 - August 2021: Assistant Professor, Chemical and Petroleum Engineering Department, Faculty of Engineering, Beirut Arab University September 2017 - July 2020: Senior Lecturer at the Higher School of Engineers of Beirut and the Faculty of Sciences, Saint Joseph University of Beirut September 2016 - July 2017: Lecturer at the Higher School of Engineers of Beirut and the Faculty of Sciences, Saint Joseph University of Beirut
Industrial And Technical Experience:	Consultant and trainer for the valorization and management of industrial byproducts and waste.
Research Interest:	Biomass and Biofuels Bioenergy Resources and Technologies Anaerobic Digestion and Biogas Solid and Liquid Waste Treatment and Valorization Biotechnology and Bioprocessing Environmental Technology and Innovation
Research Grants:	February 2023 - Present: Research grant from KFAS - Kuwait Foundation for the Advancement of Sciences. Research Project no: PP22-15SE-1593 entitled: Green valorization of food waste in Kuwait as a renewable energy source using anaerobic digestion. Principal Investigator. 2022 - Present: Research grant from the Australian University for the Research Project no: IRC-2021/2022-SOE-PE-PR11 entitled: Green valorization of Petroleum Solid Waste and its conversion into bioenergy through anaerobic digestion technology. Principal Investigator. 2022 - Present: Research grant from the Australian University for the following project: Oil-polluted water treatment using an innovative technique by super magnetic nanoparticles and bio-sorbent waste materials. Co-Investigator. Grant from the Lebanese Industrial Research Achievement, “LIRA” Grant from the National Council for Scientific Research in Lebanon (CNRS-L) Grant from the German Federal Ministry of Education and Research, BMBF
Research and Publications including Journal and Books:	El Achkar, J.H., 2025. Sustainable Universities as Catalysts for Industry 5.0 Transformation, in: Erturk, A., Özşahin, M., Simovic, V. (Eds.), Human-Centric, Sustainable, and Resilient Organizations in the Digital Age. IGI Global, Hershey, PA, USA, pp. 27–52. https://doi.org/10.4018/979-8-3693-8181-6.ch002

	El Achkar, J.H., Malhas, R., Albalool, F., Alrabaie, A., 2025. Sustainable conversion of petroleum sludge to methane: A study on anaerobic biodegradability in batch and continuous systems. <i>Geoenergy Sci. Eng.</i> 250, 213816. https://doi.org/10.1016/j.geoen.2025.213816 Jean H. El Achkar, Suad Al Radhwan, Ahmed Al-Otaibi, Abdul Md Mazid, 2024. Optimizing food waste anaerobic digestion in Kuwait: Experimental insights and empirical modelling using artificial neural networks. <i>Waste Manag Res</i> 0734242X241294247. Malhas, R., El Achkar, J.H., Misbah, B., Al Radhwan, S., 2023. Optimizing Oil Removal from Oil-Water Emulsions Using Novel Iron Oxide Magnetic Nanoparticles. <i>Water. Air. Soil Pollut.</i> 234, 564. https://doi.org/10.1007/s11270-023-06590-4 El Achkar, J.H., El Joauhari, A., Nassreddine, C., Mgharbel, M., Izmerly, Y., 2023. Anaerobic Digestion of Wastewater Sludge for Improved Energy Recovery: Alkaline Pretreatment Impact, Digestate Quality Assessment, and Reactor Design. <i>Arab. J. Sci. Eng.</i> https://doi.org/10.1007/s13369-023-08068-1 Fleischmann, J., Blechinger, P., Ribbe, L., Nauditt, A., El Achkar, J.H., Tiwari, K., Kuleape, R., Platzer, W., 2023. OWEFE - open modeling framework for integrated water, energy, food, and environment systems. <i>Environ. Res. Infrastruct. Sustain.</i> https://doi.org/10.1088/2634-4505/acbcee Zallaya, S., El Achkar, J.H., Chacra, A.A., Shatila, S., El Akhdar, J., Daher, Y., 2023. Steam gasification modeling of polyethylene (PE) and polyethylene terephthalate (PET) wastes: A case study. <i>Chem. Eng. Sci.</i> 267, 118340. https://doi.org/10.1016/j.ces.2022.118340 El Achkar, J.H., 2022. Sustainable Solid Waste Management: Towards a Complete and Effective Strategy. <i>Arab J. STI Policies</i> 3, 9–17. https://doi.org/10.21608/ARABSTI.2023.291066 El Achkar, J.H., Lendormi, T., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L., Hobaika, Z., 2018. Influence of pretreatment conditions on lignocellulosic fractions and methane production from grape pomace. <i>Bioresource Technology</i>, 247, 881–889. DOI: 10.1016/j.biortech.2017.09.182 El Achkar, J.H., Lendormi, T., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L., Hobaika, Z., 2018. Anaerobic digestion of grape pomace: Effect of the hydraulic retention time on process performance and fibers degradability. <i>Waste Management</i>, 71, 137–146. DOI: 10.1016/j.wasman.2017.11.005 El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L., 2017. Anaerobic digestion of nine varieties of grape pomace: Correlation between biochemical composition and methane production. <i>Biomass Bioenergy</i>, 107, 335–344. DOI: 10.1016/j.biombioe.2017.10.030 El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L., 2016. Anaerobic digestion of grape pomace: Biochemical characterization of the fractions and methane production in batch and continuous digesters. <i>Waste Management</i>, 50, 275–282. DOI: 10.1016/j.wasman.2016.02.028
Paper Presentations at Professional Conferences:	El Achkar, J.H., Alsaba, M., 2024. DYNAMIC INTEGRATION OF SUSTAINABILITY AND CLIMATE CHANGE IN ENGINEERING CURRICULA VIA CDIO. Presented at the 20th International CDIO Conference, Tunisia.

- J. El Achkar, R. Malhas, M. Alsaba. Innovative Produced Water Management: A Nexus Approach for Sustainable Oil and Gas Industry - A Critical Review. 2024 SPE Water Lifecycle Management Conference & Exhibition.
- K.W. Amadi, M. T. Alsaba, J. H. El Achkar, and R.M Elgaddafi. AI-Driven Green Optimization in Well Construction: Carbon Emission Management through Technical limit Performance Benchmarking. 2024 Gas & Oil Technology Showcase and Conference (GOTECH).
- El Achkar, J.H., Husain, A.B., Alotaibi, N., Alhaddad, N., Alamgir, T., Alshamali, H., Alshammari, Y., Almuhanha, M., Albekheet, A., Alenezi, K., Alsaba, M.T., 2022. Could Petroleum Sludge be Used to Produce Biomethane as a Renewable Energy Source? Presented at the ADIPEC, OnePetro. <https://doi.org/10.2118/210953-MS>
- El Achkar, J.H., Ziadeh, R., Louka, N., Maroun, R.G., Hobaika, Z. Treatment of dairy waste by anaerobic digestion to produce methane as green energy. REDEC 2020, International Conference on Renewable Energies for Developing countries, 24 - 26 March 2020, Marrakech. Oral presentation. DOI: 10.1109/REDEC49234.2020.9163848
- El Achkar, J.H., Baydoun, A., Salameh, D., Louka, N., Hobaika, Z, Maroun, R.G. Can coffee grounds be considered as a potential for green energy production. REDEC 2018, International Conference on Renewable Energies for Developing countries, 1 - 2 November, Beirut. Oral presentation. DOI: 10.1109/REDEC.2018.8598105.
- El Achkar, J.H., Rohayem, C., Salameh, D., Louka, N., Maroun, R.G, Hobaika, Z. Olive pomace, a source of green energy using anaerobic digestion. REDEC 2018, International Conference on Renewable Energies for Developing countries, 1 - 2 November, Beirut. Oral presentation. DOI: 10.1109/REDEC.2018.8598079
- El Achkar, J.H., Lendormi, T., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L., Hobaika, Z. Anaerobic Digestion of Grape Pomace: Effects of Biochemical Components on Methane Production and Process Intensification Using Several Pretreatment Conditions. 26th European Biomass Conference and Exhibition, EUBCE 2018, 14 - 17 May 2018, Copenhagen – Denmark. Oral presentation.
- El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L. Chemical characteristics and methane potential of different varieties of grape pomace under a wide range of environmental conditions. ECCE10 (10th European Congress of Chemical Engineering), September 27 - October 1, 2015, Nice - France. Oral presentation.
- El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L. Valorization of industrial byproducts: assessing the impact of polyphenols on biogas production, using grape pomace. 18th ISANH Middle East World Congress "Beirut Antioxidants 2017", Journal of International Society of Antioxidants in Health and Nutrition (JISANH) - Volume 4 - Issue 1, 2017. Oral presentation
- El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L. Anaerobic digestion of grape pomace: effect of alkaline pretreatment on methane production in batch and continuous digesters. V International Meeting on Plant Biotechnology in Arid and Oases Areas, Aridotech 2016, 19 - 21 December 2016, Djerba - Tunisia

	El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L. Caractérisation préliminaire de la méthanisation de marc de raisin en perspective d'une implantation dans la plaine de la Bekaa au Liban. Journées Recherche Industrie, Biogaz et méthanisation, 3 - 5 February 2015, Rennes - France El Achkar, J.H., Lendormi, T., Hobaika, Z., Salameh, D., Louka, N., Maroun, R.G., Lanoisellé, J.-L. Potentiel méthanogène de différentes variétés de marc de raisin cultivées dans diverses conditions environnementales. 1ère rencontre de viticulture et d'œnologie, « Terroirs libanais, qualité du vin et valorisation des coproduits », 27 November 2015, Beirut – Lebanon Hobaika, Z., El Achkar, J.H., Salameh, D., Louka, N., Maroun, R.G. Smart Sustainable Cities: Towards Sustainable Bioenergy Approaches. Smart and Sustainable Cities: Between Reality and Aspirations. Rabat, Morocco, on October 4 - 6, 2018 Hobaika, Z., El Achkar, J.H., Salameh, D., Louka, N., Maroun, R.G. Agro-industrial Byproducts and Waste Valorization: Towards sustainable bioenergy approaches. 4th ISANH Middle East Redox & Microbiota 2019 World Congress. Muscat, Oman, on March 4 - 6, 2019
College Service, including committee Membership:	- Coordinator of the Memorandum of Understanding (MoU) between the Australian University and The Gulf Petrochemicals and Chemicals Association (GPCA). - Member of Steering Committee Memorandum of Understanding (MoU) between the Australian University and Kuwait Integrated Petroleum Industries Company (KIPIC). - Students Graduation Project Exhibition – Event Coordinator for Academic Year 2022-2023
National Service:	NA
College Committees:	- Departmental Council - Curriculum Committee - Laboratory Committee - Research & Faculty Development Committee