



# SUSTAINABILITY 2023-2024

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COMMUNICATION ON  
ENGAGEMENT (COE)



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## REPORTING BY SDG

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# List of Acronym

<b>ALBA</b>	Académie Libanaise des Beaux Arts
<b>BBA</b>	Bachelor of Business Administration
<b>CDLL</b>	Career Services Center
<b>COE</b>	Cénacle de la Lumière
<b>CSC</b>	Communication on Engagement
<b>DHC</b>	Digital Humanities Center
<b>EEE</b>	Energy and Environmental Economics
<b>FOBM</b>	Faculty of Business and Management
<b>FOE</b>	Faculty of Engineering
<b>FHS</b>	Faculty of Health Sciences
<b>GIS</b>	Geographic Information System
<b>IAB</b>	International Advisory Board
<b>IOE</b>	Institute of Environment
<b>LEMSIC</b>	Lebanese Medical Students' International Committee
<b>LNR</b>	Land and Natural Resources
<b>MCR</b>	Marine and Coastal Resource
<b>MOE</b>	Ministry of Environment
<b>MOU</b>	Memorandum of Understanding
<b>SDG</b>	Sustainable Development Goal
<b>TOT</b>	Training of Trainees
<b>UN</b>	United Nations
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNRWA</b>	United Nations Relief and Works Agency for Palestine Refugees in the Near East
<b>UOB</b>	University of Balamand

## INTRODUCTION

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The University of Balamand is a private non-profit independent Lebanese institution of Higher Education licensed by the State of Lebanon. It was founded in 1988 by His Beatitude Patriarch Ignatius IV in the name of the Patriarchate of Antioch and All the East for the Greek Orthodox. The University admits students from Lebanon and the Region without discrimination on the basis of religion, gender, or physical handicap. Inspired by the Tradition of the Antiochian Christian Orthodox Church in promoting the welfare of humanity and its highest values, the University is committed to principles of tolerance, compassion, and openness and Christian-Muslim understanding. The University is dedicated to graduating professionals who are well-rounded, critical thinkers, life-long learners, and active citizens in their respective societies.

The University also seeks to limit the influence of dogmatism and fundamentalism in intellectual, social, political, religious and cultural fields. The University believes irresponsible freedom, in the role of reason in uncovering the truths, and in the deepening of human existence under God. Through quality education, rigorous research, concern for the public good, and engagement with the community, the University seeks to contribute to nation building, ethical standards, inter-cultural dialogue, environmental responsibility, and human development.

Today, the university's main campus remains on the Balamand Hill with four campuses across Lebanon. The University is also in the process of constructing a new hospital under the name of University of Balamand Medical Center.



# STATEMENT OF CONTINUED SUPPORT BY THE PRESIDENT

University of Balamand  
Office of the President



جامعة البلمند  
مكتب الرئيس

24 October 2024

The University of Balamand (UOB) is dedicated to preparing its graduates in multiple disciplines, while maintaining a strong commitment to the welfare of its community. Through its interdisciplinary academic programs and research activities, UOB seeks to develop approaches that foster nation building and promote human prosperity. In this context, I am pleased to affirm that our University is committed to the United Nations Global Compact and its 17 SDGs.

The following points outline the projects our University has undertaken to support the UN Global Compact and the Sustainable Development Goals:

- **Reinforcing capacity** for early warning, risk reduction, and management of national and global health risks, while ensuring access to high-quality healthcare services, safe and effective and affordable essential medicines.
- **Investing in resilient infrastructure** and installing solar panels across our campuses. This step aims to ensure access to affordable, reliable, sustainable, and modern energy for all. It advances a transition to a sustainable energy source towards making our campus a greener and more environmentally-friendly place.
- **Promoting gender equality** through selecting fifty female staff and faculty to engage in a project designed to increase women's representation on organizational boards. This enterprise reflects UOB's commitment to empowering women and enhancing their professional development, ultimately contributing to gender parity in leadership roles.
- **Fostering collaboration** among academic and civil society sectors to enhance transparency and stimulate socio-economic advancement in Lebanon. This was achieved by hosting a symposium that addressed digital transformation and good governance, emphasizing the importance of integrating educational technology and accountability into national strategies.
- **Ensuring education for all** especially amid economic hardship. UOB has established several memorandums with public sector institutions, syndicates, and schools to provide scholarships and guarantee equal educational opportunities for underprivileged individuals and those affected by the crisis.
- **Establishing Civil Society Support Fund**, as a response to the ongoing conflict in Lebanon, which aims at providing immediate assistance to individuals affected by the atrocities of this entire war. This initiative focuses on delivering medical assistance, food supplies, and educational resources to those who have been displaced.

Finally, our strategy has always been and will always be in line with the motto of the United Nations: "Peace, dignity and equality on a healthy planet."

Elias L. Warrak  
President

# UOB SDGS INITIATIVE

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As part of its commitment to the Sustainable Development Goals (SDGs), the University of Balamand has launched a dedicated **sustainability page**. This resource showcases initiatives aligned with the UN SDGs, highlighting efforts in governance, research, energy, water management, and sustainable procurement. It also outlines the university's long-term Climate Action Plan, driven by the principle of "Leaving no one behind," to promote social inclusion and environmental responsibility.

The page includes a Crowdsourcing Application to create a repository of all initiatives, research, teaching, and activities related to the UN SDGs and targets.

Recognized in the Times Higher Education Impact Rankings, the university's initiatives significantly contribute to goals such as Good Health & Well-being, Sustainable Cities, and Partnerships for the Goals.



The aim of this form is to create a repository on all initiatives, research, teaching and activities that are related to and/or aligned with any one of the UN SDG's and targets. The repository will serve to:

- Evidence UN SDG's related activities for the Global Compact since UOB has just joined in with Dr. Warrak as a council member.
- Identify meaningful content for the announcement of this membership.
- Participate in THE Impact Ranking, 1st by identifying the SDG's that are most "popular" at UOB
- Going forward, inform strategic planning by providing context on current UN SDG's activities and alignment at UOB

Since the UN SDG's targets/KPI's are different from the THE metrics that are used to assess universities, it is important to capture both KPI's and THE metrics values.



PLEASE Use your UOB credentials to log in to the form.

--Select User Type--

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SUBMIT

For technical problems, please send an email to [Webmaster@balamand.edu.lb](mailto:Webmaster@balamand.edu.lb)

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# 1 NO POVERTY

## RESEARCH TOWARD NO POVERTY

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In the past two years, there have been a few notable publications related to SDG 1 from the University of Balamand. El-Chaarani et al. (2024) examined the factors affecting the adoption of cryptocurrencies for financial transactions, highlighting how these digital currencies can enhance financial inclusion and provide alternative financial solutions for the unbanked and underbanked, thereby contributing to poverty reduction. Hatoum and Barraj (2023) investigated changes in travel behavior during an economic crisis in the Greater Beirut Area, shedding light on how economic instability affects mobility and access to essential services, which are crucial for alleviating poverty. Koussa (2023) analyzed the political and economic transitions in Egypt since 2011, offering insights into how democratic reforms and economic policies can impact poverty reduction efforts. These studies collectively provide valuable perspectives on financial inclusion, economic resilience, and governance, all essential for achieving SDG 1.

1. El-Chaarani, H., El-Abiad, Z., El Nemar, S., & Sakka, G. (2024). **Factors affecting the adoption of cryptocurrencies for financial transactions.** EuroMed Journal of Business. Open access.
2. Hatoum, A.A., & Barraj, F. (2023). **Investigating the changes in travel behaviour during an economic crisis in a developing country: A case study of the Greater Beirut Area, Lebanon.** Transportation Research Interdisciplinary Perspectives.
3. Koussa, Z. (2023). **Revolution, Change, and Democratic Transition in Egypt Since 2011: A Critical Political Economy Approach.** Contemporary Review of the Middle East.

## HUMANITARIAN INITIATIVES AND FUNDRAISERS

Several initiatives led by different clubs across various campuses have successfully fundraised for humanitarian causes.

Examples include Christmas bake sales, donation drives, blood drives, and clothing reuse programs.

In addition, students have spent days with underprivileged groups, such as children with disabilities, autistic kids, and orphans. Other initiatives include the rehabilitation of destroyed houses and tree planting projects. These efforts reflect a strong commitment to social responsibility and sustainability



## Activity Title

## Club Name

Christmas bake sale

Medical Students Society

Christmas Village

All Clubs

Donation Drive

Iemsic

Donation Drive

Eco

Valentines Day Medical Fundraiser

Medical Students Society

Fundraising: Business  
Connections movie night

Business Connections

Orphanage Visit

Business Connections

## A HEARTWARMING FUNDRAISER

The UOB Business Connections Club exemplified the spirit of community service and bringing joy to children through their recent initiative. With a goal to support the SOS Children's Village in Lebanon, the club organized a Standup Comedy Night, and successfully raising a record-breaking amount of funds. This event not only highlighted the club's dedication to social responsibility but also underscored their ability to mobilize resources for meaningful causes. Following the event, members of the club visited the SOS Children's Village, spending a day filled with activities and creating memorable experiences for the children. This initiative aligns with our university's commitment to fostering social and economic inclusion, supporting underprivileged communities, and promoting the wellbeing of children.





## **FLOUCA SYSTEM STARTUP**

Flouca is an internet-driven system, developed by the IOE to monitor fisheries in North Lebanon by collecting catch and effort data to enhance livelihoods and reduce vulnerability for fishers. Users can begin by selecting their preferred language from the three options: Arabic, English and French. Public access provides data summaries and general information about the system's methodology and operations.





# 2 ZERO HUNGER

## PROJECTS AND RESEARCH ON ZERO HUNGER

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In the past two years, several significant research projects have been conducted. Karam et al. (2024) surveyed the use of unmanned aerial vehicles in smart agriculture, focusing on types and modeling perspectives to enhance agricultural practices. Doumat et al. (2024) reviewed the factors affecting food insecurity among refugee children in the MENA region, identifying barriers to food relief and lessons learned. Additionally, studies explored the health benefits of Zhourat tea, antibiotic use among Lebanese dairy veterinarians, pet food safety in Lebanon and the UAE, mycotoxins in Lebanese cornflakes, and the microbiological quality of meat in traditional butcher shops. These projects collectively contribute to improving health, food safety, and agricultural practices in the region.

### RESEARCH

1. Karam, K., Mansour, A., Khaldi, M.R., Clement, B., & Ammad, M. (2024). **A Survey for Unmanned Aerial Vehicles in Smart Agriculture: Types and Modelling Perspectives.** In IEEE Advanced Information Technology, Electronic and Automation Control Conference (IAEAC).
2. Doumat, G., Choudhury, S., Idriss, A., Doumat, N., & Sacca, L. (2024). **Assessing Physical, Mental, and Social Factors Associated with Refugee Children Food Insecurity, Food Relief Barriers, and Lessons Learned in the Middle East and North Africa (MENA) Region: A Scoping Review.** Journal of Hunger and Environmental Nutrition.

### NUTRITIONAL SCIENCES PROJECTS

1. **Zhourat Project (2024):** This project explores the health potential of Zhourat, a Middle Eastern herbal tea, highlighting its benefits and uses. The study is detailed in the Reference Series in Phytochemistry.
2. **Post-doc Project on Antibiotic Use (2023):** This research examines the attitudes and practices regarding antibiotic use among Lebanese dairy veterinarians, addressing emerging threats and providing insights from a developing country context. The findings are published in Frontiers in Veterinary Science.
3. **Pet Food Safety Project in Lebanon and UAE (2024):** This project investigates food safety knowledge and practices among pet owners in Lebanon, marking a first-of-its-kind study in the Arab region. It also includes a microbial assessment of commercial pet foods in the UAE. The results are published in Scientific Reports and Frontiers in Veterinary Science.

4. **Breakfast Cereals Project (2023):** This study assesses the presence of mycotoxins in cornflakes marketed in Lebanon, with findings published in Scientific Reports.
5. **Meat Project (2024):** This research evaluates the hygienic sanitary risks and microbiological quality of meat and meat-contact surfaces in traditional butcher shops and retail establishments in a developing country. The study is published in the International Journal of Environmental Health Research

## TRANSFORMATIVE ROUND TABLE DISCUSSION ON AGRICULTURE

The Career Services Center at the University of Balamand, in collaboration with MENA Food Safety Associates (MEFOSA), organized a Round Table Discussion on November 13, 2023, at its Beino Akkar campus. Attended by key figures from academia, agriculture, and local organizations, the event focused on addressing critical issues in Akkar's



agriculture sector. Through a SWOT analysis, participants identified challenges such as water pollution and high irrigation costs, while also highlighting opportunities like GIS mapping and advanced agricultural technologies. Success stories from local entrepreneurs underscored the potential of Akkar's agricultural products. The discussion concluded with recommendations for creating an agricultural calendar and leveraging machine learning, emphasizing a collaborative approach involving the Ministry of Agriculture, NGOs, and universities to drive positive change in the region's agrifood industry.

## COLLABORATION FOR AGRICULTURAL EMPOWERMENT

The University has signed a grant agreement with the Lebanon Agriculture and Rural Empowerment Program (ARE) to support the LIVAK (LIVestock AKkar) project. This project, overseen by the Agricultural Value Chain Development Center (AVCDC), aims to assist 250 small ruminant farmers and 275 bovine farmers in Akkar. The farmers will receive technical support, training



sessions on feed and nutrition, good farming practices, health and hygiene, and vaccinations against common diseases. The initiative's positive impact on the agricultural sector, highlighting the university's commitment to fostering growth and ensuring food security.

## COLLABORATION FOR AGRICULTURAL EMPOWERMENT

Agriculture, one of humanity's oldest and most vital activities, is crucial for sustaining populations. At UOB, modern agriculture is emphasized through new technologies like the Internet of Things (IoT) and sensor nodes to monitor fields and ensure optimal conditions. Traditional irrigation systems often lead to uneven water distribution, but IoT devices at the university collect data on temperature, water levels, soil moisture, light intensity, and humidity, transmitting it to a cloud-based platform for analysis. This digital transformation in agriculture promises improved crop yields, water conservation, cost savings, and enhanced environmental sustainability through continuous, low-cost monitoring and data-driven strategies.



# 3 GOOD HEALTH AND WELL-BEING

## RESEARCH ON GOOD HEALTH AND WELL BEING

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The university has more than 120 publications related to SDG3, reflecting its extensive research efforts in promoting health and well-being. The main themes include the management and treatment of chronic diseases such as diabetes, cardiovascular conditions, and cancer. Researchers have explored innovative therapeutic approaches, including the use of medicinal plants, novel drug formulations, and advanced diagnostic techniques. Another significant theme is the impact of lifestyle factors and environmental exposures on health, with studies examining the effects of diet, physical activity, and pollutants on various health outcomes.

Additionally, the publications address public health challenges such as the COVID-19 pandemic, mental health issues, and the prevalence of infectious diseases. There is a strong emphasis on understanding the social determinants of health and the disparities in healthcare access and outcomes. The research also highlights the importance of early detection and prevention strategies, as well as the role of technology and policy in enhancing healthcare delivery. Overall, these studies contribute valuable insights into the complex interplay between biological, environmental, and social factors in health and disease.

1. **"Aero-Marine ResQfly"** by Liliane Alameddine, Kevin Ayoub, and Hayat Jaber, supervised by Macole Sabat, 2024.
2. Abbas, N.H., Rouaiheb, H., Saliba, J.L., & El-Bikai, R. (2023). **Childhood obesity: Facts and parental perceptions.** World Academy of Sciences Journal. Open access.
3. Abdallah, F., Bazzi, S.I., Akle, C.A., Bahr, G.M., & Echtay, K.S. (2024). **Reduction of hyperglycemia in STZ-induced diabetic mice by prophylactic treatment with heat-killed Mycobacterium aurum: possible effects on glucose utilization, mitochondrial uncoupling, and oxidative stress in liver and skeletal muscle.** Frontiers in Endocrinology. Open access.
4. Abi Saleh, W., Alameh, Z., Aoun Bacha, Z., Zeinedine, S., & Zaitoun, F.H. (2023). **Prevalence of the Eosinophilic Phenotype Among Severe asthma patients in Lebanon: results of the PREPARE study.** Allergy, Asthma and Clinical Immunology. Open access.
5. Abou Assi, L., Alkhansa, S., Njeim, R., Khalil, M.I.M., & Eid, A.A. (2024). **Uncovering the Therapeutic Potential of Lithium Chloride in Type 2 Diabetic Cardiomyopathy: Targeting Tau Hyperphosphorylation and TGF- $\beta$  Signaling via GSK-3 $\beta$  Inhibition.** Pharmaceuticals. Open access.
6. Abu-Alfa, A.K., Atallah, P.J., Azar, S.T., Medlej, R.C., & Mohamad, M.A. (2023). **Recommendations for Early and Comprehensive Management of Type 2 Diabetes and Its Related Cardio-Renal Complications.** Diabetes Therapy. Open access.

7. Akbar, Z.A., Kunhipurayil, H.H., Saliba, J.L., Shi, Z., & Shaito, A.A. (2024). **The Association between Lifestyle Factors and COVID-19: Findings from Qatar Biobank.** *Nutrients*. Open access.
8. Al Hageh, C., O'Sullivan, S.M., Platt, D.E., Nader, M., & Zalloua, P.A. (2024). **Coronary artery disease patients with rs7904519 (TCF7L2) are at a persistent risk of type 2 diabetes.** *Diabetes Research and Clinical Practice*.
9. Al Zein, M., Boukhdoud, M., Shammaa, H., Sahebkar, A., & Eid, A.H. (2023). **Immunotherapy and immunoevasion of colorectal cancer.** *Drug Discovery Today*.
10. Ali, B., Hamdan, A., Horanieh, E., & Shakaroun, N. (2024). **Bacterial meningitis associated cerebral vasculitis: A case report and review of the literature.** *Clinical Infection in Practice*. Open access.
11. Al-Jamal, H., Idriss, S., Roufayel, R., Fajloun, Z., & Sabatier, J.M. (2024). **Treating COVID-19 with Medicinal Plants: Is It Even Conceivable? A Comprehensive Review.** *Viruses*. Open access.
12. Allam, S., Nasr, K., Khalid, F., Anwer, F., & Chaulagain, C.P. (2023). **Liquid biopsies and minimal residual disease in myeloid malignancies.** *Frontiers in Oncology*. Open access.
13. Al-Shboul, M., Assaf, A., & Mokni, K. (2023). **Does economic policy uncertainty drive the dynamic spillover among traditional currencies and cryptocurrencies? The role of the COVID-19 pandemic.** *Research in International Business and Finance*. Open access.
14. Aoun Bacha, Z., Bitar, N.M.A., El-Karak, F., Tfaili, A.H., & Zeineddine, S. (2023). **Lung cancer screening in Lebanon: Joint statement from the Lebanese Pulmonary Society and the Lebanese Society of Medical Oncology.** *World Academy of Sciences Journal*. Open access.
15. Assaf, A., Mokni, K., Yousaf, I., & Bhandari, A. (2023). **Long memory in the high frequency cryptocurrency markets using fractal connectivity analysis: The impact of COVID-19.** *Research in International Business and Finance*.
16. Babunashvili, E.L., Son, D.Y., Buyanova, S.N., Laganà, A.S., & Etrusco, A. (2023). **Outcomes of Laparotomic Myomectomy during Pregnancy for Symptomatic Uterine Fibroids: A Prospective Cohort Study.** *Journal of Clinical Medicine*. Open access.
17. Bharat, C.I., Glantz, M.D., Aguilar-Gaxiola, S., Kessler, R.C., & Degenhardt, L.J. (2023). **Development and evaluation of a risk algorithm predicting alcohol dependence after early onset of regular alcohol use.** *Addiction*. Open access.
18. Bindal, P., Najjar, M., Koehn, K.A., Wagner, C.B., & Mohyuddin, G.R. (2023). **Refractoriness to last line of therapy: how often is it mandated and reported? A systematic review of randomized myeloma trials.** *Leukemia and Lymphoma*.
19. Bou Ghanem, A., Hussayni, Y., Kadbey, R., Azar, S.T., & Harb, F.F. (2023). **Exploring the complexities of 1C metabolism: implications in aging and neurodegenerative diseases.** *Frontiers in Aging Neuroscience*. Open access.
20. Boustany, A., Onwuzo, S.S., Abou Zeid, H.K., Hitawala, A.A., & Asaad, I. (2023). **Non-alcoholic steatohepatitis is independently associated with a history of gestational diabetes mellitus.** *Journal of Gastroenterology and Hepatology (Australia)*. Open access.
21. Boustany, A., Rahhal, R., Mitri, J., Abou Zeid, H.K., & Asaad, I. (2023). **Increased risk of colorectal cancer in patients with chronic tophaceous gout: a population-based study | Risco aumentado de câncer colorretal em pacientes com gota tofácea crônica: um estudo populacional.** *Arquivos de Gastroenterologia*. Open access.

22. Canet, G., Gratuze, M., Zussy, C., Julien, C., & Planel, E. (2024). **Age-dependent impact of streptozotocin on metabolic endpoints and Alzheimer's disease pathologies in 3xTg-AD mice.** *Neurobiology of Disease*. Open access.
23. Cano, C.O., Tannous, J., & del Marmol, V. (2023). **Chemoprevention and Photoprotection in Non-Melanoma Skin Neoplasms.** In *Non-melanoma Skin Cancer: Essentials for Oncologists*.
24. Chami, P., Diab, Y., Khalil, D.N., Crane, C.H., & Hajj, C. (2023). **Radiation and Immune Checkpoint Inhibitors: Combination Therapy for Treatment of Hepatocellular Carcinoma.** *International Journal of Molecular Sciences*. Open access.
25. Czepiel, D., McCormack, C.A., Da Silva, A.T.C., Hoek, H.W., & van der Ven, E.M.A. (2024). **Inequality on the frontline: A multi-country study on gender differences in mental health among healthcare workers during the COVID-19 pandemic.** *Global Mental Health*. Open access.
26. Dagher, W.J., Kayrouz, A., Nasrallah, P., Nemer, L., & Shahoud, R. (2023). **The Impact of COVID-19 and the October 17th Revolution on Employees' Performances: Case of Lebanese Banks.** In *Accounting, Finance, Sustainability, Governance and Fraud*.
27. Daher, J.Y. (2024). **A Potential Link between Myeloperoxidase Modified LDL, Atherosclerosis and Depression.** *International Journal of Molecular Sciences*. Open access.
28. Diab, H., Rahy, K., Jisr, T.E., Abboud, E., & Tokajian, S.T. (2024). **Phenotypic and molecular characterization of multi-drug resistant Klebsiella spp. isolates recovered from clinical settings.** *Infection, Genetics and Evolution*. Open access.
29. Dosh, L., Ghazi, M., Haddad, K., Jurjus, R.A., & Jurjus, A.R. (2024). **Probiotics, gut microbiome, and cardiovascular diseases: an update.** *Transplant Immunology*.
30. El Khoury, A., Lazar, L.F., & Cortese, B. (2023). **The fate of coronary dissections left after sirolimus-coated balloon angioplasty: A prespecified subanalysis of the EASTBOURNE study.** *Catheterization and Cardiovascular Interventions*.
31. El Khoury, M., Salloum, T., Al Kodsí, I., El Chaar, M.H., & Tokajian, S.T. (2023). **Whole-genome sequence analysis of carbapenem-resistant Enterobacteriaceae recovered from hospitalized patients.** *Journal of Global Antimicrobial Resistance*. Open access.
32. El Osmani, N., Prévostel, C., Picque Lasorsa, L., Shirinian, M., & Dassouki, Z. (2024). **Vitamin C enhances co-localization of novel TET1 nuclear bodies with both Cajal and PML bodies in colorectal cancer cells.** *Epigenetics*. Open access.
33. El-Hajjar, L., Miranda, E., El-Sabban, M.E., & Daher, J.Y. (2023). **Novel Insights into the Link Between Myeloperoxidase Modified LDL, LOX-1, and Neuroserpin in Stroke.** *Reviews in Cardiovascular Medicine*. Open access.
34. El-Hajjar, L., Saliba, J.L., Karam, M., El-Hajj, H.A., & El-Sabban, M.E. (2023). **Ubiquitin-Related Modifier 1 (URM-1) Modulates Cx43 in Breast Cancer Cell Lines.** *International Journal of Molecular Sciences*. Open access.
35. Elkhoury, K., Kodeih, S., Enciso-Martínez, E., Maziz, A., & Bergaud, C. (2024). **Advancing Cardiomyocyte Maturation: Current Strategies and Promising Conductive Polymer-Based Approaches.** *Advanced Healthcare Materials*. Open access.

36. Etzel, R.A., Abbas, N.H., Anastario, M.P., Whaibeh, E., & Soskolne, C.L. (2024). **Ethics guidelines for environmental epidemiologists.** *Environmental Epidemiology*. Open access.
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39. Farah, M., Anugwom, C.M., Díaz Ferrer, J., Carrera, E., & Debes, J.D. (2023). **Changing epidemiology of hepatocellular carcinoma in South America: A report from the South American liver research network.** *Annals of Hepatology*. Open access.
40. Farhat, F.S., Hussein, M.M., Sbaity, E., Othman, A., & Kattan, J.G. (2023). **Gastrointestinal stromal tumor in North Africa and the middle east: updates in presentation and management from an 11-year retrospective cohort.** *Hospital Practice*.
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42. Ferreira, J., Nicolas, G.N., Valente, D., Saliba, M., & Gemperli, R. (2023). **Surgical treatment of sacral pressure wounds in patients with COVID-19: A case series.** *Journal of Plastic, Reconstructive and Aesthetic Surgery*. Open access.
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44. Ghadie, H.E., Gastaldelli, A., & Najjar, S.M. (2023). **Role of Insulin Clearance in Insulin Action and Metabolic Diseases.** *International Journal of Molecular Sciences*. Open access.
45. Ghadie, H.E., Infante, M., & Sponton, C.H.G. (2024). **Editorial: Mechanistic and physiological implications of insulin resistance in metabolic diseases.** *Frontiers in Endocrinology*. Open access.
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50. Haber, R.N., Feghali, J., Nadir, U., Yi, M.D., & Cahn, B.A. (2023). **Acquired ichthyosis: a clinical review.** Archives of Dermatological Research.
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## COLLABORATIONS AND HEALTH SERVICES

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### INTERNATIONAL ADVISORY BOARD (IAB)

The International Advisory Board (IAB) of the Faculty of Health Sciences (FHS) at the University of Balamand consists of honorary members from prestigious international universities and national health authorities. The IAB advises the Dean on academic and strategic growth, including fundraising efforts. Its key roles include engaging FHS in global educational and research developments, contributing to strategic planning, facilitating faculty and student exchanges, and advising on fundraising initiatives. Members bring expertise from institutions like the University of Pennsylvania, University of Maastricht, University of Wollongong, Georgetown University, and Johns Hopkins University. The University of Balamand's Faculty of Medicine (FOM) has established a Dean's International Advisory Board. This board consists of prominent medical doctors practicing in the USA. Their role is to counsel and guide the dean on various issues, including shaping the FOM's mission and vision, prioritizing goals, and advocating for FOM programs. The board members also work to promote inter-school faculty collaborations, secure support for the FOM, and advise on strategic issues. They meet quarterly or as needed, with members serving two-year terms, which can be renewed.

### FOM FACILITIES

The University of Balamand's Faculty of Medicine and Medical Sciences is affiliated with several hospitals across Lebanon, providing diverse clinical training environments for students, interns, and residents. Here are the affiliated medical facilities:

- Mount Lebanon Hospital University Medical Center
- Clemenceau Medical Center
- Middle East Institute of Health - University Hospital
- Nini Hospital
- St. Georges Hospital University Medical Center
- Haykel Hospital
- Notre Dame University Hospital
- Bellevue Medical Center
- Hopital des Soeurs du Rosaire

These facilities offer a range of clinical settings, from medium-sized community hospitals to large university centers, ensuring a comprehensive learning experience for medical students and junior doctors.

### FHS NATIONAL AND INTERNATIONAL PARTNERSHIPS

The Faculty of Health Sciences (FHS) at the University of Balamand has established numerous research partnerships with national and international institutions. These collaborations span various departments. Key partners include prestigious universities like

McGill University, University College Dublin, and University of California San Diego, as well as national organizations such as the Lebanese Agricultural Research Institute and the Ministry of Public Health. These partnerships enhance the FHS's research capabilities and contribute to its academic and strategic growth.

### **Department of Medical Laboratory Sciences (MLS)**

1. National Research Partners : CNRS | AUB
2. Governmental Organizations: Ministry of Education and Higher Education
3. International Research partners: McGill University | Institut Pasteur | DHA: Dubai Health Authority

### **Nursing Program**

1. National Research Partners: UOB FOAS | Hammoud Hospital | AUB
2. Governmental Organizations:
  - MOPH. Infant and Young Child Feeding (IYCF) Maternal and Child Health Unit
  - MOPH. Breast Cancer Prevention Program
3. International Research partners
  - University College of Dublin - School of Nursing, Midwifery and Health Systems
  - University of Dundee- School of Health Sciences
  - University of Birmingham - School of Nursing
  - King Saud bin Abdulaziz University for Health Sciences

### **Department of Nutritional Sciences**

1. National Research partners
  - Hotel-Dieu de France | Lactica (community partner)
  - Lebanese American University| Lebanese University
2. Industrial partners: Dairy Khoury
3. Governmental Organizations :
  - Lebanese Agricultural Research Institute
4. International Research partners• University of Lleida| University of Balearics Islands - Spain

### **Department of Public Health**

1. National Research Partners :
  - USJ Faculty of Medicine/ Faculty of Sciences
  - Hotel Dieu De France (HDF)
2. International Research Partners
  - MERETI Network
  - University of Twente• Institut Desbrest D'Epidemiologie et de Sante Publique (IDESP)/ UMR UA 11 (INSERM)/ Previously UMRS1136 EPAR/ Faculte de Medecine Saint Antoine Paris
  - Cyprus University of Technology/ Faculty of Health Sciences/ Cyprus International Institute for Environmental and Public Health
  - University of California San Diego UCSD/ Department of Global Health, Family Medicine, and Public Health
  - University College Dublin, Ireland/ School of Nursing, Midwifery, and Health Systems

### **Department of Community Engagement**

- International Research Partners
  - International Trust Fund
  - UNICEF

- a) Explosive Ordnance Risk education (EORE) project
- b) Covid-19 and Covid-19 Vaccine: capacity building sessions to encourage people to abide by the safety measures and to register and get the vaccine
- c) Infant and Young Children Feeding Campaign
  - International Committee of the Red Cross: Benchmarking the Prosthetics and Orthotics services in Lebanon.

## HEALTH OUTREACH PROGRAMS

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### 1ST MEDICAL CONGRESS: 2023 UPDATES IN MEDICINE

On April 28th and 29th, 2023, the Faculty of Medicine and Medical Sciences at Al Koura campus hosted the 1st Medical Congress titled "2023 Updates in Medicine." The event attracted prominent figures in the medical sector and academics from the USA and Europe who participated in discussions covering a wide range of health and medical topics.



A notable highlight of the congress was the presentation of over 70 posters by medical students from across Lebanon. The Poster Evaluation Committee recognized six outstanding posters for their exceptional contributions.

The event marked a significant milestone in medical education and provided a platform for knowledge exchange and collaboration among professionals and students alike.



## COMMUNITY MEDICINE

In the course CCIM 603, Clinical Clerkship in Internal Medicine, MEDICINE III students must undergo one month of Community Medicine at Howard Keragheusian Community Health Center located in Bourj Hammoud, one of the most underprivileged areas in Beirut. This primary care center serves primarily a population of migrants and refugees and cares for around 70,000 patients/year in most medical specialties.

## ENHANCING HEALTH SERVICES IN LEBANON: UNIVERSITY AND UNICEF'S PRIMARY HEALTH CARE UNITS

In response to Lebanon's ongoing crisis, the University, supported by UNICEF and in coordination with the Ministry of Public Health, has established 75 Primary Health Care Satellite Units (PSUs). These units aim to improve access to essential health services for individuals in conflict zones, displaced persons, and host communities.

The PSUs offer medical support, medication, immunization, midwifery and reproductive health care, health education, and wound management. The Department of Community Engagement (DOCE) has trained 230 personnel to ensure effective service delivery. This initiative underscores the university's commitment to public health and resilient communities.



## UNIVERSITY HEALTH CENTER

The University of Balamand (UOB) is committed to providing a safe and healthy environment for its community. The University Health Center offers primary health care and first aid services, including free consultations, clinical diagnoses, medications from Non-Profit Organizations, and sexual and reproductive health care. Staffed by physicians and experienced nurses, the center provides confidential consultations and counseling in various medical fields such as family, general, internal, pediatrics, orthopedics, and sports medicine.

## UNIVERSITY OF BALAMAND HOSTS OPEN HEALTH DAY AT DEKWANEH CAMPUS

The University of Balamand's Faculty of Health Sciences (FHS) recently hosted its first Open Health Day at the Dekwaneh Campus, in collaboration with the Mount Lebanon Hospital University Medical Center (MLHUMC) and supported by the Dekwaneh Municipality. The event featured active participation from various FHS departments, offering free medical examinations and health education on topics like dermatology, ophthalmology, and cardiovascular screening.





Attendees also enjoyed comprehensive health checkups, including low-dose scan echo Doppler tests. The Office of Student Affairs and University clubs added to the vibrant atmosphere with activities for children and live musical performances, making the event both informative and enjoyable. This initiative highlighted the importance of proactive health measures and the University's commitment to fostering a healthier community.



## STUDENT CLUBS AND ACTIVITIES

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Student clubs at the University of Balamand engage in more than 50 activities related to SDG 3: Good Health and Well-being, with a strong focus on mental health and other health awareness initiatives. These include awareness campaigns such as HIV and breast cancer awareness by the Medical Lab and Nursing Student Society, and mental health awareness by PyschSavvy.

Humanitarian initiatives like blood drives by LeMSIC and Business Connections also play a significant role. Additionally, clubs host gatherings and interactive activities, including game nights, spring fiestas, and outdoor events, all aimed at promoting health and well-being among students. Sports activities, such as basketball matches and scavenger hunts organized by ASME and Premed, further contribute to the overall goal of fostering a healthy and active student community. These activities not only support SDG 3 but also intersect with other goals like reducing inequalities and fostering sustainable communities.



## NURSING SOCIETY'S WALKATHON PARTICIPATION

The Nursing Society participated in the SAID NGO Walkathon to raise awareness about colon cancer and promote preventive measures. Their booth featured a variety of educational activities, and participants were provided with informative brochures on the topic of colon cancer. Through this event, the Nursing Society played a vital role in educating the community and highlighting the importance of cancer prevention.

## STUDENT HEALTH DAY

Collaboration with NGOs, such as the GNK Foundation, to target children health in schools. As such, a series of "Student Health Day" was held with the participation of FOM medical students and physicians from the University of Balamand affiliated hospital.



## ANNUAL "MOBILE CLINIC"

Annual participation of medical students to the "Mobile Clinic" touring different Lebanese regions in the aim of providing healthcare to rural communities. The "Mobile Clinic" project took place in August 2022 and June 2023.



## AWARENESS ABOUT DIABETES

The University of Balamand hosted DiaLeb, the National Diabetes Organization, for an impactful awareness session in preparation for World Diabetes Day. The session, titled "Comprehensive Insights on Diabetes for Future Physicians," emphasized the importance of awareness and education. Through interactive discussions and insightful presentations to over 100 medical students, the session empowered students to embrace their roles as future advocates.



## ALBA KBIR

An initiative created by the SDG BrainLab ambassadors within the faculty ALBA to provide support to students in need, whether mentally or materially. The ambassadors work closely with the administration to offer easier logistical solutions and aim to reach as many students as possible in their endeavor to provide essential assistance.



## FIRST AID SESSION

The Faculty of Business and Management and the Business Connections Club hosted a first aid session on March 26th, 2024, presented by the Lebanese Red Cross.

The session provided students with essential training on responding to emergencies and administering basic first aid, including CPR, the Heimlich maneuver, wound care, controlling bleeding, and handling choking or other emergencies. This training equipped students with the knowledge and confidence to potentially save lives in emergency situations.



## THEOLOGY STUDENTS' OUTREACH AND SUPPORT INITIATIVES

Students from the St. John of Damascus Institute of Theology, in collaboration with the Orthodox Association for Prisoners' Care, visited Douma and Amioun Prisons. These visits aim to prepare students for their priestly service by introducing them to various social situations and practical ways to handle them. The students conducted special prayer services for the prisoners and engaged in conversations with inmates to understand their challenges and discuss ways to improve their lives. The visits concluded with discussions about the inmates' needs and ways to support them.

The students also visited a nursing home run by the Doumania Orthodox Association for Girls, where they conducted prayers and met with the elderly. The visit ended with a discussion on improving elderly care and supporting the staff in these institutions.

Additionally, students organized focused activities for the children of the SOS Children's Village in Kfarhay. These activities included games and age-appropriate religious education, helping students learn how to better care for and engage with these children.



## WORLD CANCER EVENT BY NURSING SOCIETY CLUB

UOB IS deeply committed to the mental health and well-being of its students across all campuses, particularly in these times of multiple crises in Lebanon—be it war, economic upheaval, or social challenges. This support system ensures that students facing intellectual and emotional challenges can find solace and guidance. The mental health services and resources are available to help students navigate these turbulent times, providing a safe space to address their concerns and promote personal growth and resilience.



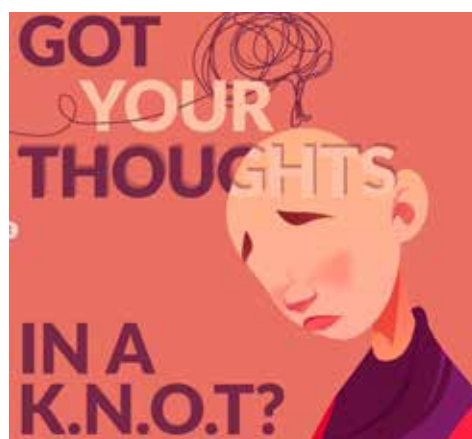
## TACKLING SUBSTANCE ABUSE AND ADDICTION

The Office of Student Affairs, in collaboration with the Department of Psychology, hosted a comprehensive workshop on Substance Abuse and Addiction, administered by Cenacle de la Lumiere. This workshop provided attendees with crucial information on addiction, covering various types of drugs, their usage, effects, and common misconceptions. It also equipped participants with the knowledge to support potential users effectively. This initiative highlights the university's commitment to promoting student well-being by addressing critical issues related to substance abuse and mental health.



## YOUR MENTAL HEALTH IS OUR PRIORITY

UOB IS deeply committed to the mental health and well-being of its students across all campuses, particularly in these times of multiple crises in Lebanon—be it war, economic upheaval, or social challenges. This support system ensures that students facing intellectual and emotional challenges can find solace and guidance. The mental health services and resources are available to help students navigate these turbulent times, providing a safe space to address their concerns and promote personal growth and resilience.



## UOB COUNSELING CENTER

### COLOR YOUR STRESS AWAY

Color your Stress Away is one of the UOB Counseling Center's most popular activity. It brings students together in an activity made for them to unleash their creativity through the simple means of coloring mandalas. Whilst in the activity, students are given tips to relax, breath well, and ground themselves in the activity. The OB Counselors are always on sight to interact with the students, introduce them to the center's services, and offer assistance wherever needed.



## UOB COUNSELING CENTER

### ART THERAPY EVENT

This activity promotes mental well-being through a series of art-based exercises designed to engage and relax participants. It begins with icebreaker activities that encourage students to connect with their peers, followed by creative exercises focused on self-expression. The event concludes with a reflective session where students share their experiences, ending with a calming "Color Your Stress Away" activity, allowing participants to unwind and de-stress through art.



## SMOKE FREE CAMPUS

The university is reinforcing its strict no-smoking policy, which includes electronic cigarettes and vapes, to maintain a healthy environment. Random security checks will be conducted, and violators will receive warnings. The university emphasizes the importance of a smoke-free and vape-free campus for the well-being of all community members. Your cooperation is appreciated.

## SHARED SPORTS FACILITIES

The Office of Athletics, Wellness and Recreation OAWR at the University of Balamand encourages all students, staff, faculty, alumni, UOB friends, and the surrounding community to benefit from the use of the variety of sports and recreational facilities. This done by either sending an email or filling an online form to request an approval for facility use based on predefined priorities.

Several Clubs, nearby schools, summer camps, staff family members, and UOB community have reached out to the OAWR to reserve the facilities.

OAWR has been able to accommodate all free of charge except for those outside operating hours.

Sample of reserved clubs include the Fih and Kelhat Clubs(nearby villages), the lady of Balamand High School, Balamand School Summer Camp and so on.



## CELEBRATING THE OUTSTANDING ACHIEVEMENTS OF UOB'S REMARKABLE ATHLETES!

The University of Balamand celebrated its annual athletic awards ceremony, honoring the exceptional achievements of its athletes. The event, attended by notable guests including UOB President Dr. Elias Warrak, recognized 30 awardees for their excellence in various sports and contributions to the athletic community. Highlights included Antonios Moukari and Tina Moussi being named Athletes of the Year, and coach Jad Yammine and the FUTSAL team receiving the President's Award for their outstanding performance and back-to-back league victories. The ceremony was a night of pride and celebration for all involved.





# 4 QUALITY EDUCATION

## EDUCATION FOR THE SDGS

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### TRACK OR DEGREE RELATED TO ENVIRONMENTAL SUSTAINABILITY

The Public Health Department offers several undergraduate and graduate courses in relation to environmental management, environmental health, and climate change. A special graduate track within the public health program exists and focus on environmental and occupational health. **(Link to the page)**

All environmental Sciences courses (EVSC) directly deals with sustainability and/or climate sciences. It is important to note that the sustainability theme is the core of the entire Environmental Sciences undergraduate and graduate programs, and is referred to in almost all the program courses. These courses award qualifications of direct relevance to climate and sustainability officially recognized in BS and MS degrees. **(Education.pdf)**

### SUSTAINABILITY COURSES

Each faculty at UOB has at least several courses related to sustainability all reported under the Sustainability and Education Page.

Such is the case of the **ACADÉMIE LIBANAISE DES BEAUX-ARTS (ALBA)** with the following courses:

- REGA1202- Architecture Régionale (2 ECTS)
- ARCD1301- Architecture Durable: Entrée en matière pour la conception de batiments durables (2 ECTS)
- ATAR1401 - Projet de Construction (8 ECTS)
- ENDU7301- Sustainable Environments/ Environnements Durables (2 ECTS)

#### **FACULTY OF BUSINESS AND MANAGEMENT (FOBM) Courses:**

- MGMT291- Business Ethics and Professional Responsibility: (for Bachelor of Business Administration- BBA Undergraduates)
- BUSN222- International Business: (BBA Undergraduates)
- EMBA 450- Business Ethics and Sustainability (Executive Education)

#### **FACULTY OF HEALTH SCIENCES (FHS) Courses:**

- PDHP201 Environment, health, and development 3.0: 3 cr. E
- PDHP 219 Introduction to Public Health 3.0: 3 cr. E
- PDHP 226 Sanitation and Resource Management for Public Health 3.0: 3 cr. E
- PDHP 249 Toxicology and Human Health Risk Assessment 3.0: 3 cr. E

- PDHP245 Issues in Community Health and Development 3:0: 3 cr. E
- MPHP 303 Environmental Health Sciences 3.0: 3 cr. E
- And all the environmental and occupational health track. Link to graduate courses: <https://www.balamand.edu.lb/Style%20Library/PDFs/Catalogue/FHSGraduate.pdf#page=15>

**FACULTY OF ARTS AND SCIENCES (FAS) Courses:**

- **ENVIRONMENTAL SCIENCES COURSES:**
  - Undergraduate: EVSC 201, 203, 207, 213, 239, 241, 253.
  - Graduate: EVSC 315, 331, 333, 305, 317, 335.
- **CLIMATE SCIENCE COURSES:**
  - Undergraduate: EVSC 201, 203, 207, 233, 243.
  - Graduate: EVSC 303, 305, 315.
- **POLITICAL SCIENCES COURSES:**

PSIA 215 Citizenship and Democracy, PSIA 217 Negotiation Skills and Conflict Resolution, PSIA 219 Politics of Development and Social Change in Global South, PSIA 233 Human Rights in World Politics, PSIA 253 Media and Society, PSIA 255 Civic Engagement and Community Service, PSIA 254 Society and Gender, PSIA 256 Social Movements and Change, PSIA 257 Social Work, PSIA 260 Social Inequalities and Conflict.
- **GENERAL COURSES:**

CSPR 211E: Ancient religious and civilizations, CSPR 212E: Christian and Muslim cultures
- **PSYCHOLOGY DEPARTMENT AND GENDER:**

Gender issues directly or indirectly. PSYC214 (Gender identity, social media, and women's self-perception and body satisfaction), PSYC212 (Gender identity, differential psychology related to gender issues, the importance of women (mothers) mental health for child development) , PSYC271 and PSYC340 cover family dynamics and touch on subjects like GBV, single parenting, and women (mothers) mental health as a protective or a risk factor for family functioning and dysfunctioning), PSYC247,249 and 335 deal with psychopathology and mental health issues and touch on subjects related to women's mental health.
- **MASS COMMUNICATION DEPARTMENT AND GENDER:**
  - MCOM 252 Race, Gender and Ethnicity In Film and Television: This course will focus on representation and stereotype in TV and film, tracing the political, economic, and social influences on broadcasting.

**ISSAM FARES FACULTY OF TECHNOLOGY (IFFT) Courses:**

- **MECHATRONICS DEPARTMENT**

MECT329 Renewable Energy (3 credits)
- **CIVIL AND CONSTRUCTION TECHNOLOGY DEPARTMENT**

CIVT327 Introduction to Environmental Engineering (3 credits).  
CIVT360 Green Building Rating Systems (3 credits).
- **AGRICULTURE AND FOOD TECHNOLOGY DEPARTMENT**

AGRT 379 Pest Control (3 credits)  
AGRT 365 Natural and Transformed Ecosystems (3 credits)



## **FACULTY OF ENGINEERING (FOE) courses:**

ALL ENGINEERING STUDENTS MUST TAKE THE ENGINEERING ETHICS COURSE AND SUSTAINABLE DEVELOPMENT COURSE FOR ENGINEERS:

- GENG221 "Engineering Ethics"  
This course introduces and reinforces the concepts, theories, and practice of engineering ethics and aims at providing basic knowledge of ethics for engineers in different types of work roles. It prepares the engineering students for identifying, taking responsibility for, and finding solutions to potential ethical problems/cases. It provides students with an interactive study of ethical theory and the development of professionalism and helps them think more clearly and deeply about ethical issues of the natures that engineers often face in professional practice, and explore resources, strategies, and options for dealing with such complications. Students review case studies of ethical conflicts in engineering practice. The course also covers engineering codes of ethics and requires students to resolve theoretical situations through the application of ethical codes.
- GENG222 "Sustainable Development for Engineers"  
This course introduces the fundamental concepts of sustainable development. It enhances students' understanding of the UN Sustainable Development Goals (SDGs) and focuses specifically on the critical role of engineers in achieving these SDGs. Students should be able to resolve problems by adopting sustainability principles, which should in turn reflect on the students' design ability to ensure a proper sustainable process to improve and preserve the quality of life for future generations.

## **CHEMICAL ENGINEERING DEPARTMENT COURSES:**

- CHEN299: Introduction to Renewable Energy
- CHEN430: Environmental Design and Life Cycle Assessment
- CHEN589: Waste Treatment Engineering

## **CIVIL AND ENVIRONMENTAL ENGINEERING DEPARTMENT COURSES:**

- CIVE311: Sanitary Engineering (3 credits);
- CIVE318: Environmental Engineering Modeling (1 credit);
- CIVE418: Sewage Treatment Plant (3 credits);
- CIVE520: Principles of Environmental Engineering (3 credits);
- CIVE521: Wastewater Engineering Design (3 credits);
- CIVE522: Water Resources and Water Quality (3 credits);
- CIVE523: Air Pollution Control (3 credits);
- CIVE524: Solid Waste Disposal (3 credits).

Civil and Environmental Engineering Department offers the following courses related to Transportation Sustainability:

- CIVE540: Sustainable Roadway Design, Construction, and Operation (3 credits);
- CIVE541: Contemporary Cities (3 credits);
- CIVE542: Sustainable Development in Transportation Engineering (3 credits);
- CIVE543: Sustainable Development in Civil Engineering (3 credits).

## **MECHANICAL ENGINEERING DEPARTMENT COURSES:**

- MECH290: Introduction to the Engineering Design Process: 2 activities:
  - Design of a composting system
  - Explication of the 17 Sustainable Development Goals (SDGs) (United Nations)
- MECH389: System Design: sustainability & Environment are considered within design considerations

# SUSTAINABILITY LITERACY AND ASSESSMENT

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Higher Education Institutions (HEIs) have been incorporating sustainable development (SD) into their curricula, operations, systems, and local communities for over 30 years. UNESCO has further supported this effort through the Higher Education Sustainability Initiative (HESI), encouraging institutions to engage with the UN Sustainable Development Goals (SDGs), particularly SDG 4, which focuses on education. HEIs play a crucial role in promoting sustainability across multiple domains: education, research, campus operations, community engagement, etc... They hold a societal responsibility to guide students, faculty, and staff in promoting sustainability, and their decisions impact the economic, social, and environmental dimensions of their communities, contributing significantly to regional and global sustainability. Nonetheless, despite being at the forefront of these efforts, they encounter significant challenges, particularly when located in Lebanon, where unique contextual difficulties add further complexity. However, the University of Balamand (UOB) boldly embraced these challenges, initiating its journey of commitment to sustainability. The Faculty of Engineering (FOE) at UoB began this journey in 2022 by undertaking a reflective research analysis to perform a sustainability awareness survey amongst engineering students at FOE to assess the level of sustainability literacy. The outcome of the study confirmed and revealed a serious lack of understanding and awareness amongst students regarding sustainability despite the many projects that are being conducted at UOB (Nakad et al., 2022 & 2023). Knowing that engineers play a crucial role in advancing sustainability initiatives, and for achieving the objectives of the American Board for Engineering and Technology (ABET) re-accreditation in meeting Student Outcomes (SO) 2-4, this necessitated an urgent need to develop a new course focusing on sustainability and its pillars to be integrated in our engineering curricula. A novel course, GENG222 (renamed to SUST229), was designed in June-August 2023 entitled "Sustainable Development for Engineers" that is being delivered since the Fall Semester of the Academic Year 2023/2024. The course has been included as a core course for all engineering students to take as pre-requisite for their senior undergraduate design projects. The course's design was pivotal, yielding instant positive outcomes for students' SD education allowing them to choose topics aligned with their interests, thereby fostering commitment to sustainability literacy ([click here](#)). Through numerous examples of engineering achievements across all SDGs, students gained confidence and understanding of their crucial role in advancing sustainability, particularly in societal aspects. For the first time, students embraced interdisciplinary collaboration, fostering teamwork with peers from other engineering disciplines to come up with sustainable designs. The FOE profile in its new sustainability initiative was presented at the Qatar 2023 Expo, acting as a catalyst for promoting sustainable practices within the institution that is situated in Lebanon, a country urgently in need of solutions. Additionally, FOE's research in engineering education for SD has attracted the eyes of UN-ESCWA, which has decided in July 2024 to follow suit in evaluating the sustainability literacy amongst students and faculty members across 9 countries from its memberships. Thirteen universities, including UOB from Lebanon, were invited to participate in the project "Regional Assessment of Education for Sustainable Development in Arab Universities". The findings from this assessment will represent a significant advancement in the UOB's commitment to achieving education for sustainable development. This effort is particularly important given that a recent study (Nakad et al., 2024) found only 32 published articles in the English language worldwide that had assessed SD integration in engineering curricula. Moreover, and as per the directives of Dr. Elias Warrak, hosted an informative session on the 17 Sustainable Development Goals (SDGs) on July 12, 2024 at the UOB main campus. This session promotes the SDGs within the UOB community, aligning with the university's

vision of fostering a sustainable future.

Also, through the Financial Literacy Center, several trainings have taken place to empower the UOB community with essential financial decision making.

There are continuously sessions related to SDG awareness for student through the seminar series such as the green skills for green economy, the 2024 Green Talent Forum, etc.

## UOB GRADUATE ACCEPTED INTO PRESTIGIOUS MEPI STUDENT LEADERS PROGRAM

Mabelle Wehbe, a Chemical Engineering graduate from the University of Balamand, has been accepted into the 2024 Middle East Partnership Initiative (MEPI) Student Leaders Program. During her time at UOB, Mabelle excelled in her studies within the Faculty of Engineering, culminating in her winning the Dean's Award for Innovation. The MEPI program, focused on Climate Change and Environmental Protection, selected 60 students from the MENA region out of 1,500 applicants. Mabelle is the only engineer from Lebanon among the participants and attended Delaware University for the intensive summer program. Her acceptance and achievements highlight the quality of education at UOB and serve as an inspiration to her peers.



## QUALITY EDUCATION INITIATIVES: INSIGHTS FROM SDG 4 RESEARCH

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In the past two years, the University of Balamand has made significant contributions to sustainability and education. Key publications include studies on genetic literacy among primary care physicians, green university campus diagnostics, and sustainability integration in engineering curricula. Research also covered the importance of skilled volunteering in education, environmental risks in South Lebanon, and the impact of job redesigning on organizational agility. Additionally, factors affecting Lebanese students' math performance, chemical waste management in labs, and augmented reality in education were explored. The status of highly able students in Lebanon was assessed, and a travel narrative from Damascus to Sinai was published, reflecting UoB's commitment to advancing sustainability, educational quality, and cultural understanding.

1. Karam, P.E., Hamad, L., ElSherif, M., Curi, D.A., & Yazbek, S.N. (2024). **Genetic literacy among primary care physicians in a resource-constrained setting.** BMC Medical Education. Open access.
2. Khoderchah, E., & Semaan, N.M. (2024). **The Green University Campus Diagnosis Model.** Process Integration and Optimization for Sustainability.

3. Nakad, M., Gardelle, L., & Abboud, R.J. (2024). **A Systematic Review of the Different Methods Assessing Sustainability Integration in Engineering Curricula.** Sustainability (Switzerland). Open access.
4. Salma, F., Dahesh, A.A., Yacout, M., & Abbas, N.H. (2024). **Volunteering, the new wealth of students: The importance of skilled volunteering in educational settings.** In Revitalizing the Learning Ecosystem for Modern Students.
5. Khatib, M., Hleihel, J., Arairow, W., Skienhe, H., & Mortada, H. (2024). **Evaluating of the environmental risks of natural water sources in the Alkalaa municipal community area - South Lebanon.** Water Supply. Open access.
6. Jamal, A.F., El Nemar, S., & Sakka, G. (2024). **The relationship between job redesigning, reskilling and upskilling on organizational agility.** EuroMed Journal of Business.
7. Younes, R.G., Salloum, S.L., & Antoun, M. (2023). **The effects of language and home factors on Lebanese students' mathematics performance in TIMSS.** Large-Scale Assessments in Education. Open access.
8. Jammoul, M., Semaan, N.M., & Jabali, Y. (2023). **Engineering Laboratories Chemical Waste Management-Introduction of a Web-Based System.** IEEE Engineering Management Review.
9. Oueida, S., Awad, P., & Mattar, C. (2023). **Augmented Reality Awareness and Latest Applications in Education: A Review.** International Journal of Emerging Technologies in Learning. Open access.
10. Nakad, M., Kövesi, K., Gardelle, L., & Abboud, R.J. (2023). **Engineering Students' Perceptions Towards Promoting Sustainability.** In IEEE Global Engineering Education Conference, EDUCON.
11. Antoun, M., Younes, R.G., & Salloum, S.L. (2023). **Investigating the status of highly able students through the lens of the Lebanese national policy and the mathematics and science centralized curricula and textbooks.** European Journal of Science and Mathematics Education. Open access.
12. Slim, S., **"Rihla Ila sina a travel from Damascus to Sinai"**. ARAM-Oxford, July 2024.

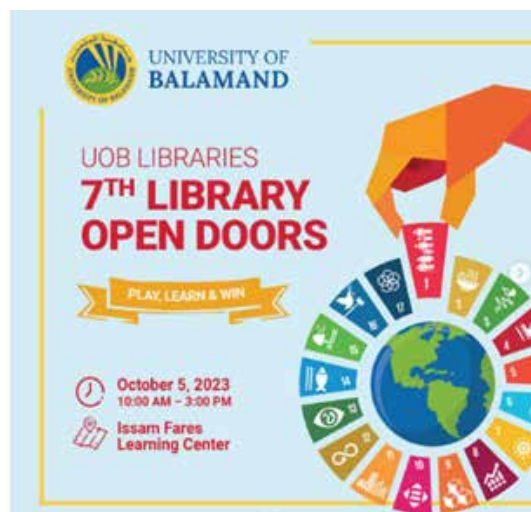
## SDG 4 INITIATIVES AND ACTIVITIES

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### **LIBRARY OPEN DOORS EVENT**

The University of Balamand hosted the Library Open Doors event, themed "Knowledge for a Sustainable Future: UOB Libraries towards SDGs." The event highlighted the crucial role of libraries in promoting the Sustainable Development Goals (SDGs).

Attendees explored various resources, participated in interactive workshops, and engaged in discussions on how libraries can drive sustainable development.



## EDUCATIONAL DAY

The University Library, in collaboration with the School of Saints Coeur Tripoli, organized an educational day for grade 5 students. The event introduced students to the vast resources and services offered by a university library. Students explored the vast resources, learned about the book borrowing process, and discovered the importance of archives.

## 8TH ANNUAL BOOK FAIR

The UOB Libraries' 8th Annual Book Fair, was a delightful dive into the world of books at the Issam Fares Library Learning Center – Atrium. Attendees explored a vast array of literary treasures, engaging with fellow book enthusiasts and discovering new reads. This event was not only a celebration of literature but also a testament to the vibrant intellectual community at the University.



## TRAINING SESSIONS ON THE INTEGRATION OF ICT INTO PEDAGOGICAL PRACTICES

December 2023 – Department of Education, University of Balamand – Koura



## FACILITATION OF THE TRAINING WORKSHOP ON LEARNING ASSESSMENT:

Challenges and Proposals, December 2023 - Department of Education, University of Balamand – Koura.



## FACILITATION OF TWO TRAINING SESSIONS ON DIFFERENTIATED INSTRUCTION AND COMPETENCY - BASED ASSESSMENT

Antonine International School – Ajaltoun, September 2024



## **FACILITATION OF THE TRAINING WORKSHOP ON CONSTRUCTIVE ASSESSMENT IN THE LANGUAGE CLASSROOM, PEDAGOGICAL DAY**

May 2023 - Department of Education, University of Balamand - Koura



## **WEBINAR FACILITATION ON TEACHERS' ANNOTATION PRACTICES: ANALYSIS AND PROPOSALS- ADMEE-EUROPE**

Association for the Development of Evaluation Methodologies in Education in Europe. November 2023.



## **INAUGURATION OF THE ELIAS RAHBANI ACADEMY AT UOB**

The University inaugurated the Elias Rahbani Academy at its Koura campus, under the patronage of His Beatitude Patriarch John X and in the presence of notable figures such as Former Prime Minister H.E. Tammam Salam and Deputy Speaker of the Parliament H.E. Elias Bou Saab. The Academy aims to uphold high educational standards for students pursuing musical studies, collaborating with esteemed professors and musicians, and providing accredited certificates by the Lebanese Ministry of Education. This collaboration highlights UOB's commitment to cultural education, preserving the nation's heritage, and promoting distinguished art and music. The event celebrated the legacy of Elias Rahbani and emphasized the role of higher education institutions in sustaining cultural and artistic values.



# ECOLE DES ARTS DÉCORATIFS SECTION ARTS GRAPHIQUES ET PUBLICITÉ: SUSTAINABILITY INITIATIVES

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## UNODC REHABILITATION CENTER MURAL

Creation of a mural for the UNODC (United Nations Office on Drugs and Crime) new rehabilitation center for children in conflict with the law.



## BULLES VERTES COLLABORATION

Participation in the "Bulles Vertes" initiative, a collaboration with the Amiens Comics Festival and UPJV University, focusing on raising children's awareness about ecology through themes such as mobility, energy, recycling, and clothing. These projects emphasize collaborative efforts and innovative approaches towards sustainable development and community engagement.



## COLLECTIF MONNOT VISUAL IDENTITY

Development of the logotype and visual identity for the Collectif Monnot, an initiative uniting various cultural institutions in the Monnot neighborhood, including The Oriental Library-Université Saint Joseph (USJ), Monnot Public Library, National Conservatory, Snoubar Beirut bookshop, Beit Tabaris, Lebanese Prehistory Museum, Theatre Monnot, and Université pour Tous-USJ.





# SUSTAINABILITY INITIATIVES FOR ECOLE DE MODE

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The "Ecole de Mode" is dedicated to fostering an environment that encourages students to engage with sustainability and social responsibility in their creative processes. While specific sustainability projects are still in development, various initiatives reflect the school's commitment to integrating sustainable practices into fashion education.

## 1. UTOPIAN VISION PROJECT WITH NADIM YOUNES FOUNDATION

Students were tasked with envisioning a utopian world through a project presented to the Nadim Younes Foundation. This initiative inspired students to create sustainable fashion items, specifically a shirt, and encouraged collaboration with social initiatives. Through this engagement, students were able to reflect on:

- **Environmental Awareness:**  
By conceptualizing designs within a utopian context, students examined the impact of fashion on the environment and explored sustainable practices in their creative processes.
- **Social Initiatives:**  
Collaborating with local initiatives allowed students to understand the importance of community engagement and the role of fashion in fostering social change.

## 2. ENCOURAGING CONTEXTUAL THINKING

The school consistently encourages students to think critically about their surroundings. This philosophy is integrated into various projects, prompting students to consider sustainability in their design processes. By promoting contextual awareness, the school helps students understand the broader implications of their work in the fashion industry.

## 3. WASTE MANAGEMENT PRACTICES

Efforts are underway to improve waste management practices within the school. Current initiatives include:

- **Waste Sorting:**  
The school actively sorts its waste to minimize environmental impact, promoting a culture of recycling and responsible disposal.
- **Fabric Waste Solutions:**  
While the school has yet to find a solution for fabric scraps, the director is proactively seeking a textile recycling center or machinery that can repurpose fabric waste into fibers. This initiative aligns with the broader goal of reducing waste in fashion production.

# EMPOWERING MIGRANTS THROUGH ART AND EDUCATION

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The Centre for Research and Creation (CRC) on "Invisual Art – Creativity within Socioeconomic Models," led by Dr. Ricardo Mbarkho at the Centre for Research and Creation, collaborates with The EEIMA (European School for Migrant Integration through Art), which is Europe's first institution dedicated to integrating migrants through art. By harnessing the transformative power of art, the school empowers both newcomers and long-term migrants to express themselves, reclaim their dignity, and assert their identities as active citizens. This collaboration promotes equitable education, reduces

social and cultural disparities, and fosters a sense of belonging and agency among migrants, contributing to more inclusive societies.



## INTEGRATING AI INTO ARTISTIC EDUCATION AT CRC

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The Centre has been conducting staff training in AI as part of the "Artificial Intelligence and Artistic Education" research project. This initiative plays a significant role in understanding the impact of AI on artistic education, advocating for an innovative, creative, and collaborative approach. It positions ALBA at the crucial intersection of AI, research, and artistic teaching, preparing educators to adapt to emerging technologies and fostering innovative teaching practices.



## MOU WITH ARC-EN CIEL

The MOU between ALBA and Arc-en Ciel (AEC) NGO encompasses several collaborative projects aimed at engaging students in case studies, research, analysis, briefs, internships, and workshops.

It encourages inclusive, adaptive, sustainable, social, and environmental work while fostering a creative problem-solving approach. Both parties are sharing knowledge and expertise through teachers, artisans, and experts. Relevant entities at AEC involved are "La Brocante" (upcycling furniture), "La Boutique" (upcycling fabrics), L'atelier (ceramics), Mobility (technical devices for PwDs), and waste sorting and upcycling. A test project with students from AI, architecture, and fashion involved upgrading pieces from the AEC flea market, some of which were exhibited at WeDesign under the banner of sustainability.



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## ENHANCING EDUCATION THROUGH LEBANON'S ARCHAEOLOGICAL HERITAGE

Rita Kalindjian, archeologist and curator of UOB's Ethnography Museum, presented an online talk in Armenian about the history of excavations in Lebanon, starting with the digs that happened during the Ottoman period up until today. The talk was prepared for international Armenian diaspora senior students studying old Armenian language, who learned more about Lebanon's history and sites.



## SETTING YOURSELF UP FOR SUCCESS: ESSENTIAL SKILLS AND MINDSETS FOR ASPIRING BUSINESS PROFESSIONALS

The Faculty of Business and Management at the University of Balamand hosted a successful seminar titled "Setting Yourself Up for Success: Essential Skills and Mindsets for Aspiring Business Professionals".

This Seminar, led by Dr. Diana Skaff, UOB Alumna and Doctor of Business

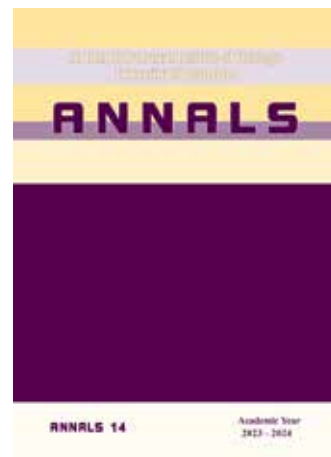
Administration, provided valuable insights to students on the key qualities and approaches

needed to thrive in the professional world. The session emphasized developing transferable skills such as goal setting, effective communication, work ethic, lifelong learning, and time management, which are crucial for success in various careers.



## ENHANCING QUALITY EDUCATION THROUGH THEOLOGICAL RESEARCH

The Annals 14 edition published by the University focuses on research and publications in the theological field. This edition includes a collection of scholarly articles, research papers, and theological discussions contributed by experts in the field. The content aims to advance the understanding of theological concepts, history, and contemporary issues within the realm of theology. The university is currently preparing the next edition, which will continue to feature high-quality research and insights from theologians and scholars.



## ENHANCING QUALITY EDUCATION THROUGH THEOLOGICAL RESEARCH

The Antiochian Orthodox Church organized a university conference at the Patriarchal Monastery of Our Lady of Balamand to commemorate the first anniversary of Patriarch Ignatius IV's passing. The conference explored various aspects of his life, thoughts, and ecclesiastical legacy. Key themes included his historical period, educational efforts, theological thought, contributions to Orthodox and ecumenical dialogues, Christian presence in the East, church pastoral work, and philosophical background.

The research and discussions highlighted his significant influence on theological education and his vision for the church and society. The findings were published in a book in March 2024.



## THEOLOGY LECTURE SERIES

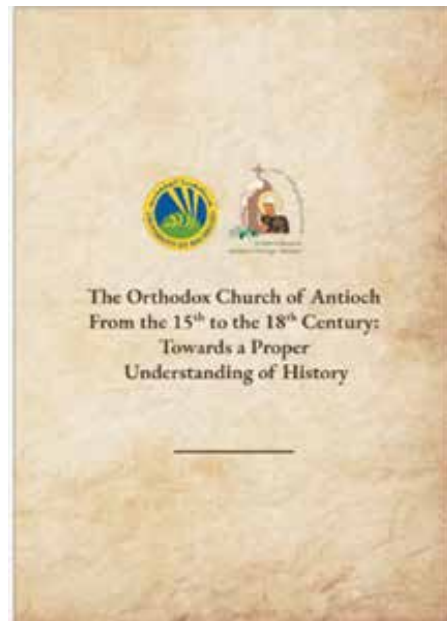
Since its inception in 2022, the Theology Lecture Series at the St. John of Damascus Institute of Theology has been an ongoing platform for sharing and celebrating the rich body of research produced by the faculty. Aimed at making these academic contributions more accessible, the Institute Council designated the last Tuesday of each month for these lectures, allowing faculty members to present their research findings directly to students and colleagues.

This initiative has not only enhanced scholarly communication within the Institute but has also fostered a deeper engagement with theological studies across the University. The series continues to thrive as a cornerstone for intellectual exchange and collaboration



## BALAMAND INTERNATIONAL SCIENTIFIC CONFERENCE

The Middle East, the historical birthplace of Christianity, holds Antioch as a central pillar of early Christian faith, where Saints Peter and Paul established the Christian church at Antioch, and where the followers of Christ were first called "Christians" (Acts 11:26). The Patriarchate of Antioch, despite transferring its Seat to Damascus in the 14th century due to political pressures, preserved its apostolic authority and unity with the broader Orthodox communion amidst centuries of challenges, including Ottoman rule and schisms the last of which was that of 1724 when some of its members embraced Uniate Roman Catholicism.



## THEOLOGY LECTURE SERIES

The Institute of Theology engages in the Erasmus+ teaching mobility program, promoting academic exchange with European institutions, including those in Lasi, Romania. In 2023, staff member Fr. Hareth Ibrahim and students Fadi Al-Saad and George Dib participated, enriching their theological studies. Erasmus+ enhances education by fostering knowledge-sharing, cultural exchange, and international partnerships.

## COMMUNITY ENGAGEMENT THROUGH ATHLETIC FACILITIES

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The University of Balamand is committed to fostering community engagement and promoting physical well-being among local youth. As part of this commitment, the university opens its athletic facilities, including the swimming pool and green field, to surrounding schools for their physical education classes. This initiative not only supports the physical education curriculum of these schools but also provides students with access to high-quality sports facilities, encouraging an active and healthy lifestyle. By facilitating the use of its athletic amenities, the University of Balamand contributes to the well-being of the community and supports Sustainable Development Goal 4: Quality Education, which advocates for inclusive and equitable education opportunities for all.



## SERVICE EXPERIENCE: EDUCATION THROUGH DOING (SEED)

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The University of Balamand (UOB) has a community service program built on the philosophy of service learning, a pedagogical method that unites classroom theory with practical work in the community.

This SEED program consists of one credit-bearing course offered at the undergraduate level. Each course is free of charge to all students who wish to engage in community service and gain a meaningful experience from it. The SEED student, a regular BS/BA UOB student, can register a maximum number of three SEED courses - one per semester - adding up to three free credits, an equivalent to a regular free elective course. The SEED course requests each student to undergo forty hours (40) of community service for each course he/she registers, thereby making available to the wider community the University's numerous resources.

The SEED program reflects the University of Balamand's commitment to fostering a culture of service and civic engagement among its students.



## FINANCIAL SUPPORT AGREEMENTS

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As part of its financial support to the community and in response to the emerging financial crisis, the University has established agreements with several entities to assist students with their tuition fees.

In fact, the student body at the university includes students from a wide range of socioeconomic backgrounds, from wealthy families to those from low-income families. Currently, more than 60 % of the students are registered with financial assistance. The university's agreements cover various sectors, including: Lebanese Air Force, Lebanese Navy, Lebanese Army, Lebanese General Security, State Security, Bar Association, Lebanese Judges, Greek Community, Dentists (North Lebanon) and Pharmacists.

Additionally, the Financial Aid Office handles protocols with more than 60 private and public schools across all of Lebanon to offer discounts to students coming from those schools and scholarships to distinguished students.

These agreements aim to alleviate the financial burden on students and ensure that they have access to quality education despite the economic challenges.

## STUDENT WORK PROGRAM

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By providing work-study opportunities, the University of Balamand ensures inclusive and equitable quality education and promotes lifelong learning opportunities. The work-study program helps financially support students in need, enabling them to continue their education while gaining valuable work experience. It's a great way to enhance both academic and practical learning.

## OFFICE OF STUDENT AFFAIRS REPORTS ON SDGS

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The Office of Student Affairs report highlights the clubs' proactive engagement in activities aligned with all 17 Sustainable Development Goals. It underscores the commitment to ensuring inclusive and equitable quality education, along with promoting lifelong learning opportunities. By involving students in various sustainability initiatives, the University fosters an environment that supports educational growth and enhances awareness about sustainable practices. This collaborative approach not only enriches students' academic experiences but also equips them with the knowledge and skills to contribute meaningfully to sustainable development.

Read more about it here: [University of Balamand | Students](#)



# 5 GENDER EQUALITY

## PROMOTING GENDER EQUALITY THROUGH ACADEMIC ENGAGEMENT

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Over the past year, the university has released studies examining the impact of gender diversity and women's empowerment on family entrepreneurship performance, gender differences in mental health among healthcare workers during the COVID-19 pandemic, and the empowerment and stakeholder dynamics of rural Lebanese female entrepreneurs. These publications highlight the university's commitment to advancing gender equality and supporting women's roles across various sectors.

Additionally, various departments address gender equality through diverse topics. Management and marketing courses focus on workplace diversity, Arabic Literature includes gender in literary analysis, Mass Communications examines gender representation in media, Psychology covers gender identity and women's mental health, and English Literature explores gender identity and representation in culture.

### 2024

1. Skaf, Y., El-Abiad, Z., El-Chaarani, H., El Nemar, S., & Vrontis, D. (2024). **Exploring the influence of gender diversity and women's empowerment on family entrepreneurship performance: the moderating impact of firm characteristic.** *Journal of Asia Business Studies*.
2. Czepiel, D., McCormack, C.A., Da Silva, A.T.C., Hoek, H.W., & van der Ven, E.M.A. (2024). **Inequality on the online: A multi-country study on gender differences in mental health among healthcare workers during the COVID-19 pandemic.** *Global Mental Health*. Open access.
3. Khabbaz, L., & Kuran, O. (2024). **EMPOWERING RURAL LEBANESE FEMALE ENTREPRENEURS: A RESOURCE-BASED PERSPECTIVE.** *Journal of Developmental Entrepreneurship*.
4. Kuran, O., & Khabbaz, L. (2024). **Stakeholder dynamics in rural Lebanese women's entrepreneurship.** *Journal of Enterprising Communities*.



## COMMUNITY FAIR 2023: EMPOWER WOMEN AND GIRLS

The Career Services Center at the University of Balamand UOB organized its annual community fair with a focus on the theme "SDG 5 - Gender Equality - Empower Women and Girls and ensure their equal rights." This event took place on Thursday, September 21, 2023, and was organized in partnership with the UN Global Compact Network Lebanon with the participation of both local and international Non-Governmental Organizations (NGOs). The main goal of this community fair was to introduce students to the idea of volunteering and motivate them to actively participate in community initiatives, in addition to raise awareness about critical issues related to women and girls and empowerment. The event provided a platform for students to learn, interact, and get involved in initiatives and projects that promote gender equality.



## UOB STUDENTS WIN FIRST PRIZE IN CHILD MARRIAGE AWARENESS COMPETITION

Five Mass Media and Communication students from the University of Balamand (UOB) won first prize in "The Child Marriage Competition" organized by the Women Alive Organization, part of the "Equality Now International" campaign. Their video raised awareness about the lack of legislation to prevent child marriage in Lebanon. UOB promotes gender equality through educational initiatives, supporting SDG 5 by working to eliminate harmful practices against women and girls. The students received their prize on June 1, 2023, at LECORVAW/Women Alive premises.



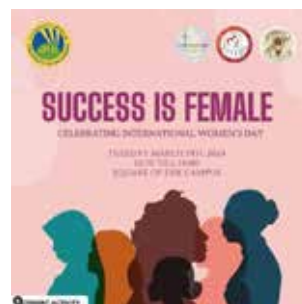
## EMPOWERING WOMEN LEADERS: UOB'S COMMITMENT TO GENDER EQUALITY

In a significant move towards gender equality, 50 female staff and faculty members from the University of Balamand (UOB) were selected to participate in the 'Supporting Women on Board of Syndicates, Universities, and Board of Organizations' project by the Lebanese League for Women in Business (LLWB), in collaboration with the British Embassy. This initiative aims to increase female representation in decision-making roles. Five participants from UOB—Dr. Dima Issa, Mrs. Diala Farah, Mrs. Magda Nassif, Dr. Marianne Saba, and Dr. Abir Abdelrahman—were chosen for the Corporate Directors Program by the Institute for Finance and Governance (IFG). They received training, participated in discussions, and earned certificates from ESA Business School after five months. A steering committee, led by Dr. Dima Issa, was formed to implement the project and follow the LLWB's recommendations for women's empowerment at UOB. This project highlights UOB's commitment to gender equality and the professional development of its female employees, providing them with valuable insights and expanding their professional networks.



## EMPOWERING WOMEN : STUDENT LED ACTIVITIES

The activities and workshops listed focus on promoting gender equality through various student activities such as workshops, seminars, interactive activities, and awareness campaigns. These initiatives, organized by different clubs and societies, address issues like responsible leadership, child marriage, feminism, self-defense, psychological abuse, and women's achievements.



<b>Activity Title</b>	<b>Activity Type</b>	<b>Club Name</b>
Gender wars: Gender equality awareness	Workshops	LeMSIC
Change Workshop Driving Change; Strategies for Responsible Leadership	Workshops	Communication
Child Marriage: A discussion session on societal and legal perspectives	Awareness Campaigns	OSA
Let's Discuss the Feminism Word: Friendly Debate Session	Gatherings and Interactive Activities	Feminist society
Fight Back: Self-Defense Workshop with Leen Sidawi	Workshops	Feminist society
Fight back: Awareness on Psychological Abuse with Warde Bou Daher	Workshops	Feminist society
Success is Female	Interactive Activities	Nursing Students Society
IEEE Women in Engineering: Affinity Group Inauguration Ceremony	Gatherings and Interactive Activities	IEEE - WIE
Women Tech makers Conference	Seminar	Google Developers x FAS
Women's Circle	Workshops	UNESCO
Women's Day celebration	Interactive Activities	Nursing Society and Public Health
Violence Against Women	Workshop	Nursing Society and Public Health



# 6 CLEAN WATER AND SANITATION

## RESEARCH ON REDUCED SDG6

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Over the last two years, significant research has addressed various aspects of water quality and environmental challenges in Lebanon and beyond. Studies have explored the water-energy nexus amidst Lebanon's economic crisis, assessed natural mineral water quality in Kesserwan, and investigated advanced nano-composites for wastewater treatment. Researchers have developed methods using shrimp shell waste for cadmium remediation and evaluated environmental risks of natural water sources in South Lebanon. Other studies include assessing surface water vulnerability in India's Mahanadi River Basin, proposing cost-effective solutions for cleaning polluted waterways, and reviewing the properties of fog water. Additionally, research has optimized hospital wastewater treatment, evaluated water quality in South Lebanon, examined dye adsorption using coffee grounds hydrogel beads, reviewed ultrasounds in layered double hydroxides synthesis, characterized groundwater contamination in North Lebanon, and assessed pervious geopolymer concrete for stormwater management. These efforts collectively enhance our understanding of water quality, environmental risks, and innovative water treatment solutions.

1. Nora Fayssal, Lara Al Tawil, Hrair Danageuzian, Mira Sabat, Hana ElMerehbi, Dovan Darazi, Macole Sabat, Roy Roukos, Sara Abou Dargham and Jimmy Romanos: **Navigating the water-energy Nexus Amidst the Lebanese Economic Crisis** AQUA - Water Infrastructure, Ecosystems and Society (2024) 73 (5): 917–929. <https://doi.org/10.2166/aqua.2024.329>
2. Rizk, M., Atallah, R., & Maria El Khazen, J. (2024). **Examination of the natural mineral water quality in the Kesserwan region, Lebanon**. Heliyon. Open access.
3. Paz, C.V., Fereidooni, M., Hamd, W.S., Praserthdam, P., & Praserthdam, S. (2024). **Analysis of Ag-DP25/PET plasmonic nano-composites as a visible-light photocatalyst for wastewater treatment: Experimental/theoretical studies, and the DFT-MB degradation mechanism**. Environmental Research.
4. Charii, H., Boussetta, A., Benali, K., El-Houssaine, A.H., & Moubarik, A. (2024). **Phosphorylated chitin from shrimp shell waste: A robust solution for cadmium remediation**. International Journal of Biological Macromolecules.
5. Khatib, M., Hleihel, J., Arairow, W., Skienhe, H., & Mortada, H. (2024). **Evaluating of the environmental risks of natural water sources in the Alkalaa municipal community area - South Lebanon**. Water Supply. Open access.
6. Das, A., & Khatib, M. (2024). **Assessing Surface Water Vulnerability Zones in Mahanadi River Basin, Odisha, India: An Integrated Approach Using GIS and MCDM**. In Environmental Science and Engineering.

7. Khatib, M., & Mahmoud, B. (2024). **Economic Vessel to Clean the Polluted Water by Solid Waste in Waterway**. In Lecture Notes in Civil Engineering.
8. Khoury, D., Millet, M., Jabali, Y., & Delhomme, O. (2023). **Fog Water: A General Review of Its Physical and Chemical Aspects**. *Environments - MDPI*. Open access.
9. Tager, E., Naoushi, S.E., Arai, W., Saba, M., & El Bachawati, M. (2023). **Aspen Plus designing and optimizing the hospital wastewater treatment by wet air oxidation method**. In *E3S Web of Conferences*. Open access.
10. Khatib, M., Daoud, M., Arai, W., Saba, M., & Mortada, H. (2023). **Evaluation of Water Quality in the South of Lebanon: Case Study**. *Water, Air, and Soil Pollution*.
11. Khatib, M., Daoud, M., Arai, W., Saba, M., & Mortada, H. (2023). **Water quality parameters assessment of ras el-Ain natural ponds, ty, lebanon**. *Water Supply*. Open access.
12. Kasbaji, M., Mennani, M., Grimi, N., Zakhem, H.E., & Moubarik, A. (2023). **Adsorption of cationic and anionic dyes onto coffee grounds cellulose/sodium alginate double-network hydrogel beads: Isotherm analysis and recyclability performance**. *International Journal of Biological Macromolecules*.
13. Kalawoun, H., Obeid, M., Ciotonea, C., Abi-Aad, E., & Delattre, F. (2023). **Review on the contribution of ultrasounds in layered double hydroxides synthesis and in their performances**. *Comptes Rendus Chimie*. Open access.
14. Arai, W., Khatib, M., Saba, M., Kassem, H., & Absi, J. (2023). **Characterization of Groundwater Contamination in the North Lebanese Aquifer**. In *Environmental Science and Engineering*.
15. Anwar, F.H., El-Hassan, H., Hamouda, M.A., & El Mir, A. (2023). **Evaluation of pervious geopolymer concrete pavements performance for effective stormwater infiltration and water purification using Taguchi method**. In *Materials Today: Proceedings*.

## WATER USAGE AND CARE

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The UOB Treatment Plant is located within the University at its northern end and lowest elevation. The selection of this site by the University was in line with the Master Plan, ensuring a downward-inclining location away from existing buildings and facilities. A program of visits or "field day visits" is organized for members of the community, including staff from Municipalities, Ministries and NGO's, together with some engineers, technicians, trainees and students. A primary task is to educate the community about the need for and importance of sewage treatment, as well as the adoption of environmentally-sound practices of recycling such as the re-use of effluent in irrigation. The essential aim of this Treatment Plant is to develop public awareness, leading to people's acceptance of sewage treatment and the beneficial recycling of effluent and sludge.

The undeniable importance and inevitability of sewage treatment is now common knowledge among those responsible, with the result that towns, villages, and Municipalities are currently planning or beginning to implement its adoption.

These programs, combined with visits made by interested parties to our Plant, will help to educate the public generally about the vital need to convert dangerous effluent into a liquid which, when used to irrigate the land, is positively beneficial. The prime duty is the presentation of laboratory analytical data produced regularly on samples collected from the

Treatment Plant, since theoretical knowledge needs always to be scientifically corroborated by analytical data. To this end, a monitoring program has been initiated to generate data on specific parameters that indicate the progress of the treatment process. The treatment process is being carried out in a series of tests conducted on influent and effluent water samples collected. The efficiency of the Plant and its operations and the precision of our measurements are verified by comparison with standard values set by the Lebanese Ministry of Environment (MOE) to check the accuracy of all analytical data produced. Also, the treated effluent is being used for irrigation on the UOB Campus. The areas thus irrigated have displayed good growth when compared with irrigation using University well water.

## THE FACULTY OF ENGINEERING AT UOB INAUGURATES THE SUSTAINABILITY WALL

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On October 12, 2023, Dr. Elias Warrak, President of the University of Balamand, inaugurated the "Sustainability Wall" within the Engineering Complex at the university's Koura campus as part of the Faculty of Engineering's Erasmus Days 2023 celebration. The celebration was organized by the SWaTH project (The Sustainable Wastewater Treatment for Hospitals), funded by the Erasmus+ program and led by the University of Balamand. Guests at the event included Ms. Alessia Squarcella, representing the European Union Ambassador to Lebanon; Dr. Arif Al-Soufi, the Coordinator of the Erasmus+ Office in Lebanon; and professors, administrators, staff and students. The SWaTH project, managed by Dr. Makram El Bachawati, Associate Professor at the Department of Chemical Engineering, aims to assess the social and environmental impacts of wastewater treatment, foster knowledge exchange between European and Lebanese partners, and enhance the skills of environmental and chemical engineers all while creating opportunities for capacity building in this domain. The day featured a series of activities at the Faculty of Engineering, including laboratory tours and competitions organized by dedicated student volunteers as well as an information session about the next call for Erasmus+ projects delivered by Dr. AlSoufi.



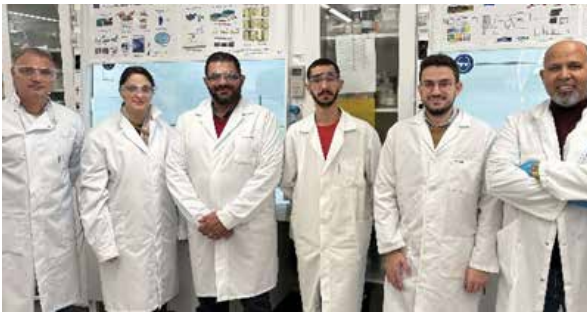
## SWATH PROJECT CLOSING CEREMONY

The Faculty of Engineering at the University of Balamand held the closing ceremony for the SWaTH Project on July 9, 2024, at the Koura campus. The event was attended by notable figures including the Minister of Public Health, Dr. Firas Abiad, and representatives from various ministries, municipalities, hospitals, and partner universities. The SWaTH Project, co-funded by the Erasmus+ Program and managed by Dr. Makram El Bachawati, began in 2020 and focuses on developing sustainable solutions for hospital wastewater treatment. During the ceremony, speakers highlighted the project's achievements and its importance in addressing Lebanon's healthcare and environmental challenges. Dr. Abiad and Dr. Elias Warrak emphasized the need for proper wastewater treatment to protect public health and the environment. Dr. El Bachawati detailed the project's objectives and recommendations. The ceremony concluded with a token of appreciation presented to Professor Rami Abboud for his support and commitment to sustainability.



## SOME OF THE PROJECT ACTIVITIES

- Showcase innovative solutions and methodologies for treating hospital wastewater, which are essential for maintaining clean water sources as well as promoting clean water and proper sanitation practices.



Hands-on experience training at the KTH Royal Institute of Technology (Sweden)

- Celebrate Erasmus Days feature workshops, seminars, and training sessions that enhance the knowledge and skills of participants in sustainable wastewater treatment. These educational activities contribute to improving the quality of education and fostering lifelong learning opportunities.



"Reducing Environmental impact: sustainable green roof technology in the Mediterranean" seminar part of ErasmusDays 2023.

- Establish a leading wastewater analysis center in Lebanon, promote innovation in wastewater treatment technologies, and support the development of hospitals, industries, and municipalities.



GC/MS Training in the chemical engineering department at the University of Balamand

## ENGAGE PROJECT

Under the USAID-funded Water Sanitation and Conservation (WSC) Project, the Faculty of Engineering launched a training program titled "Engage: Capacity Development of Civil Society Organizations to engage in Water and Sanitation." Led by Dr. Yasmine Jabali, the program aims to enhance the capabilities of Lebanese Civil Society Organizations (CSOs) in water and sanitation.

The project involves comprehensive training, knowledge exchange, and implementation of small-scale action plans. The initiative, which has attracted international partners like CEWAS and Ps-Eau, has a total budget of 329,470 USD and will be completed within 14 months. This endeavor underscores the university's commitment to sustainable development and international collaboration in addressing global challenges.

## ENVIRONMENTAL SUSTAINABILITY

Dr. Wael Hamd from the Chemical Engineering Department is dedicated to finding innovative solutions to environmental challenges, focusing on the degradation of microplastics and organic recalcitrant molecules using advanced photocatalytic technologies. His research leverages sustainable nanotechnology methods to develop scalable, eco-friendly practices that reduce environmental impacts and promote long-term sustainability. Key projects include the MAGNO EU Project (2024-2027) aimed at enhancing packaging sustainability in line with the European Green Deal, optimizing water-based drilling mud circulation in deep water (2024-2026) to improve mud pump efficiencies and treat organic pollutants, the LII-CAT Project (2024-2025) for removing organic pollutants from wastewater using advanced oxidation technologies, and a project on using zinc oxide-based photocatalytic reactors for industrial wastewater treatment (2022-2023).





## DEVELOPMENT & ESTABLISHMENT OF A CO-DIPLOMA IN WATER TECHNOLOGY

The Issam Fares Institute of Technology and Université de Limoges (France) have established a co-diploma in Water Technology, operational from January 2022. This initiative ensures sustainable water management, addresses water scarcity, and provides quality education through international collaboration.



From 2022 to 2024, the University of Balamand and Polytech Orléans collaborated on a project to study the thermomechanical properties of metakaolin-based geopolymers, advancing sustainable material technology. Between 2023 and 2026, the University of Balamand and Université de la Rochelle are working on developing eco-friendly construction materials to promote sustainable industrialization and reduce waste. The EU-funded WES project, led by Dr. Marianne Saba, addresses marine plastic pollution from 2023 to August 2024, aiming to ensure clean water and promote sustainable consumption. Additionally, the AUF Internationalization Commission fosters international cooperation and partnerships across various fields, including research and education, to reduce educational inequalities.

## ENVIRONMENTAL LEADERSHIP AWARD AT THE MENA

Balamand, November 15, 2023 – The University of Balamand (UOB) was recognized at the inaugural Times Higher Education Awards MENA 2023 in Abu Dhabi on November 14, 2023, for its exceptional Contribution to Environmental Leadership. The event celebrated the achievements of universities across the Middle East and North Africa, with UOB standing out among winners from six countries.



UOB's award was attributed to the Faculty of Engineering's "1 Million Action Postcard" (1MAP) initiative, led by Assistant Professor Dr. Yasmine Jabaly. This project aims to raise awareness and foster positive action on water challenges, gaining significant international support.

## UOB WATER EXPO 2023

The University of Balamand's Faculty of Engineering hosted the UOB Water Expo 2023 on December 19 at the Hariri Auditorium, Koura campus. The event featured key attendees such as Dr. Nasser Yassin, Minister of Environment (represented by Dr. George Metri), Professor Rami Abboud, and Dr. Yasmine Jabali. The expo primarily engaged over 200 high school students from North Lebanon, emphasizing the importance



of water resources. The expo provided an opportunity for future collaboration and knowledge-sharing, aligning with UOB's strategic vision for environmental sustainability. On the other hand, Civil Engineering students organized a presentation for high school students to familiarize them with their design projects addressing water-related issues, aligning with the UN Sustainable Development Goals (SDGs). These activities reflect the vision and ongoing commitment of the Faculty of Engineering to enhance global cooperation and adhere to the UN SDGS, on this occasion, SDG6: Clean Water and Sanitation.

## GIS CENTER: CAPACITY BUILDING FOR THE WATER ESTABLISHMENT IN ZGHARTA AND BECHARRI AREA

The University of Balamand recently conducted a comprehensive GIS training program for water establishments in the Zgharta and Becharri areas. This initiative aimed to enhance the capabilities of local water management teams in mapping and analyzing the water network. Here are the key aspects of the training:

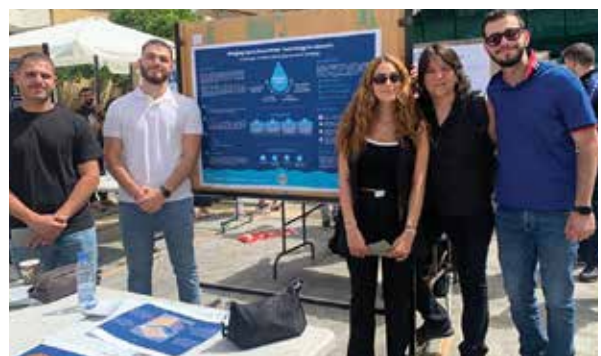
### TRAINING OBJECTIVES:

1. Skill Development: Equip participants with the necessary skills to use GIS software effectively.
2. Network Mapping: Enable the creation of detailed maps of the existing water network.
3. Infrastructure Detection: Identify regions that lack adequate water infrastructure and prioritize them for development.



## SUCCESS AT IBDAA 2024: STRATEGIC MANAGEMENT STUDENTS SHINE

Undergraduate and graduate students in the Strategic Management courses in Al-Koura and SEG campuses took part in the American University of Beirut's IBDA 2024 competition. IBDA chooses one SDG/theme every year and students propose solutions to that issue, showcase it, and compete with other universities. The 1st prize in the Business category was granted to one of our undergraduate student groups.





# 7 AFFORDABLE AND CLEAN ENERGY

## RESEARCH TOWARD SDG7

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In the past two years, significant advancements have been made across various fields of research, aligning with Sustainable Development Goal 7 (SDG 7) which aims to ensure access to affordable, reliable, sustainable, and modern energy for all. Studies on vertical axis wind turbines have optimized their design for urban environments, enhancing efficiency and noise reduction, contributing to cleaner energy solutions. Research on glioblastoma stem cells has uncovered crucial metabolic and immune evasion mechanisms, paving the way for new immunotherapeutic strategies. Innovations in Savonius wind turbine shielding have demonstrated improved performance through reduced negative torque, promoting more efficient wind energy generation. Sustainable construction materials, such as polymer fiber reinforced geopolymer concrete, have been developed using waste steel slag and fly ash, enhancing durability and strength while recycling industrial waste. Additionally, life cycle assessments of photovoltaic-diesel hybrid systems have shown environmental benefits over traditional diesel-only systems, highlighting the potential for reduced emissions and a smaller environmental footprint, thus supporting the transition to sustainable energy sources.

1. **“Vertical Axis Wind Turbine”** by Mikel Mekhael, Simon Daaboul, Carl Bejjani, supervised by Macole Sabat, 2023.
2. Hawly, J., Murcar, M.G., Schcolnik–Cabrera, A., & Issa, M.E. (2024). **Glioblastoma stem cell metabolism and immunity**. *Cancer and Metastasis Reviews*.
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5. Mansour, M., Harajli, H.A., Zakhem, H.E., & Manneh, R. (2024). **Cradle-to-grave life cycle assessment of a hotovoltaic–diesel hybrid system: the case of an industrial facility**. *Environment, Development and Sustainability*.
6. Yammine, P., El-Nakat, H., Kassab, R., Matar, Z., & Chmayssem, A. (2024). **Recent Advances in Applied Electrochemistry: A Review. Chemistry (Switzerland)**. Open access.
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11. Shantha Kumari, K.G., Jaheer Mukthar, K.P., & El Rahhani, G.N. (2024). **Green Finance in India: Driving Sustainable Development and Economic Growth.** In Studies in Systems, Decision and Control.
12. Marín, C., El Bachawati, M., & Pérez, G. (2023). **The impact of green roofs on urban runoff quality: A review.** Urban Forestry and Urban Greening. Open access.
13. Nasr, Y., Zakhem, H.E., Hamami, A.E.A., El Bachawati, M., & Belarbi, R. (2023). **Comprehensive Review of Innovative Materials for Sustainable Buildings' Energy Performance.** Energies. Open access.
14. Saba, M., Pérez, G., Coma, J., & Polls, M. (2023). **Geopolymer as an Innovative Material for Green Roofs- A State-of-the-Art Review.** In E3S Web of Conferences. Open access.
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16. Khatib, M., Daoud, M., Arairo, W., Saba, M., & Mortada, H. (2023). **Evaluation of Water Quality in the South of Lebanon: Case Study.** Water, Air, and Soil Pollution.
17. Khatib, M., Daoud, M., Arairo, W., Saba, M., & Mortada, H. (2023). **Water quality parameters assessment of ras el-Ain natural ponds, tyr, lebanon.** Water Supply. Open access.
18. Rizk, M., & Nasr, K.J. (2023). **Computational fluid dynamics investigations over conventional and modified Savonius wind turbines.** Heliyon. Open access.
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22. Lahoud, C., Brouche, M.E., Lahoud, C., & Hmadi, M. (2023). **Thermo-Economic Comparison of Solar Thermal Cooling and Solar Photovoltaic Cooling Systems for a Typical Residential Building - Lebanese Case Study.** In 2023 IEEE 4th International Multidisciplinary Conference on Engineering Technology, IMCET 2023.
23. Alomar, Z., Houry, G., Rishmany, J., & Daaboul, M. (2023). **NUMERICAL AND EXPERIMENTAL STUDY ON THE EFFECT OF OVERLAP ON SAVONIUS WIND TURBINE.** International Journal of Power and Energy Systems. Open access.
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## UNIVERSITY OF BALAMAND UNVEILS SOLAR ENERGY PROJECT, PAVING THE WAY FOR A GREENER FUTURE

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The University of Balamand is proud to announce the successful completion and operation of an extensive solar energy project on its Koura campus. In partnership with NovaEnergia SAL, a leader in the energy sector, the university has embarked on a journey towards environmental stewardship and energy independence. This ambitious project encompasses 2,772 state-of-the-art Longi Himo X6 solar modules, each boasting a capacity of 580 W, connected across 13 Sungrow on-grid inverters of 125 KVA each. Spread over approximately 13 buildings, these installations are a testament to the university's commitment to adopting the highest technical standards in renewable energy.

Projected to produce around 2,600,000 KWh of clean, renewable energy annually, this solar initiative is expected to fulfill approximately 70% of the university's daytime energy needs and 60% of its overall energy consumption. This significant shift towards solar energy underscores the University of Balamand's dedication to reducing its carbon footprint and promoting environmental sustainability. The impact of this project extends far beyond energy savings. It is estimated to reduce carbon emissions by a remarkable 1,040 metric tons annually, an achievement equivalent to the CO<sub>2</sub> absorption capacity of approximately 47,273 mature trees each year. This substantial reduction in greenhouse gas emissions is a clear demonstration of the university's active role in combating climate change and fostering a sustainable future for generations to come.

Dr. Elias Warrak, President of the University of Balamand, expressed enthusiasm about the project's completion: "This solar energy project is not just an investment in renewable resources; it is a testament to our responsibility towards the planet and our commitment to lead by example in the transition to sustainable energy solutions. We are immensely proud to be at the forefront of this significant environmental milestone. As the University of Balamand continues to innovate and inspire, this solar project marks a significant step forward in UOB's ongoing journey towards sustainability, environmental responsibility, and academic excellence."



## A PIONEERING SUSTAINABLE INNOVATION WITH THE E-SHADE SOLAR BENCH

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Long before solar equipment became commonplace, the Faculty of Engineering at the University of Balamand (UOB) had already paved the way for a sustainable future, setting an example for environmental stewardship and technological advancement in the region. In a pioneering initiative, the Faculty of Engineering emerged as the first in Lebanon to recognize the transformative potential of solar energy with its innovative E-Shade solar bench. Manufactured to promote relaxation, connectivity, and environmental awareness, this solar-powered bench redefined outdoor seating experiences well ahead of the widespread adoption of solar equipment in Lebanon.

Four years ago, dating back to December 2019, the brilliant Electrical Engineering students Alissar Wahab and Tony Klaimy unveiled the E-Shade solar bench as part of their Master's graduation project. The bench was officially inaugurated and put into service at UOB's main campus in 2021, after COVID became under control. This pioneering innovation made possible thanks to the unwavering support and visionary leadership of Dr. Maged Najjar, a Full Professor in the Electrical Engineering Department at UOB.

The E-Shade bench was meticulously designed to convert solar energy into electric power and should be able to handle and charge 4 laptops and 8 cellphones at the same time, without any circuit breakage. Additionally, LED lights are implemented in the ceiling of the bench providing an ambient illumination. As a result, the system demands an output power of 540W to function effectively. One of the bench's specifications is that it can seats up to 5 people with shaded tables and benches as well as one wheelchair access.

This forward-thinking design not only provided a relaxing spot for students and visitors but also served as a sustainable link for productivity and connectivity. The E Shade solar bench liberated users from the constraints of indoor power outlets, allowing students to embrace the sunshine while maintaining productivity. Whether collaborating on projects, studying, or enjoying a leisurely lunch break, students found comfort in the fusion of productivity and sustainability offered by the E-Shade solar bench.

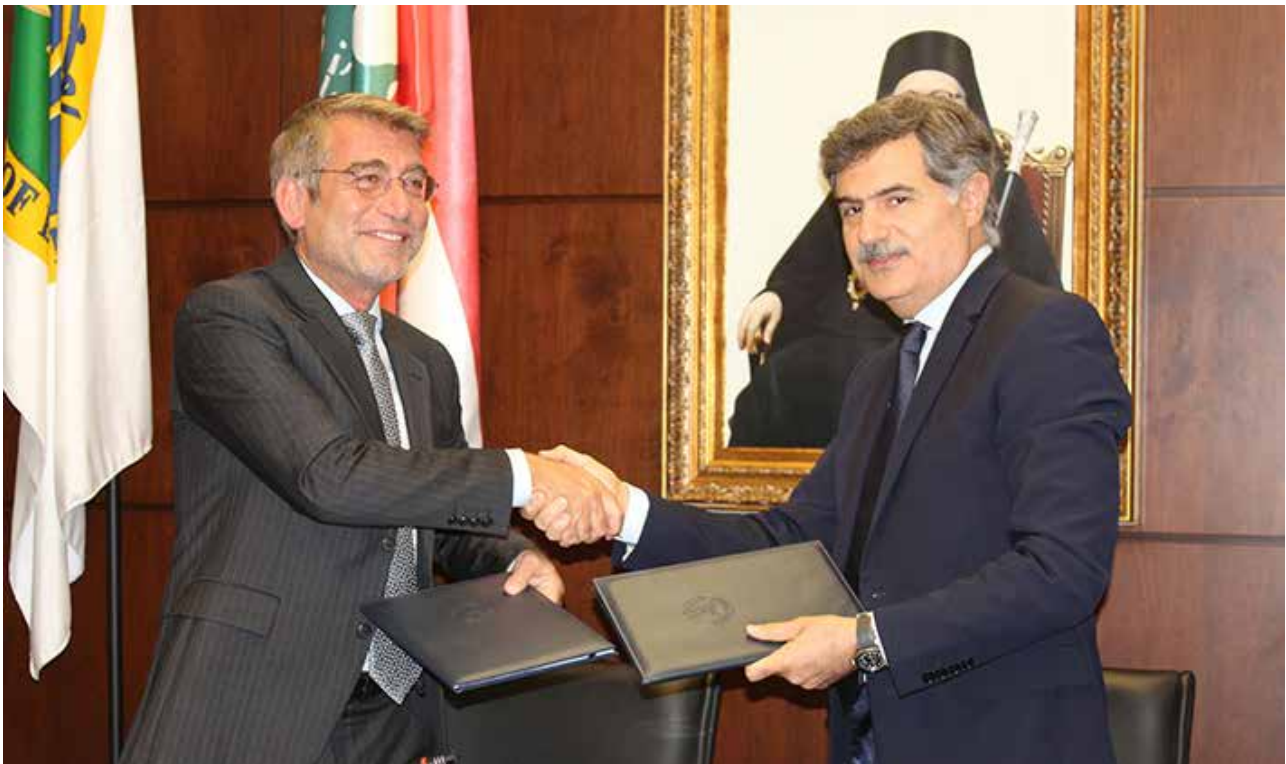


## MOU BETWEEN THE UNIVERSITY OF BALAMAND AND THE MINISTRY OF ENERGY AND WATER

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The University of Balamand (UOB) has signed an MoU with Lebanon's Ministry of Energy and Water to enhance collaboration between the education and professional sectors. This partnership will involve UOB hosting workshops and seminars with the General Directorate of Oil, providing technical training for its employees, and developing performance indicators. In return, the ministry will offer training opportunities and support for UOB students' projects. This initiative aims to strengthen the relationship between academic institutions and government entities, fostering economic development and skill enhancement.

This collaboration is seen as a strategic move to integrate academic expertise into governmental operations, ensuring that decisions and projects are grounded in scientific research and innovative thinking. Dr. Walid Fayad, the Minister of Energy and Water, highlighted the critical role of the oil, gas, and petroleum sectors in Lebanon's economic development and expressed the ministry's commitment to supporting students through vocational courses and workshops. Dr. Elias Warrak, President of UOB, called for other ministries to follow suit, emphasizing that such partnerships can significantly enhance the performance of government institutions by leveraging academic knowledge and fostering strong connections between students and the public sector.





## CONFERENCE AT THE UNIVERSITY OF BALAMAND SOUK EL GHARB ON CHALLENGES AND FINANCING METHODS OF RENEWABLE ENERGY

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The University, in partnership with Yellow Eco Energy, organized a scientific conference titled "Renewable Energy and its Role in Solving the Energy Crisis in Lebanon" at the university's Souk El Gharb campus. The event, held under the patronage of the Minister of Energy and Water, H.E. Dr. Walid Fayad, featured notable attendees including UOB President Dr. Elias Warrak and several high-ranking officials and experts.

The conference addressed the challenges of renewable energy, facilitating discussions among public and private sector representatives, and donor organizations to find solutions and funding methods. It highlighted the latest developments in renewable energy and energy efficiency. The event concluded with recommendations and solutions aimed at transitioning to renewable energy sources to address Lebanon's energy crisis.





# 8 DECENT WORK AND ECONOMIC GROWTH

## RESEARCH ABOUT SDG8

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Over the past two years, researchers have published significant studies that align with Sustainable Development Goal 8 (SDG 8), which promotes sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. These studies include investigations into the water-energy nexus in Lebanon, bioethanol production, and environmental risks of natural water sources, which contribute to sustainable economic practices. Research on the interconnectedness of cryptocurrency and FinTech and factors influencing cryptocurrency adoption supports economic growth and innovation. Social and economic studies on rural women's entrepreneurship, employee retention in the hospitality sector, and the economic impact of tourism highlight efforts to create a productive employment opportunities. Additionally, studies on UAVs in smart agriculture, resource sharing in Lebanese libraries, the impact of green roofs on urban runoff, sustainability of cracked concrete, service life prediction for reinforced concrete, and presenteeism management in Lebanese organizations contribute to sustainable infrastructure and decent work environments.

1. Assaf, A., Demir, E., & Mokni, K. (2024). **Exploring connectedness among cryptocurrency, technology communication, and FinTech through dynamic and fractal analysis.** Finance Research Letters.
2. Assaf, J.C., Mortada, Z., Rezzoug, S.A., Debs, E., & Louka, N. (2024). **Comparative Review on the Production and Purification of Bioethanol from Biomass: A Focus on Corn.** Processes. Open access.
3. Bassil, C., Harb, G., & Al Daia, R. (2023). **The economic impact of tourism at regional level: A systematic literature review.** Tourism Review International.
4. Chalhoub, C., & Farah, I. (2024). **Resource sharing in Lebanese libraries in times of unprecedented disruptions.** Information Discovery and Delivery.
5. El-Chaarani, H., El-Abiad, Z., El Nemar, S., & Sakka, G. (2024). **Factors affecting the adoption of cryptocurrencies for financial transactions.** EuroMed Journal of Business.
6. Fayssal, N., Al Tawil, L., Danageuzian, H.R., Dargham, S.A., & Romanos, J. (2024). **Navigating the water-energy nexus amidst the Lebanese economic crisis.** Aqua Water Infrastructure, Ecosystems and Society. Open access.
7. Frangieh, C., Saba, M., Karmaoui, D., & Lafhaj, Z. (2023). **Sustainability and durability of cracked concrete with geopolymer binder.** In E3S Web of Conferences. Open access.

8. Karam, K., Mansour, A., Khaldi, M.R., Clement, B., & Ammad, M. (2024). **A Survey for Unmanned Aerial Vehicles in Smart Agriculture: Types and Modelling Perspectives.** In IEEE Advanced Information Technology, Electronic and Automation Control Conference (IAEAC).
9. Khatib, M., Hleihel, J., Arairoy, W., Skienhe, H., & Mortada, H. (2024). **Evaluating the environmental risks of natural water sources in the Alkalaa municipal community area - South Lebanon.** Water Supply. Open access.
10. Kuran, O., & Khabbaz, L. (2024). **Stakeholder dynamics in rural Lebanese women's entrepreneurship.** Journal of Enterprising Communities.
11. Marín, C., El Bachawati, M., & Pérez, G. (2023). **The impact of green roofs on urban runoff quality: A review.** Urban Forestry and Urban Greening. Open access.
12. Semaan, N.M. (2023). **A Novel Service Life Prediction for Reinforced Concrete Infrastructure Systems.** In RILEM Bookseries.
13. Serhan, C., Nasr, N., Cheikh, G., & Nachar, G. (2024). **Retaining young employees in the hospitality and tourism sector: the role of workplace context and management practices.** EuroMed Journal of Business.
14. Shantha Kumari, K.G., Jaheer Mukthar, K.P., & El Rahhani, G.N. (2024). **Green Finance in India: Driving Sustainable Development and Economic Growth.** In Studies in Systems, Decision and Control.
15. Shebaya, M. (2024). **Presenteeism Management for Sustainable Business: An Exploratory Study in Lebanese Organizations.** In W. Bakhit & S. El Nemar (Eds.). (2025), Navigating Business Through Essential Sustainable Strategies. IGI Global. Accepted/Forthcoming October 2024. DOI.

## SUCCESSFUL ANNUAL CAREER AND INTERNSHIP FAIR

The Career Services Center organized its Annual Career and Internship Fair for two consecutive years. This event provided an excellent opportunity for students and alumni to interact with recruiters, explore available internships and job opportunities, and stay updated on the latest market trends.

Across both years, more than 60 multinational and national companies and non-governmental organizations participated. The fair facilitated discussions between companies and students regarding their expectations and employability prospects in Lebanon and the wider region, across various fields of study. Additionally, the giveaways were eco-friendly, with first-year attendees receiving plants and second-year attendees receiving local products.



## MEMORANDUM OF UNDERSTANDING BETWEEN UOB AND IZDIHAR

The University of Balamand (UOB) has signed a Memorandum of Understanding (MOU) with Izdihar, a community organization in Tripoli, to enhance youth development and capacity-building. This partnership, endorsed by UOB President Dr. Elias Warrak, Izdihar Founder Mr. Mosbah El-Ahdab, and Dr. Elie Karam, Dean of Issam Fares Faculty of Technology at UOB, aims to improve the academic standing of disadvantaged youth through continuous education programs. These programs will equip youth with essential skills to improve their life conditions and contribute to community development. The collaboration focuses on addressing the living and social conditions in Lebanon, particularly in Tripoli. As part of this initiative, UOB will enroll twelve students, funded by Izdihar, into a special education program. This program will implement projects in agriculture and food, water and renewable energy, and green smart buildings.



The ongoing economic crisis has deepened poverty, preventing families from providing proper education, which leads to significant skill gaps.

To address this, Izdihar and the University of Balamand, with funding from a European philanthropist, developed a special education program. This program aims to equip Tripoli's youth with essential skills, including:

- Basic computer and information management, drawing, and simulation skills.
- Basic financial and accounting skills.
- Proficient conversational and professional English.
- Technical skills in arts and crafts, such as mobile app development, network installation, and PCB design.

This initiative seeks to empower young people with the skills needed to secure employment and achieve economic stability.

## MOU WITH THE ECONOMIC EMERGENCY COMMITTEE

The University of Balamand UOB signed an MOU with the Economic Emergency Committee on UOB campus- Akkar, fostering educational development. The signing ceremony was attended by Dr. Elie Karam Dean of the Issam Fares Faculty of Technology at UOB, Dr. Khaled Aitani President of the Economic Emergency



Committee, Aboud Maraab Head of the Dreib Al- Awsat Union of Municipalities, Omar Al-Hayek Head of the Naher Al-Astwan Union of Municipalities, Roni Al-Hajj Head of the Jumma Union of Municipalities, Dr. Mohammed Khedrini Director of Abdullah Al-Rassi Governmental Hospital, Dr. Mohammed Ali, Dr. Nora Al-Mar'abi, Counselor Khalid Mohammed Al-Zu'bi, as well as UOB directors, educators, association presidents, and others.

## TALK ON SUSTAINABLE TOURISM DEVELOPMENT

The School of Tourism and Hotel Management (THM) at the University of Balamand welcomed Mr. Fouad Sayegh, founder and owner of SWIZORE located in Kaftoun (el Koura), for a talk focused on sustainability in the hospitality industry on the 15th of October 2024. During his presentation, Mr. Sayegh discussed eco-friendly practices, sustainable lifestyle, indoor/outdoor green living solutions, and the principles of ecotourism. Mr. Sayegh's insights sparked inspiration among attendees to advocate for sustainable practices within their communities and future careers in the hospitality sector.



## CAREER SERVICES CENTER INITIATIVES

The Career Services Center promotes sustainability through experiential learning opportunities, such as internships and volunteer work with organizations focused on environmental conservation. They host recruitment seminars and workshops that emphasize the importance of sustainability in career development, fostering a sense of corporate social responsibility among students. The center collaborates with sustainable organizations, providing students with valuable networking and job placement opportunities. Additionally, the center offers career coaching and mentoring to guide students towards careers in sustainability-focused fields, helping them develop relevant skills and highlight their sustainability efforts in their CVs and employability profiles.



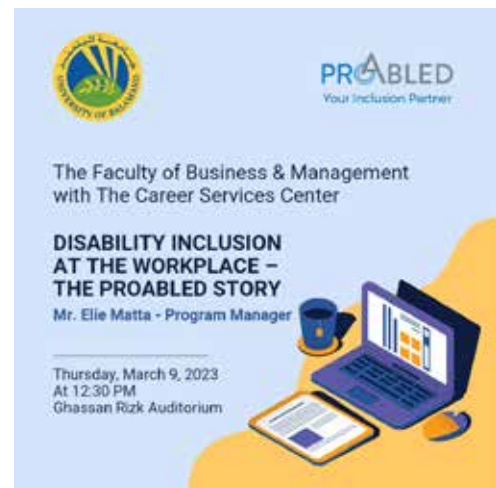
## ENTREPRENEURSHIP IN TIMES OF CRISIS

The Faculty of Business and Management, along with the Career Services Center, hosted a panel discussion on "Entrepreneurship in Times of Crisis." Moderated by Maria Aouad from Injaz Lebanon, the panel featured experts Dalia Nassar, Nour Atallah, Emile Mouawad, and Kinda Hamoui. They discussed navigating business challenges during economic downturns, identifying successful business ideas, adapting to changing consumer needs, securing startup funding, and the importance of resilience and resourcefulness. The event emphasized strategies for fostering innovation and sustaining economic growth during crises, aligning with goals of decent work, economic growth, and industry innovation.



## **SEMINAR ON DISABILITY INCLUSION IN THE WORKPLACE**

The Career Services Center and the Faculty of Business and Management organized a seminar on disability inclusion in the workplace in collaboration with the ProAbleD NGO. This event underscored the critical importance of integrating individuals with disabilities into the workforce, particularly those who have the skills and capacities to contribute meaningfully to their roles.



## **UNIVERSITY OF BALAMAND CLUBS' ACTIVITIES SUPPORTING SDG 8**

Various clubs at the University of Balamand have organized activities that align with SDG 8: Decent Work and Economic Growth. These include workshops on CV writing, cybersecurity, and LinkedIn training, as well as seminars on money management, time management, and professional communications. Additionally, there are interactive activities like the Aspen Hysis Competition and field trips such as the InMind.Ai visit. These initiatives aim to enhance students' employability and professional skills, contributing to economic growth and decent work opportunities.

<b>Activity Title</b>	<b>Activity Type</b>	<b>Club Name</b>
CV writing Workshop	Workshops	Robotics
Cyber security workshop	Workshops	Developers
Money Management Workshop	Seminars	Business Connections
The Economic situation in Lebanon: What's next	Seminars	Business Connections
Time Management	Seminars	IEEE
CV writing Workshop	Workshops	Consulting x Career Services
Professional communications for engineers	Seminars	IEEE
Medical School Mock Interview	Workshops	Premed
Aspen Hysis Competition	Gatherings and Interactive Activities	SSCHE
Berytech tech talk	Seminar and Conferences	Astronomy
InMind.Ai Field trip	Field trip	IEEE
LinkedIn Training Session	Workshops	Business



# 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

## RESEARCH ON INDUSTRY, INNOVATION AND INFRASTRUCTURE

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In the past two years, the university in SDG 9 has published research on efficient computer vision for tennis ball retrieval and finite element analysis of glass crushers. Other studies explored carrier phase recovery in LDPC-coded systems and the impact of recycled waste on concrete. Topics also include polymer fiber reinforced geopolymer concrete, grinding efficiency in cementitious materials, and life cycle assessment of hybrid energy systems. Additional research covers the empowerment of rural female entrepreneurs, performance of asphalt mixtures, and chitin-enhanced wood adhesives. Further areas of study include sustainable pervious concrete, green roofs, shear strength of fiber-reinforced concrete beams, sustainable geopolymer materials, and restoration of historical monuments.

### 2023

1. Wahidi, M., Imad, R., & Rishmany, J. (2023, May). **A Highly Efficient Computer Vision Approach for Tennis Ball Retrieval with Limited Computational Power.** In International Conference on Advances in Computing Research (pp. 192-203). Cham: Springer Nature Switzerland.
2. Rishmany, J., & Imad, R. (2023). **Finite Element and Multibody Dynamics Analysis of a Ball Mill Glass Crusher.** Modelling and Simulation in Engineering, 2023(1), 1905702.
3. Imad, R., & Houcke, S. (2023). **Carrier phase recovery of LDPC-coded systems based on the likelihood difference algorithm.** EURASIP Journal on Advances in Signal Processing, 2023(1), 16.
4. Marín, C., El Bachawati, M., & Pérez, G. (2023). **The impact of green roofs on urban runoff quality: A review.** Urban Forestry and Urban Greening. Open access.
5. Ghali, A.E.A., El Ezz, N.E., Hamad, B.S., Assaad, J.J., & Yehya, A. (2023). **Comparative study on shear strength and life cycle assessment of reinforced concrete beams containing different types of fibers.** Case Studies in Construction Materials. Open access.
6. Rishmany, J., Sabiini, G., Mansour, A., & Imad, R. (2023). **Generating rectilinear motion using permanent magnets.** Journal of Engineering and Applied Science. Open access.
7. Abdayem, J., Saba, M., & Aouad, G. (2023). **Elaboration of a sustainable bottom ash geopolymer material.** In E3S Web of Conferences. Open access.
8. Saba, M., Arairow, W., Sabalbal, G., El Bachawati, M., & Absi, J. (2023). **Use of aluminum powder for the development of a sustainable paste used in the restoration of historical monuments.** In E3S Web of Conferences. Open access.



9. Saba, M., Pérez, G., Coma, J., & Polls, M. (2023). **Geopolymer as an Innovative Material for Green Roofs- A State-of-the-Art Review**. In E3S Web of Conferences. Open access.
10. Mahfoud, F., Assaf, J.C., Elias, R., Debs, E., & Louka, N. (2023). **Defatting and Defatted Peanuts: A Critical Review on Methods of Oil Extraction and Consideration of Solid Matrix as a By-Product or Intended Target**. Processes. Open access.
11. Jabali, Y., Assaad, J.J., & Aouad, G. (2023). **Photocatalytic Activity and Mechanical Properties of Cement Slurries Containing Titanium Dioxide**. Buildings. Open access.
12. Abou Rachied, T., Dbouk, F., Hamad, B.S., & Assaad, J.J. (2023). **Structural behavior of beams cast using normal and high strength concrete containing blends of ceramic waste powder and blast furnace slag**. Cleaner Materials. Open access.
13. Barraji, F., Mahfouz, S., Kassem, H.A., Goulias, D., & El Kordi, A.A. (2023). **Investigation of Using Crushed Glass Waste as Filler Replacement in Hot Asphalt Mixtures**. Sustainability (Switzerland). Open access.
14. Semaan, N.M. (2023). **A Novel Service Life Prediction for Reinforced Concrete Infrastructure Systems**. In RILEM Bookseries.
15. El Samad, M., Dennaoui, H.K., & El Nemar, S. (2023). **Machine Learning and Big Data in Finance Services**. In Artificial Intelligence for Capital Markets.
16. Garba, A., Houry, D.J., Balian, P., Charafeddine, J., & Al-Mutib, K.N. (2023). **LightCert4IoTs: Blockchain-Based Lightweight Certificates Authentication for IoT Applications**. EEE Access. Open access.
17. Nahas, L., Dahdah, E., Aouad, S., Abi-Aad, E., & Estephane, J. (2023). **Highly efficient scallop seashell-derived catalyst for biodiesel production from sunflower and waste cooking oils: Reaction kinetics and effect of calcination temperature studies**. Renewable Energy.
18. Fadel, M., Courcot, D., Seigneur, M., Ledoux, F., & Afif, C. (2023). **Identification and apportionment of local and long-range sources of PM<sub>2.5</sub> in two East-Mediterranean sites**. Atmospheric Pollution Research. Open access.
19. El Inaty, F., Baz, B., & Aouad, G. (2023). **Long-term durability assessment of 3D printed concrete**. Journal of Adhesion Science and Technology.

## 2024

1. Gerges, N.N., Issa, C.A., Khalil, N.J., & Aintrazi, S. (2024). **Effects of recycled waste on the modulus of elasticity of structural concrete**. Scientific Reports. Open access.
2. Ahiskali, A., Ahiskali, M., Bayraktar, O.Y., Kaplan, G., & Assaad, J.J. (2024). **Mechanical and durability properties of polymer fiber reinforced one-part foam geopolymer concrete: A sustainable strategy for the recycling of waste steel slag aggregate and fly ash**. Construction and Building Materials.
3. Kaya, Y., Kobya, V., Mardani, A., & Assaad, J.J. (2024). **Effect of modified Triethanolamine on grinding efficiency and performance of cementitious materials**. Talanta Open. Open access.
4. Mansour, M., Harajli, H.A., Zakhem, H.E., & Manneh, R. (2024). **Cradle-to-grave life cycle assessment of a photovoltaic–diesel hybrid system: the case of an industrial facility**. Environment, Development and Sustainability.

5. Khabbaz, L., & Kuran, O. (2024). **EMPOWERING RURAL LEBANESE FEMALE ENTREPRENEURS: A RESOURCE-BASED PERSPECTIVE.** Journal of Developmental Entrepreneurship.
6. Barraj, F., Bilani, M., Hatoum, A.A., Assaad, J.J., & Goulias, D. (2024). **Aging behavior and long-term performance: a comparative study of hot mix versus chemical warm mix asphalt.** Innovative Infrastructure Solutions.
7. Charii, H., Boussetta, A., Ait Benhamou, A., Boutoial, K., & Moubarik, A. (2024). **Exploring the potential of chitin and chitosan extracted from shrimp shell waste in enhancing urea-formaldehyde wood adhesives.** International Journal of Adhesion and Adhesives.
8. Assaad, J.J., & Khatib, J.M. (2024). **Recycled materials used for sustainable pervious concrete.** In Sustainable Concrete Materials and Structures.

## IEEE GRAND TECH LEBANON

The University of Balamand (UOB) hosted the IEEE Grand Tech Lebanon 2023 conference, focusing on Augmented Reality (AR), Virtual Reality (VR), and the Metaverse. Co-organized by IEEE Young Professionals Lebanon, IEEE Computer Society Lebanon, and IEEE UOB Student Branch, the event aimed to engage Lebanese youth from various technological backgrounds. Over 100 students from 15 universities and graduates attended, seeking to advance their careers.

The conference's primary goal was to empower and enlighten attendees about AR, VR, and the Metaverse. A highlight was a simulation competition by Altered Realities, where participants created a simulation of the Nahyan Building on the UOB campus.



## A 3D/360-DEGREE CAR SCANNER ROBOTIC ARM

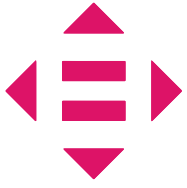
The 3D/360-degree Car Scanner Robotic Arm, a joint project between VT Solutions and the University of Balamand's Faculty of Engineering, was led by Dr. Rodrigue Imad and Dr. Jihad Rishmany. This multidisciplinary project, completed in nearly a year, was manufactured and assembled in the university's Mechanical Engineering laboratories. The robotic arm, equipped with high-resolution cameras, meticulously inspects vehicles, capturing detailed stereoscopic images to identify issues like bumps and scratches. It can perform a complete 360-degree scan and create a 3D model of a car in under a minute.



## UOB HOSTING THE GOOGLE DEVATHON COMPETITION

The Department of Computer Science celebrated the success of three of its teams, which secured the first, fifth, and sixth positions in the Google Devathon Competition. This event, organized by Google through the Google Developer Students Club and hosted by UOB, featured 34 teams from 17 universities in Lebanon. The Devathon serves as a preparatory stage for the globally recognized Google coding competition.





# 10 REDUCED INEQUALITIES

## RESEARCH ON REDUCED INEQUALITIES

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In the past two years, the university has dedicated efforts to reducing inequalities through more than 11 publications. These include studies on racial and gender disparities in early-onset colorectal cancer, the impact of financial stress on student wellbeing, gender diversity in family entrepreneurship, gender differences in mental health among healthcare workers during the COVID-19 pandemic, stakeholder dynamics in rural Lebanese women's entrepreneurship, the role of depression in financial wellbeing during Lebanon's financial crisis, language and home factors affecting Lebanese students' math performance, effective treatment coverage for PTSD, alternative stabilization methods for unfired earth blocks, political economy in Egypt, and disparities in maternal mortality.

### 2024

1. Nawras, Y., Merza, N., Beier, K., Hassan, M., & Kobeissy, A.A. (2024). **Temporal Trends in Racial and Gender Disparities of Early Onset Colorectal Cancer in the United States: An Analysis of the CDC WONDER Database.** Journal of Gastrointestinal Cancer. Open access.
2. Nasr, R., Rahman, A.A., Haddad, C., Salameh, P.R., & Alami, N.H. (2024). **The impact of financial stress on student wellbeing in Lebanese higher education.** BMC Public Health. Open access.
3. Skaf, Y., El-Abiad, Z., El-Chaarani, H., El Nemar, S., & Vrontis, D. (2024). **Exploring the influence of gender diversity and women's empowerment on family entrepreneurship performance: the moderating impact of firm characteristic.** Journal of Asia Business Studies.
4. Czepiel, D., McCormack, C.A., Da Silva, A.T.C., Hoek, H.W., & van der Ven, E.M.A. (2024). **Inequality on the frontline: A multi-country study on gender differences in mental health among healthcare workers during the COVID-19 pandemic.** Global Mental Health. Open access.
5. Kuran, O., & Khabbaz, L. (2024). **Stakeholder dynamics in rural Lebanese women's entrepreneurship.** Journal of Enterprising Communities.
6. Nehme, A., Moussa, S., Fekih-Romdhane, F., Obeid, S., & Haddad, G. (2024). **The mediating role of depression in the association between perceived financial wellbeing and somatization: a study in the context of Lebanon's financial crisis.** International Journal of Environmental Health Research.

## 2023

1. Younes, R.G., Salloum, S.L., & Antoun, M. (2023). **The effects of language and home factors on Lebanese students' mathematics performance in TIMSS. Large-Scale Assessments in Education.** Open access.
2. Stein, D.J., Kazdin, A.E., Munthali, R.J., Williams, D.R., & Wojtyniak, B.J. (2023). **Determinants of effective treatment coverage for posttraumatic stress disorder: findings from the World Mental Health Surveys.** BMC Psychiatry. Open access.
3. Arairol, W., Daher, N.E.H., El Bachawati, M., Absi, J., & Saba, M. (2023). **Alternative stabilisation method for unfired earth blocks.** In E3S Web of Conferences. Open access.
4. Koussa, Z. (2023). **Revolution, Change, and Democratic Transition in Egypt Since 2011: A Critical Political Economy Approach.** Contemporary Review of the Middle East.
5. Tran, P.T.M., Jreij, B., Sistani, F., & Shaya, F.T. (2023). **Disparities in maternal mortality.** Journal of Clinical and Translational Science. Open access.

## CREATING A CULTURE OF RESPECT

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The University of Balamand has implemented new measures to promote equality, prevent sexual harassment, and ensure accessibility for students with disabilities, supported by a newly established entity dedicated to Equity, Diversity, and Inclusion.

### **EDI Policy**

The University of Balamand is committed to creating a teaching, learning, and working environment that is free from sexual harassment and misconduct. This policy emphasizes the importance of human dignity and equity, and aims to foster a climate of professionalism, trust, and personal well-being among all stakeholders. [Read the full EDI policy here.](#)

### **Sexual Harassment Policy**

This policy ensures that the University maintains an environment free from sexual harassment and misconduct. It upholds the values of human dignity and equity, promoting a professional and trustworthy atmosphere for all stakeholders, and supporting personal well-being. [Read the full Sexual Harassment policy here.](#)

### **Admission of Students with Disability Policy**

The University of Balamand is dedicated to providing an inclusive environment for students with disabilities. This policy outlines the university's commitment to ensuring equal access to educational opportunities and support services for all students, fostering an environment of respect and inclusion. [Read the full Admission of Students with Disability policy here.](#)



# 11 SUSTAINABLE CITIES AND COMMUNITIES

## RESEARCH ON REDUCED INEQUALITIES

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Over the past two years, the university's publications about SDG 11 (Sustainable Cities and Communities) have varied, starting with research on the sustainable restoration of historical monuments using geopolymer materials and the evaluation of sustainability rating systems through multi-criteria decision-making models. Innovations in construction materials, such as optimizing pervious geopolymer concrete and using recycled materials for sustainable pervious concrete, have been highlighted. The impact of green roofs on urban runoff quality and the use of geoinformation for monitoring protected areas in Lebanon were also significant topics. Additionally, research addressed the stabilization of unfired earth blocks, the photocatalytic activity of cement slurries, and the effects of various additives on concrete properties. Water quality assessments in natural ponds and the development of economic vessels for cleaning polluted waterways were also covered. The publications reflect a comprehensive approach to enhancing urban sustainability through innovative materials, environmental monitoring, and infrastructure improvements.

1. Absi, J., Adgham, S.A., Sabalbal, G., Arairoy, W., & Saba, M. (2023). **Sustainable approach in the restoration of historical monuments using geopolymer material.** In E3S Web of Conferences. Open access.
2. Al-Sakkaf, A., Mohammed Abdelkader, E., Elshaboury, N., Bagchi, A., & Zayed, T.M. (2023). **An Integrated Multi-criteria Decision Making Model for Evaluating Sustainability Rating Systems.** In Lecture Notes in Civil Engineering.
3. Anwar, F.H., El Mir, A., El-Hassan, H., Hamouda, M.A., & Mo, K.H. (2023). **Use of Taguchi Method to Optimize the Mix Design of Pervious Geopolymer Concrete.** In International Conference on Civil, Structural and Transportation Engineering. Open access.
4. Arairoy, W., Daher, N.E.H., El Bachawati, M., Absi, J., & Saba, M. (2023). **Alternative stabilisation method for unfired earth blocks.** In E3S Web of Conferences. Open access.
5. Assaad, J.J., & Khatib, J.M. (2024). **Recycled materials used for sustainable pervious concrete.** In Sustainable Concrete Materials and Structures.
6. Fadel, M., Courcot, D., Seigneur, M., Ledoux, F., & Afif, C. (2023). **Identification and apportionment of local and long-range sources of PM2.5 in two East-Mediterranean sites.** Atmospheric Pollution Research. Open access.
7. Hatoum, A.A., & Barraij, F. (2023). **Investigating the changes in travel behaviour during an economic crisis in a developing country: A case study of the Greater Beirut Area, Lebanon.** Transportation Research Interdisciplinary Perspectives. Open access.

8. Jabali, Y., Assaad, J.J., & Aouad, G. (2023). **Photocatalytic Activity and Mechanical Properties of Cement Slurries Containing Titanium Dioxide**. Buildings. Open access.
9. Khatib, M., Ahmad, R.H., & Arairoy, W. (2023). **Effect of Polyethylene Terephthalate, Rubber, and Glass Based on Concrete Properties**. In Advances in Transdisciplinary Engineering. Open access.
10. Khatib, M., Daoud, M., Arairoy, W., Saba, M., & Mortada, H. (2023). **Water quality parameters assessment of ras el-Ain natural ponds, ty, lebanon**. Water Supply. Open access.
11. Khatib, M., & Mahmoud, B. (2024). **Economic Vessel to Clean the Polluted Water by Solid Waste in Waterway**. In Lecture Notes in Civil Engineering.
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13. Marín, C., El Bachawati, M., & Pérez, G. (2023). **The impact of green roofs on urban runoff quality: A review**. Urban Forestry and Urban Greening. Open access.
14. Marlène KANAAN, **"Franc-parler, moquerie et traits d'esprit dans une lettre de Grégoire de Nysse"**, Liberté de ton et plaisanterie dans la lettre, Presses Universitaires François-Rabelais, (PUFR), coll. Perspectives littéraires, Tours, France, 2023.
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16. Marlène KANAAN, **"Habar Būloş al-Rasūl ou l'Apocalypse de Paul selon un texte arabe inédit"**, Parole de l'Orient, Volume 50, USEK, 2024.
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18. Nasser Eddine, Z., Barraç, F., Khatib, J.M., & El Kordi, A.A. (2023). **Volume Stability of Pervious Concrete Pavement Containing Municipal Solid Waste Incineration Bottom Ash**. International Journal of Pavement Research and Technology.
19. Rizk, M., Atallah, R., & Maria El Khazen, J. (2024). **Examination of the natural mineral water quality in the Kesserwan region, Lebanon**. Heliyon. Open access.
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21. Saba, M., Arairoy, W., Sabalbal, G., El Bachawati, M., & Absi, J. (2023). **Use of aluminum powder for the development of a sustainable paste used in the restoration of historical monuments**. In E3S Web of Conferences. Open access.
22. Saba, M., Pérez, G., Coma, J., & Polls, M. (2023). **Geopolymer as an Innovative Material for Green Roofs- A State-of-the-Art Review**. In E3S Web of Conferences. Open access.
23. Semaan, N.M. (2023). **A Novel Service Life Prediction for Reinforced Concrete Infrastructure Systems**. In RILEM Bookseries.
24. Slim, S., **"From Cavern to Closter plan, revolution of the architecture of Greek Orthodox monastery in the Patriarchate of Antioch "**. ARAM-Oxford, July 2023.
25. Slim, S., **" Le rôle culturel et spiritual du monastère Notre Dame de Balamand à l'époque Ottomane"**. Conférence Typarabic, Mars 2024.

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## Books

The "Roman de Barlaam et Joasaph," the first Christian novel, has mysterious origins but was very popular in the Middle Ages, with many versions in different languages, especially Greek. It is a Christian adaptation of the Buddha's life. The Greek version, wrongly attributed to John of Damascus, became a key theological document and a masterpiece of Christian hagiographic literature. This book, authored by Marlène Kanaan and Father Hareth Ibrahim. Marlène Kanaan is a professor at the University of Balamand, Lebanon, and Father Hareth Ibrahim is the director of the Saint Joseph of Damascus Center for manuscript conservation and restoration.



## SUPPORT OF ARTS & HERITAGE

### UOB's Virtual Museum "Morphe"

Morphe is a virtual museum created by the Digital Humanities Center (DHC) and ALBA main Campus at UOB. It aims to make Lebanese art and culture accessible to a global audience through online exhibits. The museum features both tangible assets, such as paintings, sculptures, and archaeological sites, and intangible assets, including oral traditions and social practices. Morphe offers an immersive experience, allowing visitors to virtually explore and enjoy diverse collections from UOB and various cultural partners.





### **PAVONe: Platform of the Arabic Versions of the New Testament**

The Digital Humanities Center (DHC) has an online, free database for the Arabic text of the Gospels. Users can browse manuscripts by location or filter by parameters like date and language, with access to detailed manuscript properties.

<https://pavone.uob-dh.org/>



**PAVONe**  
Platform of the  
Arabic Versions Of  
the New Testament

### **ArHive: Database of Arabic manuscripts and historical documents**

The ArHive database, developed by the Digital Humanities Center (DHC) at the University of Balamand, provides free online access to Arabic manuscripts and historical documents, allowing users to browse by location or filter by various parameters, with detailed manuscript properties available.



### **Alwan Virtual Exhibition**

Alwan virtual Exhibition by the Digital Humanities Center (DHC) at UOB is a virtual showcase of paintings from the university's art collections. These artworks, donated by notable Lebanese artists, have been gathered from various exhibitions hosted over the years. This exhibition highlights the rich cultural heritage and artistic contributions of Lebanon. on Google Maps (Virtual visit): <https://goo.gl/maps/gqMif3axGf9fh79L6>



### **Database of Arabic Orthodox Christian**

The Database of Arabic Orthodox Christian Journals, developed by the Digital Humanities Center (DHC) at UOB, provides access to a collection of journals focused on Orthodox Christianity in the Arab world. This resource is valuable for researchers and scholars interested in the historical and theological aspects of Arabic Orthodox Christianity, offering various articles and publications through their online platform.

<http://journals.uobdh.org/>

### **Bibliotheca: Hagiographica Arabica: Database of Eastern saints in Arabic**

Developed by the DHC) at UOB, this database offers information on Eastern saints in Arabic, detailing their lives, acts, and martyrdoms, and is valuable for researchers of hagiography and the Synaxarion in Arabic.  
<http://bha.uobdh.org/>



### **SyRum - Syriac Rum Orthodox Heritage**

The SyRum project preserves Syriac Rūm Orthodox heritage by digitizing manuscripts and archives in Lebanon, in collaboration with the Catholic University of Eichstätt-Ingolstadt.  
<https://www.balamand.edu.lb/CentersInstitutes/DHC/Pages/SyRum.aspx>



## **SUPPORT OF ARTS & HERITAGE**

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The Department of Archaeology and Museology has been conducting several archaeological excavations and studies since 2007 in various places, namely in several locations in Anfeh, both on land and underwater, in the monastery of Our Lady of Balamand, in Deir Mar Assia in Hasroun and in Cyrrhus in Syria.

The investigation of plots 732 and 734 of Hraysheh area in Anfeh comprised a visual survey and the opening of 22 test trenches. The material recovered from the survey included a handful of flint flakes dating to Prehistory as well as some pottery sherds from the Late Ottoman period. As for the excavation, it revealed an agricultural soil of 10 to 30 cm of depth, devoid of any material, and directly covering the bedrock. The joint archaeological mission conducted with the Archaeological Museum of the American University on the site of Ras el Qalaa has yielded several remarkable results. These include the discovery of a Byzantine rock-cut oil press as well as a long staircase connecting the second moat to the upper Crusader structures. The excavations have also focused on a medieval oil press which had already been revealed in a former campaign as well as massive fortification walls standing between the second and the third moat. These walls seem to have been destroyed by stone catapult balls as a lot of over 200 of them have been retrieved from the same area. Parallel to restoration works, the archaeological excavation of the medieval church of St Barbara of Barghoun, property of the patriarchate monastery of Balamand, has focused so far on the external area. The investigation has revealed several tombs, still under study, as well as the foundations of the church.



## DEIR EL BALAMAND MUSEUM INAUGURATION

The monastery of Our Lady of Balamand inaugurated the Deir El Balamand Museum on December 17, 2023, in the presence of His Beatitude John X Patriarch of Antioch and all the East, the minister of culture in Lebanon, H.E. Mohammad Mortada, Deputy Prime Minister of Lebanon, Saadeh Al Shami, Deputy Speaker of the Parliament of Lebanon, H.E. Elias Bou Saab, the Abbot of the Monastery of Our Lady of Balamand, Archimandrite Father George Yaacoub, President of the University of Blamanand, Dr. Elias Warrak as well as a number of religious, political and social figures. The culmination of five months of dedicated efforts, the museum represents a breakthrough in the modern history of the monastery. Housed in one of the monastery's impressive large Medieval rooms, situated at its southwestern corner and originally isolated, the chosen location adds to the significance of the collection.

Featuring a diverse collection of approximately 50 artifacts meticulously labeled and accompanied by relevant texts, plans, drawings, quotes, etc., the museum offers visitors a profound insight into the history of the displayed objects. The carefully curated display provides a journey through time, reaching back to the 17th century, allowing visitors to immerse themselves in the rich history of the monastery. This project was implemented through the collective efforts of the Department of Archaeology and Museology team at the University of Balamand and the Academie Libanaise des Beaux Arts (ALBA).



# UNIVERSITY ETHNOGRAPHY MUSEUM CELEBRATES LEBANESE HERITAGE

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The Ethnography Museum at the University hosted throughout the past two years multiple groups to introduce Lebanese heritage. Highlights included a visit from the Parish of Saydet Al Najat Byblos, an interactive educational day for Rosaire school students, and EB3 students from Lady of Balamand High School for a hands-on archaeology experience. Additionally, about 35 students from UOB's Department of Agriculture and Food Engineering attended a seminar, exploring old food conservation techniques and traditional agricultural practices.



## HERITAGE EXPERIENCE FOR CHILDREN

The Department of Archaeology and Museology partnered with HEP (Heritage Education Program), Qaa Heritage Vival Project and the Lebanese Ministry of Culture with Landward Research to create an unforgettable heritage experience for over 75 children through hands-on learning.



## OPEN AIR MUSEUM

On the International Museum Day, the Ethnography Museum organized a "Museums for a wellbeing walk in Anfeh", an open-air museum. Archaeologists, colleagues, and students from various backgrounds enjoyed the guided tour and encouraged further activities of that nature.



## DIGITAL HUMANITIES WORKSHOP AT UOB

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The Digital Humanities Center (DHC) at the University of Balamand, in collaboration with the Orient Institute Beirut (OIB), hosted a two-day workshop on February 15-16, 2023, focusing on Digital Humanities: Concepts and Applications. The event aimed to foster collaboration and knowledge-sharing between the two institutions, showcasing their expertise through ongoing research projects. Scholars from diverse fields, including Arabic and Islamic studies, history, religious studies, artificial intelligence, architecture, sociology, and digital cultural heritage, participated in presentations, discussions, and hands-on sessions. The workshop emphasized the study of text reuse in ancient Arabic literature, particularly Christian-Muslim relations, and underscored the importance of digital cultural heritage in preserving and promoting cultural and religious heritage for future generations.

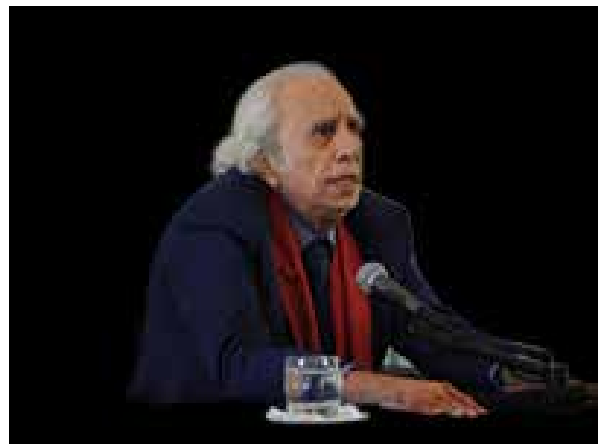


## POET HENRI ZGHEIB DISCUSSES GIBRAN'S "THE PROPHET"

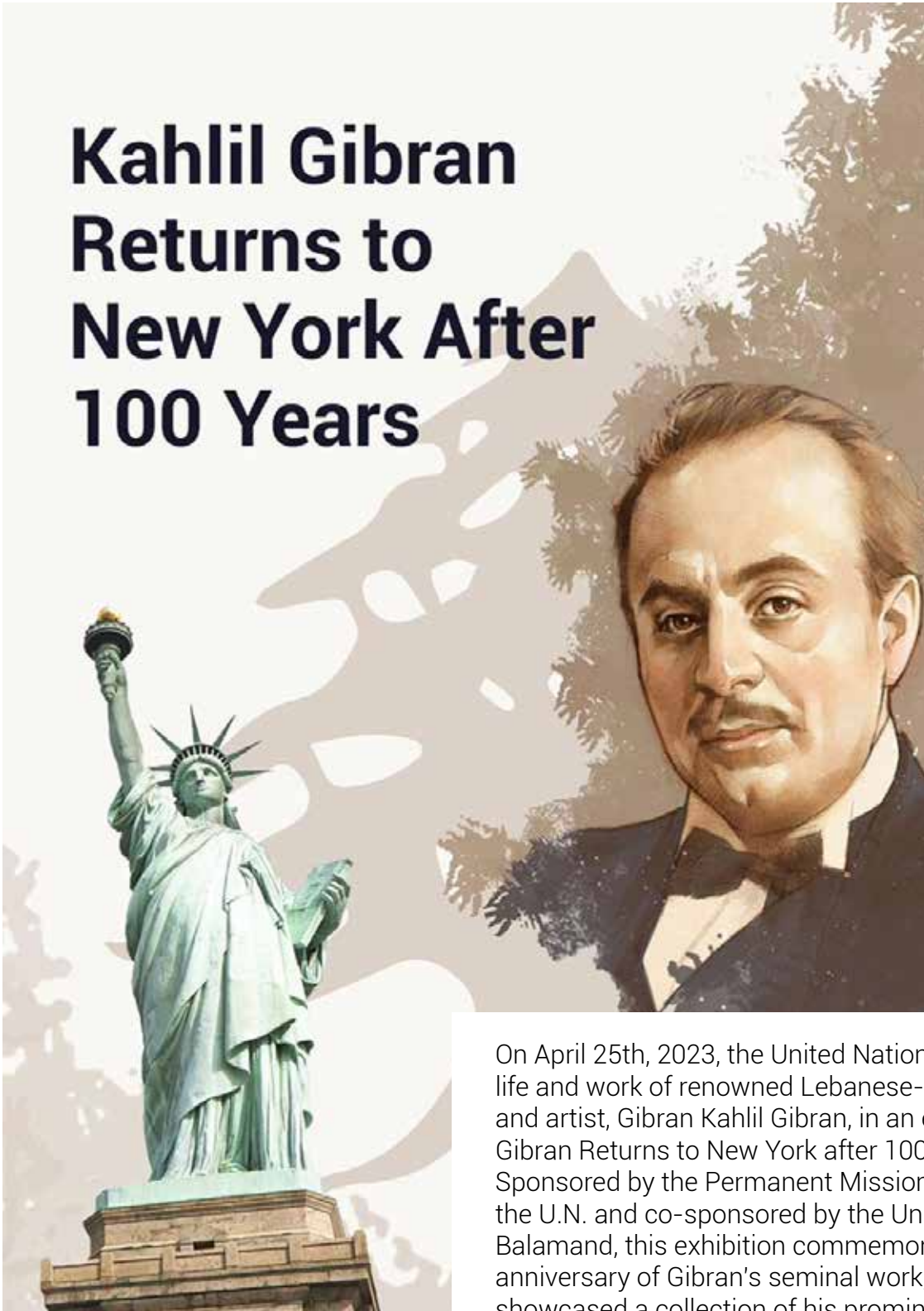
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The University of Balamand, in collaboration with the Elite Center for Culture and Education, hosted a discussion with poet Henri Zgheib at its Koura campus as part of Tripoli 2024 activities.

The event, attended by cultural figures, faculty, and students, featured Zgheib discussing his recent translation of "The Prophet" by Gibran Khalil Gibran, offering insights into his translation approach and the evolution of the Arabic language. Students also read excerpts from various literary works, enriching the cultural experience.



# Kahlil Gibran Returns to New York After 100 Years



On April 25th, 2023, the United Nations celebrated the life and work of renowned Lebanese-American poet and artist, Gibran Kahlil Gibran, in an event titled "Kahlil Gibran Returns to New York after 100 Years." Sponsored by the Permanent Mission of Lebanon to the U.N. and co-sponsored by the University of Balamand, this exhibition commemorated the 100th anniversary of Gibran's seminal work, "The Prophet." It showcased a collection of his prominent paintings and manuscripts, transferred from Lebanon to the United Nations building in New York. The event featured readings from Gibran's works in multiple languages, musical performances, and video screenings. Presentations from Dr. Henry Habib, Mr. Joseph Geagea, and Dr. Nasria Fliti provided valuable insights into Gibran's significance. The ceremony concluded with a keynote speech by Dr. Elias Warrak, President of the University, reflecting on Gibran's profound impact on Lebanese art, education, and literary culture.

## 2ND ANNUAL GEOHEALTH HUB CONFERENCE "CLIMATE CHANGE & HEALTH IN MENA"

The Public Health Department at the Faculty of Health and Sciences organized the 2nd Annual GeoHealth Hub Conference "Climate Change & Health in MENA" on the university's main campus in Koura. This conference aimed to bring together researchers, professionals, and climate change experts from around the world to exchange knowledge, ideas, and discussions on climate change issues and its impact on health in the Middle East and North Africa region. The GeoHEalth Hub conference was attended by the Minister of Public Health, Dr. Firas Abiad, and the Director of the Land & Natural Resources Program at the Institute of Environment at UOB, Dr. Georges Mitri, representing the Minister of Environment, Dr. Nasser Yassin. Also present were the President of the University of Balamand, Dr. Elias Warrak, representatives from the World Health Organization (WHO), UNICEF, the United Nations Development Program, and the International Organization for Migration, as well as deans of the university, professors, and a number of students.



## AL KANISA APP

"Alkanisa" app offers prayers, hymns, and news related to the Antiochian Orthodox Church. Released on April 14, 2023, in Arabic and includes content specifically for Holy Week. It was developed by the St. John of Damascus Institute of Theology and the Department of Computer Science



## INNOVATIVE PROJECTS AND COLLABORATIVE WORKSHOPS AT DSI AND MDES

Various projects were carried out within the framework of the DSI and MDES workshops, at ALBA Dekwaneh, focusing on space design, upcycling, furniture, lighting, and reverse engineering. Notable initiatives included the rehabilitation of the Barbara Nassar Cancer Center and a conference held with POLIMI as part of WeDesign. In addition, Dr. Francesco Cara and Dr. Tarek Mahmoud presented a public workshop titled "Tales of Sustainable Futures," showcasing the work of five multidisciplinary groups of designers, architects, multimedia creatives, and fashion designers. These projects and presentations highlight the collaborative efforts and innovative approaches towards sustainable development.



## SUSTAINABLE PRACTICES

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### URBAN AND TRANSPORTATION REGENERATION FOR REDUCING AUTOMOBILE DEPENDENCY IN MENA (UPGRADE)

The University of Balamand's Erasmus+ project, "Urban and Transportation Regeneration," aims to develop and integrate sustainable urban and transportation systems in Lebanon and Egypt. Over three years (November 2020 - November 2023), the project focuses on enhancing the relationships between urban planning, transportation, and environmental sustainability.

It involves collaboration with the Housing and Building National Research Center in Egypt and other partners, promoting applied research and innovative solutions to address urban and transportation challenges in the region

### BALAMAND CONNECT

Starting in February 2022, this service has offered affordable transportation to the UOB community, including faculty, staff, and students, promoting a shift from car commutes to sustainable bus transport.

To better meet current needs UOB has shifted from operating the six Balamand Connect routes to offering daily intercampus transportation.

This includes routes from DEK to SEG, KOURA to AKKAR, and a twice-weekly route from KOURA to SEG. Additionally, a bus operates daily between DEK and KOURA to convey faculty, staff and students. Transportation is also provided for medical and nursing students to facilitate their clinical training and residency.



### SUSTAINABLE DEVELOPMENT ON BROWNFIELDS

The Campus in Souk El Gharb, built on the site of a former high school destroyed by conflicts, is evolving into a key educational, social, and civic hub for the Souk El-Gharb community and nearby areas. It plays a significant role in the area's redevelopment and economic growth. Another building is that of the Ethnography Museum at the university main campus, which was originally a barn, located in the premises of Balamand Monastery and annexed to it. Abandoned for several centuries, it was reused during the 19th century as a shed; hence the name "Goat House". Then it was abandoned again and left in ruins. It was rebuilt by Dagher Hanna & Partner in 2008. In January 2015, the collection was registered as the "University of Balamand-UOB Ethnography Museum" at the International Council of Museums (ICOM)





# 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

## PUBLICATIONS TOWARD RESPONSIBLE CONSUMPTION

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Over the past two years, university researchers have made significant contributions to SDG 12, focusing on sustainable consumption and production. Key studies include the use of recycled materials in concrete, life cycle assessments of hybrid energy systems, and innovative materials for sustainable building performance. Additionally, research has reviewed the environmental impacts of natural water sources, cryptocurrency adoption, and tourism's economic impact. Efforts in sustainable engineering education and eco-friendly construction materials highlight the ongoing commitment to sustainability.

1. Aad, R., El Balaa, R., Tanios, C., & Nemer, N.M. (2024). **Landscape Indicators—An Inventive Approach for the Sustainability of Landscapes.** *Sustainability* (Switzerland). Open access.
2. Abdayem, J., Saba, M., & Aouad, G. (2023). **Elaboration of a sustainable bottom ash geopolymer material.** In *E3S Web of Conferences*. Open access.
3. Abou Rachied, T., Dbouk, F., Hamad, B.S., & Assaad, J.J. (2023). **Structural behavior of beams cast using normal and high strength concrete containing blends of ceramic waste powder and blast furnace slag.** *Cleaner Materials*. Open access.
4. Ahiskali, A., Ahiskali, M., Bayraktar, O.Y., Kaplan, G., & Assaad, J.J. (2024). **Mechanical and durability properties of polymer fiber reinforced one-part foam geopolymer concrete: A sustainable strategy for the recycling of waste steel slag aggregate and fly ash.** *Construction and Building Materials*.
5. Assaad, J.J., & Khatib, J.M. (2024). **Recycled materials used for sustainable pervious concrete.** In *Sustainable Concrete Materials and Structures*.
6. Bassil, C., Harb, G., & Al Daia, R. (2023). **THE ECONOMIC IMPACT OF TOURISM AT REGIONAL LEVEL: A SYSTEMATIC LITERATURE REVIEW.** *Tourism Review International*.
7. Bayraktar, O.Y., Ahiskali, A., Ahiskali, M., Kaplan, G., & Assaad, J.J. (2024). **Feasibility of foam concrete using recycled brick and roof tile fine aggregates.** *European Journal of Environmental and Civil Engineering*.
8. El Hage, M., Louka, N., Rezzoug, S.A., Debs, E., & Maache-Rezzoug, Z. (2023). **Bioethanol Production from Woody Biomass: Recent Advances on the Effect of Pretreatments on the Bioconversion Process and Energy Yield Aspects.** *Energies*. Open access.
9. El Mir, A., Fayad, E., Assaad, J.J., & El-Hassan, H. (2023). **Multi-Response Optimization of Semi-Lightweight Concrete Incorporating Expanded Polystyrene Beads.** *Sustainability* (Switzerland). Open access.

10. El-Chaarani, H., El-Abiad, Z., El Nemar, S., & Sakka, G. (2024). **Factors affecting the adoption of cryptocurrencies for financial transactions.** EuroMed Journal of Business.
11. Fakhreddine, O., Khoury, G., Saber, A., Amer, A.M., & Sabat, M. (2023). **Design and Analysis of a Domestic Device for Converting Waste Cooking Oil to Biodiesel: A Multidisciplinary Study.** In Proceedings - International Conference on Energy Research and Development, ICERD.
12. Frangieh, C., Saba, M., Karmaoui, D., & Lafhaj, Z. (2023). **Sustainability and durability of cracked concrete with geopolymers binder.** In E3S Web of Conferences. Open access.
13. Gerges, N.N., Issa, C.A., Khalil, N.J., & Aintrazi, S. (2024). **Effects of recycled waste on the modulus of elasticity of structural concrete.** Scientific Reports. Open access.
14. Gerges, N.N., Issa, C.A., Khalil, N.J., Abdo, S., & Abdulwahab, Y. (2023). **Flexural capacity of eco-friendly reinforced concrete beams.** Scientific Reports. Open access.
15. Ghali, A.E.A., El Ezz, N.E., Hamad, B.S., Assaad, J.J., & Yehya, A. (2023). **Comparative study on shear strength and life cycle assessment of reinforced concrete beams containing different types of fibers.** Case Studies in Construction Materials. Open access.
16. Jabali, Y., Assaad, J.J., & Aouad, G. (2023). **Photocatalytic Activity and Mechanical Properties of Cement Slurries Containing Titanium Dioxide.** Buildings. Open access.
17. Jahami, A., Chamseddine, F., Salhab, A.A.A., Zaiter, B., & Isleem, H.F. (2024). **Enhancing concrete properties with steel waste: a comprehensive review of GGBS, SS, and steel waste utilization.** Innovative Infrastructure Solutions.
18. Jammoul, M., Semaan, N.M., & Jabali, Y. (2023). **Engineering Laboratories Chemical Waste Management-Introduction of a Web-Based System.** IEEE Engineering Management Review.
19. Khatib, M., Daoud, M., Arai, W., Saba, M., & Mortada, H. (2023). **Water quality parameters assessment of ras el-Ain natural ponds, ty, lebanon.** Water Supply. Open access.
20. Khatib, M., Hleihel, J., Arai, W., Skienhe, H., & Mortada, H. (2024). **Evaluating of the environmental risks of natural water sources in the Alkalaa municipal community area - South Lebanon.** Water Supply. Open access.
21. Kuran, O., & Khabbaz, L. (2024). **Stakeholder dynamics in rural Lebanese women's entrepreneurship.** Journal of Enterprising Communities.
22. Mansour, M., Harajli, H.A., Zakhem, H.E., & Manneh, R. (2024). **Cradle-to-grave life cycle assessment of a photovoltaic-diesel hybrid system: the case of an industrial facility.** Environment, Development and Sustainability.
23. Mardani, A., Hatungimana, D., Yazıcı, Ş., Şahin, H.G., & Assaad, J.J. (2024). **Use of recycled mortar as fine aggregates in pavement concrete applications.** Heliyon. Open access.
24. Marín, C., El Bachawati, M., & Pérez, G. (2023). **The impact of green roofs on urban runoff quality: A review.** Urban Forestry and Urban Greening. Open access.
25. Nakad, M., Gardelle, L., & Abboud, R.J. (2024). **A Systematic Review of the Different Methods Assessing Sustainability Integration in Engineering Curricula.** Sustainability (Switzerland). Open access.
26. Nakad, M., Kövesi, K., Gardelle, L., & Abboud, R.J. (2023). **Engineering Students' Perceptions Towards Promoting Sustainability.** In IEEE Global Engineering Education Conference, EDUCON. Open access.

27. Nasr, Y., Zakhem, H.E., Hamami, A.E.A., El Bachawati, M., & Belarbi, R. (2023). **Comprehensive Review of Innovative Materials for Sustainable Buildings' Energy Performance.** *Energies*. Open access.
28. Nasser Eddine, Z., Barraj, F., Khatib, J.M., & El Kordi, A.A. (2023). **From waste to resource: utilizing municipal solid waste incineration bottom ash and recycled rubber in pervious concrete pavement.** *Innovative Infrastructure Solutions*.
29. Nasser Eddine, Z., Barraj, F., Khatib, J.M., & El Kordi, A.A. (2023). **Volume Stability of Pervious Concrete Pavement Containing Municipal Solid Waste Incineration Bottom Ash.** *International Journal of Pavement Research and Technology*.
30. Oueida, S., Awad, P., & Mattar, C. (2023). **Augmented Reality Awareness and Latest Applications in Education: A Review.** *International Journal of Emerging Technologies in Learning*. Open access.
31. Rishmany, J., & Imad, R. (2023). **Finite Element and Multibody Dynamics Analysis of a Ball Mill Glass Crusher.** *Modelling and Simulation in Engineering*.
32. Saba, M., Arai, W., Sabalbal, G., El Bachawati, M., & Absi, J. (2023). **Use of aluminum powder for the development of a sustainable paste used in the restoration of historical monuments.** In *E3S Web of Conferences*. Open access.
33. Saba, M., Pérez, G., Coma, J., & Polls, M. (2023). **Geopolymer as an Innovative Material for Green Roofs- A State-of-the-Art Review.** In *E3S Web of Conferences*. Open access.
34. Tager, E., Naoushi, S.E., Arai, W., Saba, M., & El Bachawati, M. (2023). **Aspen Plus designing and optimizing the hospital wastewater treatment by wet air oxidation method.** In *E3S Web of Conferences*. Open access.
35. Yammine, P., El-Nakat, H., Kassab, R., Matar, Z., & Chmayssem, A. (2024). **Recent Advances in Applied Electrochemistry: A Review.** *Chemistry (Switzerland)*. Open access.

## INITIATIVES FOR RESPONSIBLE CONSUMPTION

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### SITE VISITS



The Career Services Center organized successful completion of several site visits from various majors. These visits, spanning Mechanical Engineering, Electrical Engineering, Chemical Engineering, Computer Engineering, Business Administration, Tourism and Hotel Management students, aimed at fostering a deeper understanding of real-world applications in their respective fields. The site visits provided an unparalleled opportunity for students to witness the inner workings of leading companies and industries. By

stepping outside the confines of the lecture hall and into the dynamic environments of Beesline, Inmind, Leo Burnett, Indevco, Ixir, Malia Group, Multilane, Zeeni and Otis, students gained insights into the practical aspects of their chosen fields. For engineering students, these visits offered a glimpse into cutting-edge technologies and innovative solutions employed in industry settings. They were able to see how theoretical concepts translate into tangible products and processes. Similarly, students in Business, Tourism and Hotel Management had the opportunity to observe the operations of successful enterprises, gaining invaluable insights into market dynamics, customer relations, and strategic management.

Beyond acquiring technical knowledge, the site visits served a broader purpose of bridging the gap between academia and industry. Students were able to interact with professionals in their fields, gaining mentorship and networking opportunities that are essential for their professional development. Moreover, witnessing the real-world challenges faced by businesses and industries helped students contextualize their learning, motivating them to strive for excellence in their academic pursuits.



## **STUDENTS EXCEL IN STRATX SIMULATIONS CIRCULARPRO 2024 COMPETITION**

Undergraduate and graduate students from the Strategic Management courses at Al-Koura campus recently participated in the StratX Simulations CircularPRO 2024 competition. This global challenge emphasizes running a business that is not only financially viable but also eco-friendly and sustainable, focusing on sustainable product development and marketing strategies. Impressively, one of our MBA teams achieved a remarkable feat by securing the 16th position out of 238 teams that completed the competition, and 1168 teams that participated worldwide. This achievement highlights our commitment to Sustainable Development Goal 12 (SDG 12) and underscores the importance of integrating sustainability into business education.

## COMMITMENT TO SUSTAINABLE AGRICULTURE IN AKKAR

The Career Services Center and MENA Food Safety Associates (MEFOSA) organized a round table discussion on agriculture, food safety, and community development in Akkar campus. The event focused on identifying challenges such as water pollution, high irrigation costs, and the lack of agro-businesses. Opportunities discussed included GIS mapping, the development of a specific agricultural calendar, and the use of advanced technologies like drones and AI. The importance of collaboration between the Ministry of Agriculture, NGOs, and universities was emphasized. Success stories from local agricultural entrepreneurs were shared, highlighting the global potential of Akkar's agricultural products. The discussion concluded with recommendations for creating a machine learning application for the agricultural calendar, demonstrating the university's commitment to sustainable agricultural practices and community development.



## MASTERING WASTE MANAGEMENT

On April 4, 2024, the Faculty of Engineering at the University of Balamand hosted a lecture titled "Zero Waste is Not Science Fiction," featuring Engineer Ziad Abi Chaker, CEO of Cedar Environmental L.L.C. Known as the "Master Garbage Man," Eng. Abi Chaker discussed Lebanon's waste management crisis, emphasizing recycling, composting, and proper waste segregation. He showcased projects transforming recycled materials into practical items, highlighting sustainable solutions. Professor Rami Abboud underscored the faculty's commitment to sustainability and announced a student visit to Cedar Environmental. Eng. Abi Chaker was awarded for his contributions to environmental innovation, inspiring future engineers to embrace sustainable practices.



## FOE DELEGATION IN MAGNO PROJECT TO PREVENT AND REDUCE PACKAGING POLLUTION

A delegation from FOE, led by Professor Rami Abboud, attended the MAGNO project kick-off meeting on February 6-7, 2024, in Sevilla, Spain. The team, including Dr. Jean Claude Assaf and Ms. Mantoura Nakad, discussed strategies to reduce packaging pollution. As the exclusive Lebanese partner, UOB, funded by the European Research Executive Agency, aims to make significant contributions. Professor Abboud presented UOB's history and research, while Dr. Wael Hamd outlined the project's work package.





# 13 CLIMATE ACTION

## PUBLICATIONS TOWARD CLIMATE ACTION

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In the past two years, university researchers have made notable strides in various areas related to SDG13, despite the challenges posed by Lebanon's financial crisis, the Beirut blast, and the post-COVID recovery period. In the realm of sustainable construction materials, investigations were conducted on the impact of recycled waste on concrete elasticity, the characteristics of geopolymer concrete incorporating recycled steel slag and fly ash, and the performance of beams containing ceramic waste powder. Environmental and chemical engineering efforts included the ultrasound-assisted creation of catalysts for CO<sub>2</sub> methanation and the production of bioethanol from biomass. Progress in electrochemistry and energy featured reviews of applied electrochemistry and evaluations of solar cooling systems. Climate and environmental research improved paleoclimate reconstructions and utilized geoinformation to monitor protected areas.

Innovative technology research focused on nanomaterials for hydrogen production and carbon nanomaterials derived from biogas reforming. Additionally, studies in sustainable development and finance discussed the development of improved cookstoves for sustainable household cooking. These efforts underscore a commitment to advancing knowledge and creating sustainable solutions across multiple disciplines.

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3. Absi, J., Adgham, S.A., Sabalbal, G., Arairoy, W., & Saba, M. (2023). **Sustainable approach in the restoration of historical monuments using geopolymer material.** In E3S Web of Conferences. Open access.
4. Ahiskali, A., Ahiskali, M., Bayraktar, O.Y., Kaplan, G., & Assaad, J.J. (2024). **Mechanical and durability properties of polymer fiber reinforced one-part foam geopolymer concrete: A sustainable strategy for the recycling of waste steel slag aggregate and fly ash.** Construction and Building Materials.
5. Anchukaitis, K.J., Touchan, R., Meko, D.M., Krcmaric, J., & Cook, B.I. (2024). **Enhancing spatiotemporal paleoclimate reconstructions of hydroclimate across the Mediterranean over the last millennium.** Climate Dynamics. Open access
6. Assaf, J.C., Mortada, Z., Rezzoug, S.A., Debs, E., & Louka, N. (2024). **Comparative Review on the Production and Purification of Bioethanol from Biomass: A Focus on Corn. Processes.** Open access.

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8. El Hage, M., Louka, N., Rezzoug, S.A., Debs, E., & Maache-Rezzoug, Z. (2023). **Bioethanol Production from Woody Biomass: Recent Advances on the Effect of Pretreatments on the Bioconversion Process and Energy Yield Aspects.** *Energies*. Open access.
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12. Ghannoum, M., Assaad, J.J., Daaboul, M., & El Mir, A. (2024). **Deterministic and stochastic finite element modeling of reinforced concrete beams without stirrups containing plastic wastes.** *International Journal of Building Pathology and Adaptation*.
13. Kaneriya, Y., Dohare, D., & Khatib, M. (2024). **Reimagining Household Cooking: A Critical Assessment of Improved Cookstoves Implementation for Sustainable Development.** In *Lecture Notes in Civil Engineering*. Open access.
14. Khatib, J.M., Elkhatib, L.W., Assaad, J.J., & El Kordi, A.A. (2023). **Properties of mortar containing Phragmites Australis Ash.** *Journal of Engineering, Design and Technology*.
15. Lahoud, C., Brouche, M.E., Lahoud, C., & Hmadi, M. (2023). **Thermo-Economic Comparison of Solar Thermal Cooling and Solar Photovoltaic Cooling Systems for a Typical Residential Building - Lebanese Case Study.** In *2023 IEEE 4th International Multidisciplinary Conference on Engineering Technology, IMCET 2023*.
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21. Shantha Kumari, K.G., Jaheer Mukthar, K.P., & El Rahhani, G.N. (2024). **Green Finance in India: Driving Sustainable Development and Economic Growth.** In *Studies in Systems, Decision and Control*.

22. Yammine, P., El-Nakat, H., Kassab, R., Matar, Z., & Chmayssem, A. (2024). **Recent Advances in Applied Electrochemistry: A Review**. Chemistry (Switzerland). Open access.

## 2ND ANNUAL GEOHEALTH HUB CONFERENCE "CLIMATE CHANGE & HEALTH IN MENA"

The Public Health Department at the Faculty of Health and Sciences organized the 2nd Annual GeoHealth Hub Conference "Climate Change & Health in MENA" on the university's main campus in Koura. This conference aimed to bring together researchers, professionals, and climate change experts from around the world to exchange knowledge, ideas, and discussions on climate change issues and its impact on health in the Middle East and North Africa region.

The GeoHEalth Hub conference was attended by the Minister of Public Health, Dr. Firas Abiad, and the Director of the Land & Natural Resources Program at the Institute of Environment at UOB, Dr. Georges Mitri, representing the Minister of Environment, Dr. Nasser Yassin. Also present were the President of the University of Balamand, Dr. Elias Warrak, representatives from the World Health Organization (WHO), UNICEF, the United Nations Development Program, and the International Organization for Migration, as well as deans of the university, professors, and a number of students.





## LAUNCH OF UOB'S CLIMATE ACTION PLAN

The University of Balamand's Climate Action Plan (**UOB-CAP33**) outlines a comprehensive strategy to address climate change and promote sustainability across its four campuses. The plan aligns with Sustainable Development Goal 13 and focuses on several priority sectors, including governance, energy, research, transportation, sustainable procurement, waste management, outreach, and water conservation. Key goals include institutionalizing climate action, improving energy efficiency, diversifying renewable energy sources, supporting sustainable transportation, and promoting responsible water consumption. The plan also emphasizes the importance of research, community based climate actions, and capacity building. **UOB-CAP33** is overseen by various working groups, each dedicated to specific areas such as waste management, energy, and outreach, ensuring a coordinated and effective approach to sustainability.

## UOB KOURA CAMPUS CARBON FOOTPRINT REPORT

The University of Balamand (UOB) has released its **Carbon Footprint Report** for the Koura Campus, conducted by the UOB Life Cycle Assessment (LCA) center within the Chemical Engineering Department. Under the supervision of Dr. Rima Manneh, the report reveals that in 2022, the campus generated a total of 3,764.03 tonnes of CO<sub>2</sub> equivalent (CO<sub>2</sub>eq) emissions, with Scope 1 emissions (direct emissions) accounting for 3,524.88 tonnes and Scope 2 emissions (indirect emissions from purchased electricity) accounting for 239.16 tonnes. The gross area of the campus is 110,481.78 square meters, resulting in a carbon intensity of 34.07 kg CO<sub>2</sub>eq per square meter. The university is committed to reducing its carbon footprint and aims to achieve net zero emissions by

## IEEE GRAND TECH LEBANON

The Tripoli El Fayhaa Nursery was officially handed over to the Mayor of Tripoli, Dr. Eng. Ahmad Kamareddine, on behalf of the Municipality, in a ceremony attended by representatives from the German Embassy in Lebanon and the European Union to Lebanon. Amid challenging times for Lebanon, greenery production in the nursery will not only increase the amount of green space in the city but also enhance its appeal to tourists



and provide recreational spaces for residents to exercise, meet, and socialize. This collaboration between the municipality of Tripoli and the Agricultural Value Chain Development Center (AVCDC) at the University of Balamand and the Local Development Programme for Urban Areas in North Lebanon (UDP\_NL) exemplifies how joint efforts and a common vision can lead to remarkable achievements.

## MOU BETWEEN UOB AND THE LEBANON GREEN BUILDING COUNCIL

The University of Balamand (UOB) and the Lebanon Green Building Council (LGBC) signed a Memorandum of Understanding (MOU) that aims at creating and executing a program that addresses the need for specialized technological skills in the green building sector in Lebanon. The MOU was signed by Dr. Elias Warrak, President of UOB and Engineer Pierre Dammous, President of LGBC, in presence of Dr. Elie Karam, Dean of Issam Fares Faculty of Technology at UOB. Both parties are aligned on the importance and the necessity of improving the prevailing building, energy, and environmental conditions in Lebanon. Towards this end, UOB and LGBC will be organizing activities to enhance green building practices and raise awareness in this field.



## DR. MYRIAM MRAD'S LEADERSHIP IN CLIMATE-RELATED HEALTH INITIATIVES

Dr. Myriam Mrad, Chairperson of the Public Health Department, has been actively involved in various high-profile initiatives and meetings that underscore the department's commitment to tackling climate-related health issues. In February 2024, she participated in the International Human Exposome Network (IHEN) meeting in Brussels. As a WHO invitee, she contributed to the Alliance for Transformative Action on Climate and Health (ATACH) Global Meeting in Madrid, Spain, focusing on transforming health systems to address climate change. This meeting built upon the outcomes of COP26, COP27, and COP28, aiming to refine strategic directions and support countries in advancing climate and health implementation. Dr. Mrad also presented on climate change and health research at the Ministry of Environment in Lebanon, discussed air pollution and health effects in Beirut, and participated in consultations on climate and health research agendas. These activities highlight the Public Health Department's proactive role in addressing environmental health challenges and promoting sustainable health practices.

## UOB LCA CENTER AND MATELEC S.A.L. COLLABORATION SUCCESS

The Life Cycle Assessment (LCA) Center at the University of Balamand (UOB), a pioneering entity in Lebanon and the MENA region, has partnered with Matelec S.A.L., a leading Lebanese contractor and manufacturer of electrical equipment. This collaboration aims to advance the UN Sustainable Development Goals through comprehensive environmental assessments. The LCA Center has conducted various projects for Matelec, including carbon footprint studies and environmental product declarations. This partnership highlights the importance of sustainable practices and aims to inspire further industry collaborations.



## GIS PROJECTS FOR CLIMATE ACTION

### GIS Course Projects Overview - Remote Sensing and GIS for Climate Action:

- Sustainable Urban Development and Green Infrastructure Planning: Map urban hazards and develop prevention plans.
- Tsunami Simulation due to Climate Change: Model tsunamis from sea earthquakes in 3D and create preparedness plans for coastal cities.

### Course - Introduction to Geographic Information System:

Earthquake Simulation and Preparedness: Simulate earthquake impacts in Lebanon in 3D and develop evacuation plans.

- Mapping Cultural Heritage Sites: Map UNESCO cultural heritage sites in the Arab region for preservation.
- Earthquake Hazard Atlas (1960-2024): Create an atlas to predict earthquake-prone areas and develop mitigation policies.
- Flood Hazard Atlas (1960-2024): Generate an atlas to predict flood-prone areas and develop mitigation policies.
- Public Transportation Management: Design a public transportation network for urban areas in Lebanon to ensure accessibility and connectivity.

## ADDRESSING EARTHQUAKE ENGINEERING CHALLENGES

The Issam Fares Faculty of Technology at the University of Balamand (UOB) hosted a lecture on February 13th at the UOB Souk el Ghareb campus, titled "Tackling Engineering Construction Challenges Arising from the Devastating Earthquake in Turkey and Strategies for Risk Mitigation." Presented by Dr. Milad al Khatib, the lecture covered key topics such as structural and nonstructural factors affecting building stability during

earthquakes, the damage caused by the recent earthquake in Turkey, and preventive measures for earthquake resilience. The event, initiated by Dr. Wahib Arai, provided valuable insights into mitigating construction engineering risks post-earthquake, underscoring the university's dedication to advancing knowledge and resilience against natural disasters.



## CAMPUS CLEANING INITIATIVE

At the end of the summer semester 2023-2024, the GoGreen Club spearheaded a comprehensive campus cleaning initiative, rallying the support of numerous university students. This collaborative effort aimed to enhance the campus environment by removing litter, sorting recyclables, and promoting sustainable practices.



## **COLLABORATIVE JOURNEY TOWARDS SUSTAINABILITY**

On February 2nd, 2024, the Eco Club and the Institute of the Environment at the University of Balamand, in collaboration with Lycée Franco-Libanais Alphonse de Lamartine, launched a three-year project called the 'Atlas de la Biodiversité du Lycée Alphonse de Lamartine'. This initiative aims to create a biodiversity atlas and establish a museum to showcase the campus's flora and fauna. The project focuses on student education and environmental

responsibility through workshops and conservation efforts. Dr. Manal Nader highlighted the importance of collaboration and education for a sustainable future.



## **RECONSTRUCTING THE IMPACT OF HEAVY INDUSTRIES ON AIR AND SOIL QUALITY USING A DENDROCHRONOLOGICAL APPROACH.**

On February 2nd, 2024, the Eco Club and the Institute of the Environment (IOE) at the University of Balamand, in partnership with Lycée Franco-Libanais Alphonse de Lamartine, launched the 'Atlas de la Biodiversité du Lycée Alphonse de Lamartine' project. This three-year initiative aims to create an atlas of biodiversity and establish a museum showcasing the campus's flora and fauna. The project focuses on educating students and fostering environmental responsibility through workshops and conservation efforts. Dr. Manal Nader emphasized the importance of collaboration and education in achieving a sustainable future, aligning with the United Nations' Sustainable Development Goals (SDG 15).



# 14 LIFE BELOW WATER

## WORKSHOPS ON LIFE BELOW WATER

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The Institute of the Environment IOE at the University of Balamand has been actively involved in various environmental initiatives and workshops. These include contributing to the 30x30 IndyACT campaign for marine protection, participating in regional water quality and biodiversity workshops, and conducting technical training for fisheries management. They have also engaged in aligning Lebanon's biodiversity strategies with global frameworks, supported the EU-funded MPA Network Project, and prepared for the COP 16 United Nations Conference on Biodiversity. Their efforts reflect a strong commitment to marine conservation, sustainable fisheries management, and biodiversity protection.

### DR. NADER HIGHLIGHTS MPAS' ROLE IN FISHERIES MANAGEMENT

Dr. Manal Nader, Director of the IOE, participated as a panelist in a seminar on the Role of Marine Protected Areas (MPA) in Fisheries Management on September 4, 2024, at the Smallville Hotel Beirut. It was organized by the Ministry of Environment, IndyACT, and the Lebanon Environment Forum (LEF). Part of the 30x30 IndyACT campaign, the seminar aimed to achieve 30% marine area protection by 2030 and support the National Campaign for an MPAs Network. Experts' insights were crucial for advancing marine conservation and sustainable fisheries management.



### IOE PARTICIPATES IN REGIONAL WORKSHOP ON WATER QUALITY AND BIODIVERSITY

IOE participated in the workshop 'Protecting Water Quality and Biodiversity for Improved Water Management' organized by ESCWA in collaboration with the World Bank on July 10th. The workshop gathered member state representatives from Iraq, Jordan, Lebanon, Syria, and Türkiye at the UN-House in Beirut, focusing on regional water quality and freshwater biodiversity issues. Dr. Nader virtually presented the case of 'Estuaries as Marine Protected Areas: Importance of managing river basins from source to sea in Lebanon', while Dr. Mitri participated in person and discussed 'Watershed Reforestation, including Opportunities for Reducing Stormwater Runoff'.



## FLEET CENSUS TRAINING FOR FISHERIES MANAGEMENT IN TRIPOLI

As part of the project “Strengthening PINR’s role as a fisheries management tool” funded by MedPAN and in partnership with IndyAct, and under the activity entitled “Technical Integration of Catch and Effort System for Fisheries Management in the Palm Islands Nature Reserve”, the MCR team held the first fleet census technical Fleet Census Training for Fisheries Management in Tripoli training in Siyaq, Tripoli on the 18th of July, 2024.



Members of Siyaq were introduced to the IOE and its various programs, then to the FLOUCA COOP system and finally started with technical training on the fleet census data collection process.

## IOE PARTICIPATES IN NATIONAL BIODIVERSITY STRATEGY ALIGNMENT MEETING

The IOE team participated in the “First Thematic Consultation Meeting as part of the Alignment of the National Biodiversity Strategy and Action Plan (NBSAP) and Relevant Policy Framework in Lebanon with the Post-2020 Global Biodiversity Framework (GBF)” on April 23, 2024.

Followed by another one in 27 June 2024.

All IOE members contributed to roundtable discussions on NBSAP goals and National Targets, aligning them with GBF targets aimed at halting and reversing biodiversity loss by guiding national policies.



## DR. MANAL NADER PARTICIPATES IN 'DIALOGUE NATIONAL SUR LA BIODIVERSITÉ'

Dr. Manal Nader, Director of the IOE at UOB participated as a panelist in the ‘Dialogue National sur la Biodiversité’ organized by the Lebanon Eco Movement in preparation for COP16 United Nations Conference on Biodiversity that will be held in Columbia from 21 October to 1 November 2024. At COP 16, governments are expected to show the alignment of their National Biodiversity Strategies and Action Plans (NBSAPs) with the Kunming- Montreal Global Biodiversity Framework. The event, supported by the French Institute in Lebanon, took place on December 15 at FABRIKA, Beirut. Dr. Nader contributed to the debate in exploring Lebanon’s role in the upcoming COP 16, strategies and perspectives.



## MEETING ON ENHANCING MPA NETWORK SECURITY

As part of the EU-funded MPA Network Project, the IOE's Marine and Coastal Resources Program team and the Lebanese Environment Forum met with the Maritime Operation Room on May 30, 2024. They assessed the capacity to support the MPA Network, identifying gaps and distributing a survey to gather data and recommendations for improving collaboration and protection efforts.



## SEMINAR ON MPA NETWORK

As part of the EU-funded MPA Network Project, a partnership between the Lebanese Environmental Forum and the Marine and Coastal Resource Program (MCR) at IOE, Dr. Manal Nader and Ms. Rawan Al Jamal participated in a seminar on February 13 at Central Military Club, Manara.

Ms. Al Jamal discussed designing MPA networks for Lebanon, while Dr. Nader highlighted the importance of estuaries and advocated for declaring the five estuaries in the Ministry of Environment's MPA strategy as Marine Protected Areas.

## PUBLICATIONS

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In the past two years, the University of Balamand has conducted significant research aligned with SDG 14: Life Below Water. Key studies include developing an economic vessel to clean polluted waterways, directly enhancing aquatic ecosystem health. Research on groundwater contamination in North Lebanon provides crucial data to protect water resources from pollutants. Additionally, analyzing the chemical composition of fogwater in Lebanon helps understand atmospheric pollution's impact on marine environments. The microbial assessment of commercial pet foods aims to prevent water contamination. These efforts demonstrate the university's commitment to supporting the sustainability and health of marine and freshwater ecosystems.

1. Shantha Kumari, K.G., Jaheer Mukthar, K.P., & El Rahhani, G.N. (2024). **Green Finance in India: Driving Sustainable Development and Economic Growth**. In Studies in Systems, Decision and Control.
2. Hadid, M., Alwan, N.H., Dimassi, H.I., Serhan, M., & Hassan, H.F. (2024). **Microbial assessment of commercial pet foods marketed in the United Arab Emirates**. Frontiers in Veterinary Science. Open access.
3. Khoury, D., Millet, M., Weissenberger, T., Delhomme, O., & Jabali, Y. (2024). **Chemical composition of fogwater collected at four sites in North- and Mount-Lebanon during 2021**. Atmospheric Pollution Research. Open access.
4. Khatib, M., & Mahmoud, B. (2024). **Economic Vessel to Clean the Polluted Water by Solid Waste in Waterway**. In Lecture Notes in Civil Engineering.
5. Arai, W., Khatib, M., Saba, M., Kassem, H., & Absi, J. (2023). **Characterization of Groundwater Contamination in the North Lebanese Aquifer**. In Environmental Science and Engineering.

## IOE SDG 14 PROJECTS

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### **Strengthening PINR's Role as a Fisheries Management Tool**

Objective: To introduce and implement the Flouca - COOP system for representatives of the fisher Cooperative of Tripoli (CoP) and the Appointed

**Funding Agency:** MedPAN

**Budget & Period:** 3,000 USD (2024, 6 months)

**Implemented By:** Indy



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### **National Integrated Coastal Zone Management (ICZM) Strategy, Legislation, and Plan Development**

Objective: To update the national ICZM strategy of 2015, update the draft ICZM law of 2015 and enhance Lebanon's governance framework for coastal zone management

The ICZM Platform is <https://lebanoncp.com/>

**Funding Agency:** PAP/RAC (<https://paprac.org/>)

**Budget & Period:** 26,000 USD (2024, 8 months)

**Implemented By:** Earth Link & Advanced Resources Development

**Partners:** Marine and Coastal Resources Program – IOE – UOB (MCR-IOE-UOB)

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### **To Strengthen the Capacities of Lebanese Non-State Actors to Enhance the Use of Evidence and Science in Environmental Policy-Making and Regulation (National)**

Objective: The establishment of an effective MPAs network in Lebanon's EEZ is enhanced for the protection of Lebanon's coastal and marine biodiversity and ecosystems.

**Funding Agency:** European Commission

**Budget & Period:** 526,978.98 EUR (2022-2026) Implemented By: Lebanese Environmental Forum (LEF)

**Partners:** Marine and Coastal Resources Program – IOE (MCR-IOE-UOB)

Learn more by viewing the videos below from October 2023, and October 2024.





## **Assessment of Commercial Fish Species**

Objective: A resource center for fisheries data on the Lebanese coast and beyond.

**Funding Agency:** IOE, UOB

**Budget & Period:** (2005-Present)

**Implemented By:** Marine and Coastal Resources Program



# 15 LIFE ON LAND

## WORKSHOPS ON LIFE ON LAND

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In line with its commitment to SDG 15 (Life on Land), the University Institute of the Environment (IOE) has made significant contributions through various workshops and training sessions. Dr. George Mitri, Director of the Land and Natural Resources Program, highlighted Lebanon's climate challenges at the "Navigating Climate Change and Environmental Activism in the MENA Region" workshop hosted by the American University of Beirut, emphasizing the country's low adaptive capacity to climate change. He also participated in the "Innovation Approaches to Forest Management for Fire Prevention" workshop at Notre Dame University, discussing forest fire risk management and presenting guidelines for post-fire impact assessment and restoration. Additionally, Dr. Manal Nader, Director of the Institute of Environment, was a main speaker at the EcoTheo Symposium organized by The Middle East Council of Churches, where he introduced the Institute's strategy until 2027 and discussed the Greek Orthodox Patriarchate's 7-Year Plan for environmental advocacy and practices.

### LEBANON'S CLIMATE CHALLENGES

Dr. George Mitri, Director of the Land and Natural Resources Program at UOB, IOE, discussed Lebanon's climate challenges during the "Navigating Climate Change and Environmental Activism in the MENA Region: Challenges and Opportunities" workshop at the American University of Beirut on March 14, 2024. He emphasized Lebanon's low adaptive capacity to climate change and the significant threat it poses to the survival of the country's forests, plants, and wildlife.



### DR. GEORGE MITRI ON FOREST FIRE MANAGEMENT

Dr. George Mitri participated in the "Innovation Approaches to Forest Management for Fire Prevention" workshop at Notre Dame University (NDU) on November 2, 2023. He discussed forest fire risk management in a changing world and presented guidelines for post-fire impact assessment, monitoring, and restoration.



## DR. MANAL NADER AT ECOTHEO SYMPOSIUM

Dr. Manal Nader, Director of the IOE at the UOB, was a main speaker at the EcoTheo Symposium organized by The Middle East Council of Churches. The opening session took place on October 4 at Holy Spirit University of Kaslik, with the main symposium held on October 5, 2023, at Saint Joseph University in Beirut. Dr. Nader introduced the IOE and its strategy until 2027, and discussed the Greek Orthodox Patriarchate of Antioch and All the East's 7-Year Plan for Generational Changes for a Living Planet, emphasizing the Church's commitment to environmental advocacy and practices.



## UNIVERSITY RESEARCH CONTRIBUTIONS TO SDG 15

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The university's research publications in SDG 15 over the past two years dealt with the use of geoinformation technology to monitor protected areas in Lebanon, the development of landscape indicators for sustainability, the mechanical and thermal characterization of bio-sourced mortars made from agricultural and industrial by-products, the application of geopolymer materials for green roofs, and the use of machine learning models to predict water penetration depth in concrete. In the past two years, these publications have significantly contributed to advancing sustainability and environmental protection.

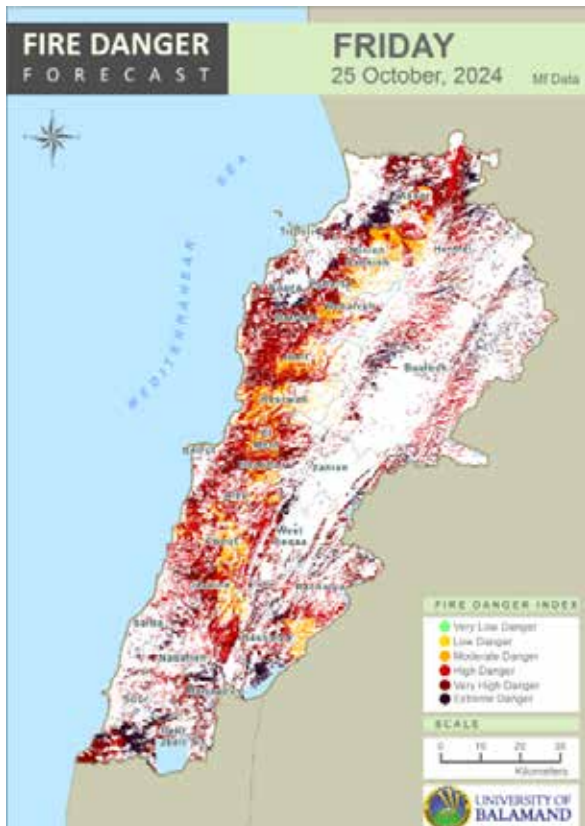
1. El Mir, A., El-Zahab, S.M., Nasr, D.E., Assaad, J.J., & El-Hassan, H. (2024). **Use of machine learning models to predict the water penetration depth in concrete**. Journal of Building Engineering.
2. Aad, R., El Balaa, R., Tanios, C., & Nemer, N.M. (2024). **Landscape Indicators—An Inventive Approach for the Sustainability of Landscapes**. Sustainability (Switzerland). Open access.
3. Saba, M., Pérez, G., Coma, J., & Polls, M. (2023). **Geopolymer as an Innovative Material for Green Roofs- A State-of-the-Art Review**. In E3S Web of Conferences. Open access.
4. Affan, H., Arairoy, W., & Arayro, J. (2023). **Mechanical and thermal characterization of bio-sourced mortars made from agricultural and industrial by-products**. Case Studies in Construction Materials. Open access.
5. Mitri, G.H., Bechara, J., Stephan, J.M., McKenna, M., & Choueiter, D. (2023). **Geoinformation applications for monitoring protected areas in Lebanon**. In Proceedings of SPIE - The International Society for Optical Engineering.

## IOE'S LAND AND NATURAL RESOURCES PROGRAM LEADS GLOBAL FIRE MANAGEMENT AND CLIMATE ACTION TALKS



The Institute of the Environment's Land and Natural Resources Program at the University of Balamand has been at the forefront of several high-profile international workshops and conferences over the past two years. The program played a pivotal role in the third technical workshop of the Global Fire Management Hub in Rome, contributing to the strengthening of the Near East Fire Network. It also made significant contributions at the World Fire Congress in Washington, DC, where discussions focused on Disaster Risk Reduction Programs. In Thessaloniki, at The Economist Impact's Natural Disasters Summit, the program addressed the critical issue of climate disasters and their impact on forced migration. Furthermore, at COP28, the program highlighted Lebanon's strategic importance in global climate change discussions. The program also participated in the 9th International Conference on Forest Fire Research in Portugal, promoting international cooperation in forest fire science and technology. These efforts also align with the United Nations' Sustainable Development Goals, particularly Climate Action (SDG 13), showcasing the program's commitment to advancing sustainability and environmental protection.

## MANAGING WILDFIRE RISKS



The Land and Natural Resources Program at the Institute of the Environment leads forest fire research in Lebanon, focusing on wildfire prevention and awareness. Firelab is a key tool for forecasting and monitoring forest fires. It provides fire risk information, allows users to check fire danger levels up to 9 days in advance, and helps authorities deploy resources effectively. Increasing awareness and use of Firelab can enhance fire prevention efforts. (<http://ioe-firelab.balamand.edu.lb>)

## UOB WEATHER STATION



The installed weather station is designed to endure harsh environmental conditions and includes various sensors such as wind speed, wind direction, temperature, relative humidity, rainfall, radiation, and pressure. These sensors are mounted on a customizable mast that can be hydraulically adjusted up to 9 meters. The data logger, in a secure box with an internal battery, ensures continuous data handling during power interruptions. It connects to a central server via RS 232 cables for uninterrupted data transfer. The system uses two software programs: one for real-time data retrieval and display, and another for extensive data storage in Excel and PDF formats. The server can connect to remote units for centralized data collection.

## LAUNCH CEREMONY FOR THE FIREPATROL APPLICATION

Under the patronage of H.E. Dr. Nasser Yassin, Minister of Environment, and in the presence of Dr. Elias Warrak, President of the University of Balamand, the Reforestation Association in Lebanon organized a launch ceremony for the Firepatrol application. Developed in partnership with the Land and Natural Resources Program at the Institute of Environment at the University of Balamand and ESRI-Lebanon, the Firepatrol application aims to support local fire risk management efforts. This event took place as part of the National Forest Fire Prevention Week and the National Forest Fire Prevention Campaign for 2023. The ceremony highlighted the significance of embracing technology to enhance responses to fire hazards and protect local communities. Specifically, the focus was on raising awareness about the potential for fire outbreaks by utilizing data from the University of Balamand's Fire Laboratory. The laboratory employs an advanced and distinctive modeling system developed by a specialized research team at the Institute of Environment.

## BRIDGING SALT INITIATIVES FROM ANFEH LEBANON TO SFAX IN TUNISIA



Under the theme of sustainable tourism and preservation of ecosystems and biodiversity in artisanal Salinas, Mrs. Rita Kalindjian-member of Anfeh and Neighborhood Heritage Committee and Hima Anfeh- joined the Sustainable Management Model for Mediterranean Artisanal Salinas program on 22 and 23 February in Tunis. MedArtSal project is led by the University Consortium for Industrial and Managerial Economics (Italy) in partnership with Fair Trade Lebanon and the Lebanese Association for the Development of Rural Capacities, and other similar institutions from Tunisia, Spain and Italy.

## FIELD DAY ON POST-FIRE ASSESSMENT AND LAND PRESERVATION



Dr. George Mitri led master students on a field day, implementing a thorough post-fire assessment protocol. The initiative highlighted the critical importance of protecting and maintaining burned lands from human interference and natural degradation, such as soil erosion. The team focused on a site featuring burnt pine trees mixed with oak trees on a steep slope. Due to the challenges in the natural regeneration of pine trees, the efforts were concentrated on pruning these trees to create terraces, effectively preventing soil erosion.

## REFORESTATION PROJECT IN JURD TANNOURINE



The Land and Natural Resources Program at the Institute of Environmental Studies at the University of Balamand has completed a reforestation project in Jurd Tannourine. The Tannourine Municipality received the reforested site during a ceremony held at the municipal building in Tannourine. This project, part of the "Support for Social Resilience, Infrastructure, Reforestation, and Agriculture in Lebanon" initiative, was managed by the Council for Development and Reconstruction with the Ministry of Agriculture and funded by the French Development Agency (AFD). The IOE Studies implemented the project with assistance from the Tharwa Association.

## ECO CLUB INITIATIVES



Over the past two years, the Eco Club has been highly active, engaging in numerous initiatives such as hosting visits and demonstrations for local students, creating herbariums, and organizing outdoor fitness sessions for Earth Day. They have highlighted campus environmental assets, collaborated on International Water Day projects, led seed planting and insect preservation activities, and participated in campaigns to save monk seals. Additionally, they promoted sustainable Valentine's Day decorations,

attended waste management conferences, engaged in youth training programs for policy inclusion, raised awareness about water pollution, conducted presentations on marine biodiversity, and participated in sessions on the Lebanese Parliament. Their efforts demonstrate a strong commitment to environmental education and conservation.

## THEOLOGY STUDENTS ENGAGE IN CONSERVATION AND ENVIRONMENTAL APPRECIATION

For two consecutive years, on Lebanese National Day, students from the St. John of Damascus Institute of Theology visited various sites in Lebanon, such as the Cathedral of Saint Georges in Beirut, Jeita Grotto, Harissa and various sites in Akkar, Lebanon.

These experiences not only offered participants memorable adventures but also promoted awareness and appreciation of natural ecosystems. By engaging with nature, the students fostered a sense of environmental responsibility and stewardship, highlighting the importance of the sustainable use of terrestrial ecosystems.



## OTHER STUDENT LED ACTIVITIES

Activity Title	Activity Type	Club Name
Earth Day	Gatherings and Interactive Activities	Eco and LeMSIC
World water Day	Interactive Activities	Eco and Debate
Cats and Cookies	Humanitarian Initiatives and Fundraisers	Animal Rights
Horsh Beirut tree Planting	Humanitarian Initiatives and Fundraisers	ASCE
Visit to Alfonse De la martine School	Field Trip	Eco
Field Visit - Bekaa	Field Trip	SSCHE and SPE x Erasmus
End of Semester trip	Gatherings and Interactive Activities	GoGreen

## IOE SDG 15 PROJECTS

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### PARSIFAL

Objective: To address deforestation and local development through state-of-the-art reforestation and sustainable forest management activities. This includes the afforestation of 50 hectares in high mountain areas of Jurd (Tannourine).



**Funding Agency:** Agence Française de Développement (AFD)

**Budget & Period:** 3,000 USD (2024, 6 months)

**Implemented By:** Land and Natural Resources (LNR) Program (Leader)

**Partners:** AFDC and Municipality of Tannourine

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### Provision of Consultancy Services for Landscape-Scale Survey

Objective: Mapping and analysis of land degradation. Development of a Decision-Support System for pilot selection and an ecological assessment for the districts of Akkar and Jbeil

**Funding Agency:** Global Environment Facility (GEF) through United Nations Development Program (UNDP)

**Budget & Period:** USD 89,924 (2020 - 2024)

**Implemented By:** Land and Natural Resources Program

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### Provision of Services for the Fauna Assessment and Development of Priority Conservation and Site-Specific Monitoring Plans within Nature Reserves in Lebanon

Objective: To validate and update existing biodiversity surveys and shed light on taxa of important biological and patrimonial value

**Funding Agency:** Ministry of Foreign Affairs and International Cooperation of the Italian Republic

**Budget & Period:** 262,500 USD (2023-2024)

**Implemented By:** UNDP, Association for Bird Conservation in Lebanon (ABCL), University of Balamand (UOB), Istituto Oikos Onlus (Oikos)





# 16 PEACE, JUSTICE AND STRONG INSTITUTIONS

## RESEARCH TOWARD SDG 16

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Over the past two years, research at the University has significantly contributed to SDG 16 (Peace, Justice, and Strong Institutions) through various studies. These include establishing ethics guidelines for environmental epidemiologists, exploring COVID-19 herd immunity challenges in Lebanon, and examining stakeholder dynamics in rural women's entrepreneurship. Additionally, research has focused on retaining young employees in the hospitality sector, promoting student agency and community engagement, and understanding psychological resilience among Syrian refugee children. Historical studies on religious and community dynamics in Lebanon further enhance the understanding of peace and justice.

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## UNIVERSITY LAUNCHES AID CAMPAIGN FOR DISPLACED FAMILIES AMID 2024 LEBANON WAR

In the midst of the ongoing 2024 war in Lebanon, thousands of Lebanese have become displaced seeking refuge in public schools and other makeshift shelters. In response, the University launched a campaign to extend a helping hand to affected families. This fund is providing essential aid—medical assistance, food supplies, and educational resources—to help them regain a sense of stability and hope through financial donations, in-kind donations, volunteering and raising awareness. The University believes that in times of hardship, our strength is our community. Every contribution counts. Together, we can make a tangible difference.



## SOCIAL JUSTICE IN THE THOUGHT OF IMAM MOUSSA AL-SADR SYMPOSIUM

The Center for Christian-Islamic Studies at the University of Balamand, in cooperation with the Lebanese Center for Justice, organized a seminar on "Social Justice in the Thought of Imam Moussa Al-Sadr" at the Nahyan Building on the university's main campus. The seminar was attended by notable figures, including the Mufti of Tripoli and the North, Sheikh Muhammad Imam, the Greek Orthodox Metropolitan of Tripoli, Koura and their dependencies, Afram Kyriakos, and deans of university faculties. The event aimed to highlight the role of religions in promoting social justice and advancing the ideas of Imam Moussa Al-Sadr, emphasizing that social justice fosters a strong sense of citizenship. The seminar concluded with the presentation of honorary shields to the speakers in recognition of their contributions.



## UNIVERSITY OF BALAMAND DEVELOPS GEO-STATISTICAL DASHBOARDS FOR ENHANCED GOVERNANCE AND CRISIS MANAGEMENT

The University of Balamand is focusing on governance and crisis management by developing geo-statistical dashboards for census data. This project involves creating these dashboards for the collected census data of both the Jurd Al Qayteh and Dreib Al Awsat in Akkar area. The goal is to install these systems in each municipality to enhance access to information and improve data sharing. This initiative emphasizes outreach and collaboration to ensure effective implementation and utilization of the dashboards. The project is implemented by SALAR International in Lebanon and Türkiye, a part of the Swedish Association of Local Authorities and Regions (SALAR) funded by Sweden. SALAR International works globally to strengthen democracy and good governance at the local level.



## CLUBS ACTIVITIES

The Communications and Political Science Society, Political Science Society, and Universal Law Students are hosting various events aimed at promoting SDG 16: Peace, Justice, and Strong Institutions. These include a mock trial titled "Be the Jury" and mock elections, both categorized as workshops, as well as introductory booths by the Political Science Society and Universal Law Students, which are interactive activities. All these events focus on educating participants about their rights and the importance of strong institutions in maintaining peace and justice.



<b>Activity Title</b>	<b>Activity Type</b>	<b>Club Name</b>
Mock Trial "Be the Jury"	Workshops	Communications and Political Science Society
PSS Club Introductory Booth	Intercative Activities	Political Science Society
Know your Rights: Club Introductory booth	Intercative Activities	Universal Law Students
Mock elections	Workshop	Mock elections





# 17 PARTNERSHIPS FOR THE GOALS

## SDG COUNCIL MEMBERSHIP

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The University of Balamand is highly committed to the SDGs which led to university's President Dr. Elias Warrak to be appointed as a United Nations Global Compact council. This membership is affiliated to the largest initiative in the world driving change at a scale; and it leads to engaging with the UN Global Compact's business leaders' community and access to networking opportunities within high level national and international events.

## RESEARCH TOWARDS SDG17

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The university's publications in 2023-24 significantly contribute to Sustainable Development Goal 17 (SDG 17) by fostering partnerships and collaborations across various disciplines. These publications address diverse issues such as food safety, financial stress, genetic literacy, mental health, environmental sustainability, and healthcare, often through open-access platforms that enhance knowledge sharing. By engaging in interdisciplinary research and publishing in international journals, the university promotes global cooperation and knowledge exchange, essential components of SDG 17, which aims to strengthen the means of implementation and revitalize the global partnership for sustainable development.

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# BUILDING PARTNERSHIPS FOR GOALS

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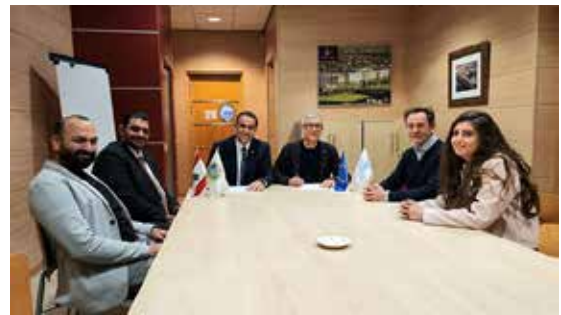
## MOU WITH LA ROCHELLE UNIVERSITY

The University of Balamand (UOB) and the University of La Rochelle (ULR) signed a Memorandum of Understanding (MOU) on March 29, 2023, to enhance academic collaboration. This agreement, the first between ULR and a Lebanese university, aims to foster multidisciplinary teaching and research. The signing took place during a visit organized by the Erasmus+ Project SWaTH, with key representatives from both universities in attendance.



## MOU WITH UNIVERSITY OF LLEIDA

In a landmark event fostering international academic partnerships, the University of Balamand and the University of Lleida (UdL) in Spain signed a Memorandum of Understanding (MOU) within the EU co-funded SWaTH project in February 2024. This collaboration builds on the existing PhD Co-Direction between their engineering faculties.



## UREKA EDUCATION GROUP

In collaboration with the Ureka Education Group, UOB aims to enhance employability skills and overall success for students and faculty. This partnership will establish a Ureka UK Global Innovation Hub on campus, to offer online degrees and certificates, and create international engagement opportunities through programs, seminars, conferences, events, internships, and various student initiatives.

## UOB AND GREEK COMMUNITY

The University, led by President Dr. Elias Warak, has signed a Memorandum of Understanding (MOU) with the Communauté Hellénique de Bienfaisance de Beyrouth, represented by President Mr. Banayoti Androti. The signing ceremony, held in the presence of the Greek Ambassador to Lebanon, H.E. Ms. Catherine Fountoulaki, along with representatives from both parties, aims to bolster academic collaboration between the two institutions. This agreement includes providing Greek students with discounts on their studies at UOB, and lays the groundwork for future joint activities in cultural, educational, and athletic domains.



## **PRESERVING LEBANESE CINEMA**

The University of Balamand and the Metropolis Cinema Association have signed a Memorandum of Understanding (MOU) to establish mechanisms for archiving two films by Mirna Mounayer, a former student at ALBA. This collaboration aims to make these films available for on-site, non-commercial purposes, ensuring the preservation and appreciation of the work of Lebanese directors. By safeguarding these films, the parties contribute to the cultural heritage and cinematic history of Lebanon, providing valuable resources for future generations.

## **INTERNATIONAL HORTICULTURAL EXPO 2023**

The University actively participated in the International Horticultural Expo 2023 in Qatar, promoting sustainable development and innovation. UOB Alumni, under the Lebanese Embassy in Qatar, organized an exhibition showcasing Lebanese olive products. The university's contributions to the Lebanese Pavilion featured projects from the Faculty of Engineering, including the "Green Roofs" initiative supervised by Dr. Makram Bachawati and Mrs. Mantoura Nakad, and three smart agriculture projects presented by the Issam M. Fares Faculty of Technology under Dr. Rodrigue Balaa's supervision. Over three days, UOB delivered presentations on sustainability and engineering, renewable energy, and smart agriculture applications, aligning with Expo Qatar 2023's vision of promoting sustainable innovations and combating desertification.



## **INTERNATIONAL COLLABORATIONS**

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### **PUBLIC HEALTH DEPT. RECEIVES \$71,000 FROM UC SAN DIEGO VIA NIH FUNDING**

The FHS Public Health Department has received \$71,000 USD from the University of California San Diego through funding from the United States National Institutes of Health (NIH) to participate in the first-of-its-kind graduate level fellowship in Climate Change Research and Action.

The Principal Investigator on this grant Dr. Myriam Mrad, Chairperson of the Public Health Department, will lead in the training of 15 Lebanese decision makers from ministries and organizations through hands on training on research methods, applications, and skills to address climate change related health outcomes. This will include climate change relevant preparedness and disaster management.

The project is led by Dr. Wael Al-Delaimy professor at the Herbert Wertheim School of Public Health and Human Longevity Science at University of California San Diego, which will offer the fellowship certification to trainees in Lebanon. The training will feature world experts and Lebanese instructors who will jointly provide training both in-person and virtually.

This grant symbolizes hope and progress amid adversity. As Lebanon navigates these tumultuous times, every proactive effort to strengthen our country's capacity and the University of Balamand's commitment to a more climate resilient future is more than welcome.

## **INTERNATIONAL ADVISORY BOARDS**

The University of Balamand (UOB) hosts several international advisory boards across various faculties, including:

Faculty of Business and Management (FOBM): The International Board of Advisors (IBA) is composed of distinguished professionals and academics from around the world. The board provides strategic guidance and global perspectives to enhance the faculty's academic and research excellence. Members of the IBA bring a wealth of experience from various fields, including business, academia, and industry, helping to shape the faculty's mission, vision, and strategic goals.

The board also plays a crucial role in fostering international collaborations and ensuring that the faculty's programs remain competitive and aligned with global standards

. <https://www.balamand.edu.lb/faculties/FOBM/About/Pages/IBA.aspx>

Faculty of Medicine (FOM): The Dean's International Advisory Board consists of prominent medical doctors practicing in the USA. This board provides strategic guidance and support to advance the faculty's mission in education, research, and healthcare services. The board members offer counsel on various issues, including shaping the FOM's mission and vision, prioritizing goals, and advocating for FOM programs. They also work to secure support for the faculty, advise on strategic issues, and foster research relationships.

The board meets quarterly or as needed, with members serving two-year terms, which can be renewed

Faculty of Health Sciences: The International Advisory Board (IAB) advises on academic developments, strategic growth, and international collaborations to enhance education and research. The board includes members from leading global institutions, contributing to the faculty's internationalization and strategic planning efforts.

<https://www.balamand.edu.lb/faculties/FHS/About/Pages/IntAdvisoryBoard.aspx>

Faculty of Engineering: The advisory board for the Faculty of Engineering collaborates with international industry leaders to innovate and enhance engineering programs and research. Each department— Chemical Engineering, Mechanical Engineering, Civil and Environmental Engineering, Electrical Engineering, and Computer Engineering—has its own advisory board.

## COLLABORATIONS WITH NGOS

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### MMKN UNITED EDUCATION SUPPORT PROGRAM

UOB signed an agreement with MMKN United Education Support Program (UESP) NGO cooperation . Following this agreement, MMKN NGO Education team presented MMKN's mission and impactful initiatives to the students. The goal was to recruit passionate volunteers who are ready to make a difference in the education sector in Lebanon through tutoring, mentoring, and supporting students. MMKN's Education Program focuses on: Reinforcement classes for public school students, Scholarship opportunities for underprivileged youth and Motivating students to stay in school and pursue their dreams.



### UOB PARTNERS WITH PROABLED

The University of Balamand (UOB) has embarked on a significant collaboration with ProAbleD, focusing on enhancing the inclusion program for universities. ProAbleD is a pioneering organization dedicated to promoting inclusive employment and educational opportunities for individuals with disabilities and those from underprivileged backgrounds.

# UNIVERSITY-GOVERNMENT COLLABORATION FOR SDGS

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## DR MYRIAM MRAD, PANELIST IN LEBANON NATIONAL HEALTH STRATEGY FOR ONE YEAR REVIEW MEETING

On January 30, 2024, The Ministry of Public Health held a national meeting to evaluate the one-year progress of the National Health Strategy: Vision 2030. The strategy aims to address the challenges and acute crises affecting the healthcare sector, build the capacities of the sector, and bring about a qualitative shift in the management of service delivery. The meeting included a detailed presentation on the most significant achievements, covering 88 strategic objectives across multiple focus areas, such as participatory governance, medication management, primary healthcare, human resources capacity building, and digital health technologies.



## INSTITUTE OF ENVIRONMENT WORKSHOPS

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The Institute of the Environment at the University of Balamand has been actively involved in various international and regional initiatives, showcasing its commitment to environmental conservation, sustainable development, and disaster risk reduction. Key representatives from the institute have participated in significant forums, workshops, and conferences, contributing their expertise and fostering global collaborations.





<b>Event</b>	<b>Date</b>	<b>Representative</b>	<b>Focus</b>	<b>Country</b>
Regional Conservation Forum (RCF)	September 9-11, 2023	Dr. Manal Nader	Biodiversity conservation, sustainable development, UOB Climate Action Plan	Brought together over 350 conservation leaders and experts
Global Fire Management Hub Workshop	May 28-30,2024	Dr. George Mitri	Strengthening the Near East Fire Network, contributions to the Global Fire Hub	Technical workshop with international participation
World Fire Congress	May 6-8,2024	Dr. George Mitri	Disaster Risk Reduction Programs, global fire service leadership network	Panelist in a session presented by the World Bank
Conference on Lebanon's Blue Economy	N/A	Dr. Manal Nader	Sustainable use and conservation of ocean and coastal resources	Collaboration with the Ministry of Environment and the UN Environment Programme

<b>Committee</b>	<b>Member/ Focal point</b>	<b>Institution</b>	<b>Date Of Nomination</b>
IUCN	Manal Nader	IUCN	27-06-2024
MAB National Committee in Lebanon*	Manal Nader	CNRS	18-01-2023



### UOB CELEBRATES ITS THIRD CHRISTMAS VILLAGE

For the third consecutive year, the University of Balamand (UOB) hosted the "UOB Christmas Village" from December 19 to 22, 2023, at its Koura campus. The festive event began with the lighting of the Christmas tree, attended by UOB President Dr. Elias Warrak and Rev. Archmandrite George Yaacoub. The campus was adorned with vibrant decorations, many of which were made from recycled materials.

Over the three days, more than 5000 visitors enjoyed a variety of entertainment programs and daily activities designed for all ages. The Christmas market featured over 40 small businesses owned by UOB alumni, offering crafts, handmade items, foods, and more. UOB student clubs also organized various activities, some of which raised funds for charitable organizations. The event included musical performances and daily screenings of Christmas movies.



## SUSTAINABILITY EDUCATION, OUTREACH, AND LITERACY

As part of its commitment to the SDGs, the University of Balamand raises awareness of the 17 Sustainable Development Goals among its faculty members, staff, students, and community members through various initiatives, including workshops, training sessions, informational sessions, and projects. The University also assessed the knowledge of the informed stakeholders through designed surveys starting by the Faculty of Engineering as a pilot to the whole university.

### SDG BrainLab

For the third year in a row, the university participated in the SDG Brain Lab, a program launched by the United Nations Global Compact Network Lebanon (UN GCNL). It is designed to empower Lebanese youth, aged 18 to 24, in advancing the 17 Sustainable Development Goals (SDGs) of the UN's 2030 Agenda on a national scale. A total of 500 students from 11 Lebanese universities, including the University of Balamand, took part in a 7-month program divided into three main hubs: Training Hub, Brain Hub, and Data Hub. After showcasing commitment, engagement, leadership, interest in sustainability, and willingness for change, UOB participants stood out due to their outstanding work ethics and were appointed as SDG Ambassadors for the next academic year 2024 - 2025 to represent change in their universities and their immediate environment. The ambassadors were appointed during the closing ceremony.



## UOB'S COMMITMENT TO SDG17 THROUGH STUDENT, FACULTY AND STAFF TRAINING

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### SDG DAY

As per the directives of Dr. Elias Warrak, UOB President and council member at UN Global Compact Network Lebanon, the University of Balamand hosted an informative session on the 17 Sustainable Development Goals (SDGs) on July 12, 2024 at the UOB main campus. This session, exclusively tailored for UOB members, underscored the university's commitment to sustainability and provided valuable insights into the global goals and the best practices for their implementation.

Mrs. Deenah Fakhoury, the Executive Director at UN Global Compact Network Lebanon (UNGC), led the 2-hour interactive session that deepened the participants' understanding

of the SDGs and equipped them with practical knowledge to contribute to sustainability initiatives within the institution and beyond.

In her presentation, Mrs. Fakhoury highlighted the importance of the SDGs and discussed how each person could act as a change-maker in their immediate communities.

The comprehensive session offered attendees a clear understanding of the global goals, emphasizing the role of individual contributions in achieving them. The event, which was organized in collaboration with the UOB Career Services Center, marked a significant step in promoting the SDGs within the UOB community, aligning with the university's vision of fostering a sustainable future.



## **UNIVERSITY OF BALAMAND HOSTS FINANCIAL LITERACY TRAINING**

The University of Balamand recently conducted a comprehensive Financial Literacy training through its Financial Literacy Center. The training sessions were graced by the presence of Dr. Gretta Saab and Dr. Hala Khayr, who provided invaluable insights and guidance. The program was divided into two cohorts: the first cohort catered to Business Connections Students, equipping them with essential financial management skills for their future careers. The second cohort was designed for the FOBM staff, ensuring they are well-versed in financial literacy to enhance their professional and personal financial decision-making. This initiative underscores the university's commitment to fostering financial literacy and empowering its community with the knowledge and skills necessary for financial success. During the spring semester, the session will be hosted for the UOB community over three days.



## GREEN SKILLS FOR A GREEN ECONOMY

The Faculty of Business and Management and the Career Services Center held a half-day program titled "Green Skills for a Green Economy: An Introduction to Environmental Sustainability," in collaboration with the Institute of Environmental Management and Assessment (IEMA) and Deloitte. This event provided students with insights into the importance of green skills, the variety of green jobs available across industries, and the necessary knowledge to succeed in a green economy. The program emphasized the growing demand for sustainability-focused roles and highlighted that green skills are relevant across multiple sectors, making graduates more attractive to employers as businesses transition to sustainable models.



## GREEN TALENT FORUM

The partnership between the Career Services Center at the and the employability platform Localized highlights the importance of multi-stakeholder partnerships in achieving sustainable development through education, training, and employment opportunities. Localized is a platform designed to help users find and apply for entry-level, internship, and trainee roles across various industries and locations. It also offers opportunities to join events, communities, and follow experts to enhance career interests and goals. One notable event hosted on the platform is the Green Talent Forum 2024, which aims to connect participants with top sustainability companies and experts, providing valuable insights and opportunities to secure jobs or internships in the sustainability sector.



## ADDITIONAL MOUS

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### 2022

Institution Name	Country
مندوق تعاضد القضاة Judges	Lebanon
GIZ	Lebanon
Ecole Nationale Supérieure de Techniques Avancées Bretagne (ENSTA Bretagne)	France
Ecole Supérieure des Beaux-Arts Marseille	Marseille, France

### 2023

Institution Name	Country
Lebanon Green Building Council LGBC مجلس لبنان للأبنية الخضراء	Lebanon
Digital Transformation and Governance Network DTGN شبكة التحوّل والحوكمة الرقمية - في لبنان	Lebanon
Izdihar	Lebanon
Hopital du Sacré Coeur	Lebanon
New England College of Optometry (NECO)	Boston, USA
Université de Limoges (UL)	France
UNDP	Lebanon
الجمعية الخيرية اليونانية - في بيروت Communauté Hellénique de Bienfaisance de Beyrouth	Lebanon
Bellevue Medical Center	Lebanon
Hopital Des Soeurs Du Rosaire (HSR) مستشفى راهبات الوردية	Lebanon
Université de Poitiers	France
DAI Global LLC Water Sanitation and Conservation - USAID	Lebanon

دار العجزة الإسلامية	Lebanon
مستشفى الصليب	Lebanon
Health Outreach to the Middle East (H.O.M.E.) and HOME Elpis Clinic (HOME Clinic)	Lebanon
Le Grand Lycee Franco-Libanais (GLFL)	Lebanon
Elie Gebrael Abou Jaoude Social Center (EAJ)	Lebanon
Hopital Maritime مستشفى سيدة ماريتم	Lebanon
Bellevue Medical Center	Lebanon
United Arab Emirates University (UAEU)	Al-Ain UAE
ProAbled	Lebanon
United Nations Global Compact	Lebanon
Seeding Labs	Boston - USA
Tripoli Bar Association نقابة المحامين في طرابلس	Lebanon
BRAND FOR LESS (BFLGROUP)	Lebanon
THE MAHMOUD ABBAS FUND	Lebanon
Lebanese Dental Association - Tripoli نقابة أطباء الأسنان في لبنان - طرابلس	Lebanon
Ministry of Energy and Water- Directorate General of Oil وزارة الطاقة والمياه المديرية العامة للنفط منشآت النفط	Lebanon
Programme Solidarité Eau (pS-Eau) Lebanese Water Actor Platform (LEWAP)	Paris
The Indian Institute of Technology Bombay	India
Metropolis Cinema Association	Lebanon
L'Ambassade de France au Liban – Ministere de l'Europe et des affaires étrangères	Lebanon
Confluence Institute for Innovation and Creative Strategies in Architecture	France
Association Liban Avenir Meilleur (ALAM)	Geneva Switzerland

D.G Jones and Partners (member of the American Project Management Institute in the region "PMI")	Lebanon
Ecole Nationale Supérieure des Beaux-Arts de Lyon	Lyon, France
Ecole Supérieure Estienne des Arts et Industries Graphiques	Paris, France
Le Grand lycée franco-libanais	Lebanon
Institut Français du Proche-Orient (ifpo)	Lebanon

## 2024

Institution Name	Country
Ureka Education Group	UK
MEFOSA-MENA Food Safety Associates S.A.R. L	Lebanon
Matelac	Lebanon
Lebanese League for Women in Business (LLWB)	Lebanon
Dekwaneh Municipality	Lebanon
Ecole Nationale Supérieure de Mécanique et d'Aérotechnique (ISAE/ENSMA)	France
Arab Council for the Social Sciences	Lebanon
UNIVERSITÉ GRENOBLE ALPES (UGA)	France
Saint Therese Medical Center (STMC)	Lebanon
Teach for Lebanon (TFL)	Lebanon
Université de Limoges Ensil-Ensci Ecole d'ingénieurs de Limoges	France
University of California San Diego	USA
Order of Pharmacists of Lebanon نقابة الصيادلة في لبنان	Lebanon
Saint George Hospital University Medical Center (SGHUMC)	Lebanon
مستشفى سيدة زغرتا الجامعي	Lebanon



Lebanese American University	Lebanon
DAI Global LLC Water Sanitation and Conservation - USAID	Lebanon
Arc-en-ciel (AEC)	Lebanon
United Nations Human Settlements Programme (UN-Habitat)	Based in Nairobi, Kenya & has regional office for Arab States in Cairo and Head of Country Program in Beirut