Faculty of Health Sciences (FHS)

Undergraduate

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Nida' El Helou	Instructor (Practicum Coordination and Career Services)
Suzanne El Kheshen	Instructor (Assistant to Dean)

Historical Background

The Faculty of Health Sciences (FHS) was established in 1954 as an independent School of Public Health, the first of its kind in the region. The name of the school was changed to the Faculty of Health Sciences in 1978 to accommodate programs in allied health.

FHS serves to educate and train professionals and competent leaders to help meet the health needs of Lebanon and the region.

Accreditation

In October 2006, the Public Health Program (PHP) of the Faculty of Health Sciences (FHS) became accredited by the Council on Education for Public Health (CEPH) and was reaccredited in 2012 for seven years term extending to 2019. In December 2019, the CEPH Board voted to renew the accreditation of the program for another seven-year term ending in 2026. The PHP includes the master of public health, master of science in epidemiology, master of science in environmental health, and the PhD in epidemiology, as well as the bachelor of arts in health communication and the bachelor of science in environmental health. CEPH is an independent agency in the United States, which is recognized to accredit schools and programs of public health. The PHP at FHS was the first graduate public health program to be accredited by CEPH outside the Americas and remains the only program in the Arab region. Accreditation indicates that the PHP of the FHS meets standards for public health education of leading schools of public health in the world.

Mission

To improve the health of populations and advance the public health discipline and field of health professions in the region and beyond, through excellence in education, research, and community engagement.

Vision

The leading academic voice and driver for equity, justice, and better health in the Arab region and beyond.

Undergraduate Programs

FHS offers a BS degree in: environmental health, medical audiology sciences (currently frozen), medical imaging sciences and medical laboratory sciences; and a BA degree in health communication.

Admissions

Admission Requirements

To be eligible for admission to the programs leading to the degree of bachelor of science, candidates must have satisfactorily completed the freshman program in the Faculty of Arts and Sciences or its equivalent with a minimum cumulative GPA of 2.3 and a minimum science GPA of 2.3.

Freshman students applying to environmental health must complete the following science requirements: CHEM 101, CHEM 101L, MATH 101. Freshman students applying to medical laboratory sciences must complete the following science requirements: CHEM 101, CHEM 101L, CHEM 102, CHEM 102L, MATH 101, MATH 102, and BIOL 101. Freshman students applying to medical imaging sciences or medical audiology sciences must complete the following science requirements: PHYS 103 and PHYS 103L, MATH 101, MATH 102, and BIOL 101.

Freshman students applying to health communication must attain a cumulative GPA of 2.3 in the freshman year and a cumulative GPA of 2.3 in English courses taken in the freshman year.

Courses taken before the students are admitted to any of the programs may be credited at the discretion of the appropriate department.

To be eligible for admission to advanced standing (second year) in science majors, a candidate must have completed the equivalent requirements for the first (or second) year of undergraduate study in the Faculty of Health Sciences in the respective major and have met the following criteria:

- A minimum cumulative GPA of 2.3.
- A minimum GPA of 2.3 in science courses.

To be eligible for admission to advanced standing (second year) in health communication major, a candidate must have completed the equivalent requirements for the first (or second) year of undergraduate study in the major and have met the following criteria:

- A minimum cumulative GPA of 2.3.

Students who have completed a minimum of two terms of study as sophomores or their equivalent are eligible for admission to the first year in the Faculty of Health Sciences in science majors if the following criteria are met:

- A minimum cumulative GPA of 2.3.
- A minimum GPA of 2.3 in science courses.
- Completion of a minimum of 6 credits in basic science.

Students who have completed a minimum of two terms of study as sophomores or their equivalent are eligible for admission to the first year in the health communication major if the following criteria are met:

- A minimum cumulative GPA of 2.3.

Admission decisions are subject to the availability of places in the desired program of study. Lebanese students must present the Lebanese Baccalaureate or its equivalent and should be considered eligible by the AUB Office of Admissions for admission to the first year in health sciences. These candidates are evaluated based on SAT I scores and school performance.

Candidates holding the Lebanese Baccalaureate Part II—literature and humanities—or its equivalent are required to take CHEM 101, 101L and MATH 101 as remedial courses if joining the environmental health or medical laboratory sciences program, or MATH 101 if joining the medical imaging sciences or medical audiology sciences program. Candidates holding the Lebanese Baccalaureate Part II—sociology and economy—or its equivalent must take CHEM 101 and 101L as a remedial course if joining the environmental health or medical laboratory sciences program.

For complete and detailed information regarding admission to AUB, including recognized certificates, see the Office of Admissions and Certificate and Class Chart sections of this catalogue.

Academic Rules and Regulations

Please refer to the section on General University Academic Information for information on attendance, classes and laboratories, examinations and quizzes, course loads, premedical requirements, incompletes, probation (placement on academic probation, removal of probation), dismissal and readmission, repeating courses, special students not working for a degree, tutorials, and withdrawal from courses.

Full-time Students and Credit Load

Students can normally register for up to 18 credits per term and 9 credits during the summer term. Students who wish to register for more than 18 credits (or 9 credits in summer) must petition the appropriate faculty committee for permission to do so.

Minors

The Faculty of Health Sciences offers three minors, which require the completion of a number of courses as specified in the list below.

Minor in Environmental Health

The minor in environmental health introduces students to the environmental system and the interactive processes that affect human health, environmental protection, and development. The minor in environmental health requires 15 credits, including the following: HPCH 205, ENHL 220, plus a minimum of 9 credits selected from the following ENHL courses: ENHL 221, ENHL 227, ENHL 231, ENHL 234, ENHL 235, ENHL 238, and ENHL 239.

Minor in Public Health

The minor in public health introduces students to substantive issues and methodological approaches in public health. Students are given an overview of the field in HPCH 205 and an introduction to epidemiology and biostatistics in EPHD 203. For the remaining courses towards the minor, students can choose from the list of approved electives from across the disciplines of public health according to their interests.
A minor in public health allows students to become more aware of the factors influencing health and hence more capable of making choices that influence their own health and that of their communities. In addition, a minor in public health expands students' career options by exposing them to an increasingly important and expanding profession. The minor in public health is not open to students majoring in health communication.
Students will be required to take:

- HPCH 205 Introduction to Public Health (3 credits)
- EPHD 203 Epidemiology and Biostatistics (3 credits)

The remaining 9 credits may be fulfilled through any combination of the following FHS courses (all courses are 3 credits unless otherwise noted):

Table 1: Elective courses for the Minor in Public Health

Department/Course	GE Societies and Individuals	GE Understanding our World	GE Quant Reasoning
Environmental Health			
ENHL 220: Fundamentals of Environmental Health Sciences		X	
ENHL 221: Management of Domestic and Hazardous Waste			
ENHL 234: Occupational Health			
Epidemiology and Population Health			
EPHD 213 (2 cr): Survey Methods			X
Health Management and Policy			
HMPD 204: Introduction to Health Services Administration	X		

Health Promotion and Community Health			
HPCH 200: Global Public Health	X		
HPCH 201: Health Awareness and Behavior	X		
HPCH 202 (2 cr.): Sexuality & Public Health	X		
HPCH 210: Health Communication Theory			
HPCH 211: Research Methods			
HPCH 237: Theories and Practice of Health Promotion	X		

Public Health			
PBHL 210: COVID-19, Inequality and Well-Being	X		
HEHI 201: Foundations of Humanitarian Engineering and Public Health Innovations	X		

The list of eligible electives was selected to include courses that cover broad public health content and/or introductory content to a subfield of public health. Students will be expected to develop their plan for the minor according to their interests and in discussion with the academic adviser.

Minor in Humanitarian Engineering and Public Health Innovations

The minor in humanitarian engineering and public health innovations is offered jointly by the Faculty of Health Sciences and the Maroun Semaan Faculty of Engineering and Architecture.

The minor is open to undergraduate students from all majors. It is a multidisciplinary offering that provides undergraduate students with the knowledge of the humanitarian engineering field, and equips them with the skills required to find innovative design solutions for challenges faced by disadvantaged populations taking into consideration two complementary perspectives; public health perspective and engineering perspective.

Students who complete the minor will be able to:

1. Apply participatory needs assessment tools and analyze the different dimensions of a public health problem.
2. Apply formal design methods to develop practical, feasible, scalable, and sustainable humanitarian engineering and public health innovations and interventions.
3. Apply skills required to manage complex projects while working in multidisciplinary teams.
4. Demonstrate entrepreneurial skills to take a solution/intervention from prototype to product.
5. Articulate and adhere to ethical standards in the process followed and in the intervention designed.
6. Present and document a problem and its solution to a diverse target audience.

The minor in humanitarian engineering and public health innovations consists of 15 credits, according to the following requirements:

- HEHI 201, "Foundations of Humanitarian Engineering and Public Health Innovations"
- HEHI 202 A/B, "Humanitarian Engineering and Public Health Innovations Capstone"
- One design course from the following list: AGSC 330, ARCH 061, ARCH 064, ARCH 072, ARCH 344, BMEN 501, CHEN 351, CHEN 471/571, CHEN 619, CHEN 798A , CIVE 552, CIVE 601, CIVE 628, CIVE 691, EECE 461, EECE 560, EECE 675 , ENMG 663, ENMG 698E, ENSC 633, ENST 300, FSEC 310, FSEC 315, HPCH 204, HPCH 212, INFO 205 , LDEM 254, LDEM 298 , LDEM 633, MECH 430, MECH 530, MKTG 234, NFSC 306, NURS 408, PBHL 303, URDS 664, URPL 641
- One ethics course from the following list: BUSS 215, INDE 410, MCOM 215, MHRM 304, PHIL 205, PHIL 209, PSYC 305
- One social entrepreneurship course from the following list: AGBU 229, ARCH 068 , ENMG 654, ENTM 220, INDE 412

Students interested to enroll in the minor are encouraged to inform the coordinators of the program at healthengineering@aub.edu.lb to benefit from adequate advising on study plans and ensure completion of all requirements.

HEHI 201 Foundations of Humanitarian Engineering and Public Health Innovations 3 cr.
This is a multidisciplinary course that covers fundamentals of designing solutions for health challenges faced by disadvantaged populations. It introduces tools for identifying humanitarian and/or development needs and designing practical, scalable, and sustainable solutions and interventions. The course is offered to students from all majors. Students will be exposed to health and health system challenges in addition to design fundamentals including participatory needs assessment, formal multidisciplinary design processes, and relevant technologies and tools with real world applications and case studies. Open to students in advanced standing (second and third year for three years program and third and fourth year for four years program).

HEHI 202 A/B Humanitarian Engineering and Public Health Innovations Capstone 3 cr.
The capstone project course is an interdisciplinary service-learning design course focused on development and humanitarian engineering solutions for health challenges. In the capstone, students apply all tools learned in HEHI 201. Students work in multidisciplinary teams with disadvantaged communities, under joint supervision of at least two mentors from MSFEA, FHS, and other faculties. The capstone is divided into two sub-courses, HEHI 202A (1cr.) and HEHI 202B (2cr.), and must be registered in two consecutive terms. HEHI 202A has as a prerequisite: HEHI 201. HEHI 202B has as a prerequisite: HEHI 202A.

Upon prior approval of the students' adviser and the coordinators of the humanitarian engineering initiative, students who are required, as part of their degree requirement, to complete a capstone or final year project, can count that experience towards fulfilling the capstone requirement for the minor.
To graduate with the minor, students must attain a minor GPA of 2.3 or more to satisfy its requirements.

Certificate Option

Students can opt for a certificate in humanitarian engineering and public health innovations. The "Humanitarian Engineering and Public Health Innovations" certificate requirements are:

- HEHI 201, "Foundations of Humanitarian Engineering and Public Health Innovations"
- HEHI 202 A/B, "Humanitarian Engineering and Public Health Innovations Capstone"
- An internship approved by the humanitarian engineering initiative of at least 8 weeks full-time

Students should declare the certificate before completing the requirements.

Upon prior approval of the students' adviser and the coordinators of the humanitarian engineering initiative, students who are required, as part of their degree requirement, to complete an internship or practicum, can also count that experience towards fulfilling the internship requirement for the certificate.

Interdisciplinary Course

PBHL 210 COVID-19, Inequality and Well-Being 3.0; 3 cr.

This course will introduce students to the COVID-19 pandemic as both a global and regional public health crisis, with a focus on prevention, mitigation, and impact. Geographically, it would focus on low and middle-income countries across the Global South and with a particular emphasis on the Arab region. The course will offer an intersectional analysis of the structural inequalities exposed by COVID-19, both in terms of differential vulnerability to and consequences of the pandemic by gender, age, socio-economic class, ethnicity, race, and immigrant/refugee status. Drawing on recent research by FHS and AUB faculty members, lectures will examine some of the historical, economic, epidemiological/health sector and social aspects of the pandemic and explore policy responses across various contexts. The course will additionally address the myriad gendered consequences of lockdown measures adopted to combat the pandemic, such as poor mental health outcomes, the rise in gender-based violence, disruptions to education and loss of income, among others. Focusing on Lebanon as a case study, the course will also analyze the impact of the concomitant public health and economic crises on the health sector, exploring the burden on fragile health systems as well as the diversion of already-precarious healthcare resources from "nonessential" services.

Department of Environmental Health

Chairperson	Jurdi, Mey
Professors	Habib, Rima; Jurdi, Mey; Massoud, May; Nuwayhid, Iman
Associate Professor	Dhaini, Hassan
Lecturer	Nasr, Joumana
Instructor	El Helou, Nida
Part-time Lecturer	Abou Arrage, Jad

The Department of Environmental Health offers a three-year undergraduate program in environmental health, which is accredited by the Council on Education for Public Health (CEPH). The curriculum provides a broad education in basic sciences and fundamental knowledge of environmental health. Emphasis is placed on the evaluation and control of major environmental health problems in developing and developed countries in such fields as indoor and outdoor air pollution, water, sanitation and hygiene, food safety, risk analysis, municipal and hazardous waste, occupational health and safety, environmental impact assessment and audits, climate change and sustainable development. During their senior year, students in the program are also given the opportunity to complete an internship in pre-approved work settings, thus providing them with the opportunity to supplement their theoretical and laboratory experience with real-life practical field experience. Moreover, as part of the program, students are also required to take public health courses in epidemiology and biostatistics, health management and health promotion, which facilitates acquiring a minor in public health (for the minor policy, refer to the General University Academic Information section of this catalogue). Additionally, students can follow a pre-medical track, if interested in joining the medical school.

Due to increased environmental concerns, Lebanon and countries in the region are in great need of qualified personnel capable of planning and implementing policies, strategies, and programs to enhance human health and ecological vitality. This provides great job opportunities in various sectors, such as public/governmental agencies, international organizations, private companies, non-governmental organizations, and academic/research institutions.

BS in Environmental Health

Promotion

For promotion from year I to year II, students must complete a minimum of 30 credits. For promotion from year II to year III, students must complete a minimum of 62 credits.

Majorless Status

Majorless students in the environmental health program are required to take ENHL 220.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of required credits will depend on course equivalency.

Students pursuing the environmental health major are required to register for three regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in environmental health, students must:

- pass a minimum of 96 credit hours after freshman science class or its equivalent.
- achieve a total cumulative GPA of 2.3 and achieve a cumulative GPA of 2.3 in the major field of study.

Curriculum for Bachelor of Science in Environmental Health

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
BIOL 200	Diversity of Life	2	2	3
CHEM 208	Brief Survey of Organic Chemistry	2	2	3
CHEM 209	Introductory Organic Laboratory	2	2	3
ENGL 203	Academic English	2	2	3
ENHL 220	Fundamentals of Environmental Health Sciences	3	0	3
Term Credit Total				**15**
Spring 1				
ENHL 221	Management of Domestic and Hazardous Wastes	3	0	3
ARAB 2xx	Understanding Communication (Arabic)	3	0	3
ENGL 204	Advanced Academic English	3	0	3
ENHL 227	Environmental Microbiology	2	2	3
	Cultures and Histories – History of Ideas	3	0	3
Term Credit Total				**15**

Fall 2				
ENHL 231	Water and Wastewater Quality Control	3	0	3
ENHL 232	Instrumentation, Analytical Techniques and Sampling	3	1	3
ENHL 238	Indoor and Outdoor Air Pollution	3	0	3
EPHD 203	Epidemiology and Biostatistics	2	2	3
EPHD 203A	Biases in Epidemiology	1	0	1
	Cultures and Histories Elective	3	0	3
Term Credit Total				**16**

Spring 2				
ENHL 233	Quality Determination of Water and Wastewater	2	2	3
ENHL 234	Occupational Health	2	2	3
ENHL 235	Toxicology and Risk Analysis	3	0	3
ENHL 239 or NFSC 282	Food Safety	3	0	3
EPHD 213	Survey Methods	1	2	2
	Societies and Individuals Elective	3	0	3
Term Credit Total				**17**

Fall 3				
ENHL 242	Environmental Management Tools and Applications	3	0	3
HMPD 204	Introduction to Health Services Administration	3	0	3
HPCH 237	Theories and Practices of Health Promotion	3	0	3
	Free Elective	3	0	3
PHIL 209	Environmental Ethics	3	0	3
Term Credit Total				**15**

Winter 3				
ENHL 236	Practicum	-	-	3
Term Credit Total				**3**

Spring 3				
ENHL 243	Global Environmental Issues	3	0	3
	Free elective	3	0	3
	Free elective	3	0	3
ENHL 245	Environmental Economics	3	0	3
	Cultures and Histories Elective	3	0	3
Term Credit Total				**15**
Total Credits				**96**

Course Descriptions

ENHL 105 Environment and Health 3.0; 3 cr.
A course that exposes the students to major local and global environmental issues relating to air, water, land and energy and the importance of proper integrated management to promote and protect public health and achieve sustainable development. In addition, the course highlights the importance of environmental laws and policies as major tools in the management of environmental health issues. Environmental ethics is also emphasized as a critical core factor of the management processes. The importance of environmental awareness of different stakeholders is exposed as a means to achieve proposed objectives.

ENHL 220 Fundamentals of Environmental Health Sciences 3.0; 3 cr.
A course that explores the interdisciplinary nature of environmental health sciences. It explains fundamental scientific concepts relating to the various environmental components and focuses on the relationship between the environment and human health. Using case studies and critical thinking exercises, the course covers a variety of topics including air, water and soil pollution, energy, waste management, climate change, biodiversity, and sustainable development. It also highlights the relationship between population growth, economics, politics, ethics, and the environment.

ENHL 221 Management of Domestic and Hazardous Wastes 3.0; 3 cr.
A course that introduces the elements of solid waste management: sources, characterization, generation rates, collection, transportation, and disposal technologies. Concepts are presented within the context of integrated management: reduction, reclamation, recycling, and disposal. Socioeconomic implications at the community and national levels are emphasized. Pre/corequisite: ENHL 220.

ENHL 227 Environmental Microbiology 2.2; 3 cr.
A course that introduces students to the microbial world and relates microbiology to environmental issues and community health. It explores the fundamentals of bacteriology, virology, and parasitology and covers infectious diseases transmitted through air, water, food, soil, municipal solid wastes, and wastewater. It covers topics such as microbial environments, detection of microorganisms and their activities in the environment, industrial microbiology, and bioremediation. Pre/corequisites: BIOL 200/201 and ENHL 220.

ENHL 231 Water and Wastewater Quality Control 3.0; 3 cr.
A course that focuses on the principles of water management (both in quantity and quality) with emphasis on fresh water resources for domestic and multi-purpose utilization. Characterization, treatment, reclamation, and recycling of wastewater are also discussed. National and international guidelines, standards, and directives for water and wastewater management are presented. Prerequisites: ENHL 220 and ENHL 227.

ENHL 232 Instrumentation, Analytical Techniques and Sampling 3.1; 3 cr.
A course that focuses on the basic concepts and application of different sampling methods, and instrumental and analytical techniques: electrical conductance, absorption spectrophotometer (visible, ultraviolet light, infrared, atomic absorption), emission (flame photometry) and chromatography (gas chromatography, high performance liquid chromatography, ion chromatography). Prerequisite: ENHL 220.

ENHL 233 Quality Determination of Water and Wastewater 2.2; 3 cr.
A course that focuses on the quality determination (physical, chemical, biochemical, and microbiological) of water and wastewater samples using standard analytical techniques. Students are required to write professional quality assessment reports. Proper presentation and interpretation of results and practical recommendations for preventive or corrective measures are emphasized. Prerequisites: ENHL 220, ENHL 231 and ENHL 232.

ENHL 234 Occupational Health 2.2; 3 cr.
A course that provides an overview of the general principles of occupational health using a multidisciplinary framework. Applying diverse perspectives, students of the class will learn about hazards in the workplace and the health, economic, political, social, and societal ramifications of occupational health and safety. The course offers a dynamic learning environment that emphasizes critical thinking and engagement. Students will learn by applying research and readings to case studies, media analysis, and in-class discussions. Prerequisite: ENHL 220.

ENHL 235 Toxicology and Risk Analysis 3.0; 3 cr.
A course that introduces students to the principles of toxicology (exposure to toxicants and their absorption, distribution, metabolism, and excretion), selected toxic chemicals, and the impact of toxicants on selected human organs and systems. It also introduces students to the application of toxicology in public health, namely dose-response and causal relationships, risk assessment, management, and communication including the process of setting environmental standards. Prerequisites: ENHL 220, BIOL 200/201, (CHEM 208 and CHEM 209) or (CHEM 211 & CHEM 212 & CHEM 210).

ENHL 236 Practicum 3 cr.
This is a required course for environmental health students providing them with an opportunity to supplement their theoretical and laboratory experience with a real-life practical field experience. Students are assigned to environmental projects and challenges in pre-approved work settings in the public sector, private sector (industries, consulting firms), academic and research centers, UN agencies, or international and national NGOs. Students will address current environmental issues supervised by environmental practitioners. Wherever feasible, practicum sites will be assigned to meet the students' long term academic and career objectives. The experience will sharpen the students' writing, technical and analytical skills in a supervised setting and develop the skills to conceive of and successfully complete a well-defined project within a limited time frame. Prerequisites: Completion of all the ENHL courses of the first two and a half years. ENHL 242.

ENHL 238 Indoor and Outdoor Air Pollution 3.0; 3 cr.
A course that discusses exposure and health effects of indoor (e.g., asbestos, tobacco smoke, formaldehyde, radon) and outdoor air pollutants. Students are introduced to modeling, quality determination, and management strategies. This course includes a "service learning" component through which students will engage with a predetermined organization to identify and address a public health problem. This opportunity will allow students to "share" and "receive" knowledge and expertise leading to enhanced learning among students and benefit to the chosen organization. Prerequisites: ENHL 220 and CHEM 208, or (CHEM 211 and CHEM 212) (could be taken concurrently).

ENHL 239 Food Safety 3.0; 3 cr.
A course that focuses on food safety from production to consumption (preparation, processing and preservation, storage, marketing, and trading). Emphasis is placed on the development, implementation and appraisal of food safety management systems and certification schemes (such as GHP, GMP, HACCP, ISO 22000 and FSSC) at the national and international levels. Prerequisites: ENHL 220, ENHL 227, and CHEM 208. The course is equivalent to NFSC 282.

ENHL 242 Environmental Management Tools and Applications 3.0; 3 cr.
A course that provides an overview of the general principles relating to environmental management tools and applications. Topics covered include environmental impact assessment, environmental auditing, and environmental regulations and standards. To provide students with practical experience, they are requested to conduct a community based environmental health project. Emphasis is placed on investigating the problem and proposing management strategies. Senior standing required. Prerequisites: ENHL 221, 233, 234, 235, 238, (ENHL 239 or NFSC 282).

ENHL 243 Global Environmental Issues 3.0; 3 cr.
Global environmental problems such as climate change, water shortage, floods, fires, depletion of stratospheric ozone, and the loss of biodiversity have captured news headlines and the attention of the public. These developments are transnational, in that their impact is felt across national boundaries and effective responses require coordinated efforts transcending any individual state. The establishment of conventions and institutions facilitating international cooperation reflect this reality, yet the success of these efforts has been frequently inadequate and criticized as favoring the powerful over the disenfranchised. This course engages students in a review of global environmental issues affecting the Arab region and beyond. This review will explore research on the history and causes of these environmental problems, giving special attention to their framing in public discourse. The ecological, social, economic, political, cultural, and health aspects of the environmental problems are discussed in a debate format. The local, national, and international efforts to develop strategies to address these problems are also raised. Prerequisite: ENHL 242.

ENHL 245 Environmental Economics 3.0; 3 cr.
A course that introduces the principles of economics and its use as a tool to analyze and value the environment by providing a quantitative measure that can guide policy. The course focuses on the cost of environmental pollution and degradation in contrast to the economic value of conservation, environmental amenities (such as clean water, air, and soil) and environmental mitigation and remediation. Prerequisite: ENHL 220.

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories(9), Human Values(3)	Societies and Individuals (6)	Understanding the World (12) Quantitative Reasoning (6)	Major Courses (42)	Community-Engaged Learning (3)
Lecture Course (9+12 +6+ 12+6+ 42+3)	Required Arabic Course (3) Required English Courses: ENGL 203 (3), 204 (3)	Cultures and Histories electives (9) Phil 209 (3)	HPCH 237(3) Elective (3)	ENHL 220 (3) BIOL 200(4) CHEM 208(3) EPHD 203(3) EPHD 213(2) EPHD 203A(1)	ENHL 220 (3), 227(3), 221(3), 239(3), 231(3), 232(3), 233(3), 234(3), 235(3), 238(3), ENHL 242(3), 243(3), 245(3)	HMPD 204 (3)
Lab (4+4)				BIOL 200(4) CHEM 209(2)	ENHL 232(3), 234(3), 233(3), 227(3)	
Seminar (2)					ENHL 242(3), 243(3)	
Research Project (1+3)					ENHL 242(3), 243(3)	
Fieldwork					ENHL 236(3)	

Students take, in addition to the required courses above, 9 free elective credits in various fields and modes of analysis.

Department of Health Promotion and Community Health

Chairperson	Makhoul, Jihad
Professors	Abdulrahim, Sawsan; Makhoul, Jihad
Associate Professor	Kabakian-Khasholian, Tamar
Assistant Professor	Sieverding, Maia
Part-time Senior Lecturer	El Kak, Faysal
Part-time Lecturer	Al Barazi, Rana
Lecturers	Kanj, Mayada; Khawam, Grace
Instructors of Public Health Practice	Kalot, Joumana; Najem, Martine
Affiliate	Salloum, Ramzi

The department offers a three-year bachelor of arts (B.A.) degree in health communication (HCOM) and a master of public health (MPH) degree in health promotion and community health (HPCH).

The HCOM program prepares undergraduate students to develop, deliver, and evaluate health communication tools and activities; and to communicate health information to diverse audiences. Students enrolled in the program will receive most of their disciplinary training in the HPCH department but will also take courses in the media studies program at the Faculty of Arts and Sciences (FAS). HCOM courses are designed to train students in public health theory and methods; planning, managing and evaluating health communication; and communicating health messages to audience of interest.

The HPCH department also contributes to teaching courses in other undergraduate programs in the Faculty of Health Sciences and in a teaching diploma in health education with the Department of Education at the Faculty of Arts and Sciences.

BA in Health Communication

Promotion

For promotion from year I to year II, students must complete a minimum of 32 credits. For promotion from year II to year III, students must complete a minimum of 66 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, and course offerings, students of the Faculty of Health Sciences must meet a minimum residency requirements. The minimum number of credits is 45. However, the maximum number of required credits will depend on course equivalency.

Students pursuing the health communication major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of arts in health communication, students must:

- pass a minimum of 95 credit hours after freshman class or its equivalent.
- achieve a total cumulative GPA of 2.3 and achieve a cumulative GPA of 2.3 in the major field of study.

Curriculum for Bachelor of Arts in Health Communication

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
HPCH 210	Health Communication Theory	2	2	3
EPHD 203	Epidemiology and Biostatistics	2	2	3
HPCH 205	Introduction to Public Health	2	2	3
HPCH 211	Research Methods	2	2	3
ENGL 203	Academic English	3	0	3
Term Credit Total				**15**

Spring 1				
EPHD 213	Survey Methods	1	2	2
HPCH 203	Interpersonal Communication	3	0	3
HPCH 201	Health Awareness and Behavior	2	2	3
MCOM 227	Media and the Environment	3	0	3
MCOM 228	Introduction to Digital media	3	0	3
ENGL 204	Advanced Academic English	3	0	3
Term Credit Total				**17**

Fall 2				
HPCH 237	Theories and Practice of Health Promotion	3	0	3
MCOM 215	Media Law and Ethics	1	2	3
ARAB 223	Arabic for the Media	3	0	3
HPCH 208	Advocacy and Activism for Social Change	2	2	2
HPCH 212	Design and Evaluation of Health Communication Activities	2	2	3
Term Credit Total				**14**

Spring 2				
HPCH 204	Social Marketing	2	2	3
HPCH 207	Risk Communication in Public Health Practice	1	2	2
	Cultures and Histories (History of Ideas) Elective I	3	0	3
	Culture and Histories Elective II	3	0	3
BIOL 209 Or BIOL 210	Concepts and Connections Or Human Biology	3	0	3
	Arabic Communication Elective	3	0	3
Term Credit Total				**17**

Summer				
HPCH 250	Practicum	_	_	2
Term Credit Total				**2**

Fall 3				
HPCH 200	Global Public Health	3	0	3
	Societies and Individuals elective			3
	Free Elective	1	2	2
MCOM 246	Digital and Multimedia News	3	0	3
MCOM 247 Or MCOM 226	Trauma Journalism Or Journalism and Society	3	0	3
Term Credit Total				**15**

Spring 3				
HPCH 215	Project Management Skills	1	2	2
	Understanding the World Elective I	3	0	3
	Societies and Individuals Elective II	3	0	3
	Culture and Histories Elective III	3	0	3
HPCH 209	Digital Health for Public Health	1	2	2
HPCH 251	Capstone Seminar	0	2	2
Term Credit Total				**15**
Total Credits				**95**

Course Descriptions

HPCH 200 Global Health 3.0; 3 cr.
The course presents an overview of global public health through a multidisciplinary approach. This will be accomplished through readings and other materials from public health, the social sciences, and the humanities on global public health issues, as well as through learner centered class activities and writing assignments. The course will trace the origins of global health as a field and analyze the role of different international, national, and local actors in current global health issues. Throughout the term, students will examine case studies of current global health challenges, identify their social, economic, and political causes, and discuss approaches and policies that ensure health, equity, and social justice. Not open to sophomores and first year students in all faculties.

HPCH 201 Health Awareness and Behavior 3.0; 3 cr.
This course in health awareness and behavior introduces students to modern concepts and understanding of holistic health and dimensions of health and wellness. It aims to provide students with up-to-date knowledge on contemporary health issues to help shape their perceptions, attitudes, and behaviors, that will ultimately lead to higher levels of health and wellness, and reduce vulnerability to illness and disability, within a framework of human rights. This is achieved through a dynamic and interactive classroom setting engaging students in critical assessment around their attitude, knowledge, and lifestyle behaviors. The course will encourage students to participate in open class discussions, material presentations, class debates around issues related to students' health perceptions, daily health habits, behavior, and national and global public health matters.
Ultimately, students are expected to examine their attitudes towards health issues, engage in health behavioral change, to promote a healthier lifestyle, and make informed decisions that will not only prevent or delay the onset of certain health conditions but also promote holistic health and wellness.

HPCH 202 Sexuality and Public Health 2.0; 2 cr.
This course aims to provide students with an overview of sexuality and sexual health and its dimensions within a framework of human rights. Through discussions, lectures and assignments, students will learn about the evolution of sexuality and sexual health within the global perspective with specific focus on the public health aspect. It will look into the interaction between the biological, social-cultural, and health/ medical aspects of sexuality and the current discourses surrounding sexuality in Lebanon and the Region. Some of the issues include: (1) Development of sexuality and sexual & gender identities, (2) Sexual and reproductive health aspects, (3) Sexual identities and sexual rights debates (4) Sexuality expressions/ behaviors and public health, (5) Safe sex and sexual violence.

HPCH 203 Interpersonal Communication 2.2; 3 cr.
This course is an introduction to human communication theory and practice. It emphasizes both interpersonal and group communication skills. The course introduces students to assumptions we make about communication and key elements of the communication process. The course attempts to highlight the connection between communication concepts and everyday life by using interactive methods that allow students to experience concepts in relation to their own lives.

HPCH 204 Social Marketing 2.2; 3 cr.
How can we influence people's behaviors, such as wearing masks, getting a vaccine jab, observe physical distancing, screening for cancer, or even voting? Can we 'sell' healthy eating, tooth brushing, recycling, the same way corporations sell their products? Social Marketing is a discipline that can answer these questions (and many more) to address a broad range of health, environment, political, and social issues. Social marketing "seeks to develop and integrate marketing concepts with other approaches to influence behaviors that benefit individuals and communities for the greater social good." Social marketing requires soul and heart. In this course, students will learn how to apply the basic concepts of Social Marketing into strategic plans aimed to address 'wicked problems' affecting local communities. Prerequisites: HPCH 210 and HPCH 212.

HPCH 205 Introduction to Public Health 2.2; 3 cr.
This course introduces undergraduate students to the basic concepts, disciplines, and principles of Public Health. Students learn how biological, environmental, social, economic, and political factors are intimately related to health, healthcare access, and illness, and how these can be addressed at the individual, community, and population levels. The course incorporates a critical perspective on current health challenges, and most sessions include a common lecture and practical activities based on case studies from around the world, particularly the Arab region. Throughout the course, there will be a focus on social inequities in health.

HPCH 207 Risk Communication in Public Health Practice 1.2; 2 cr.
In this course students will learn the basic concepts of risk communication and its applications in public health. This course will cover the basic principles of theories of risk perception (e.g., Prospect Theory) and discuss their applications in public health incidents responses. We will include elements of risk message framing, public engagement, using traditional and social media, as well as ethical considerations of public communication. At the end of this course, students will be able to apply these concepts to design messages to convey risk information in public health by producing messages in various formats, including fact sheets, press releases, video scripts, text messages, and media kits. The final presentation will consist of a mock press conference on a pre-determined topic. Prerequisites: HPCH 210 and HPCH 212.

HPCH 208 Advocacy and activism for Social Change 2.2; 3 cr.
In this course, students are exposed to the art and science of advocacy in public health. The course covers the basic elements of an effective evidence-based advocacy process, including defining the issue, defining the audiences, and crafting advocacy messages. Students work in groups to develop an advocacy plan for an advocacy project addressing a public health issue of relevance to Lebanon or a country of the region. Students will then work individually to develop an applied advocacy tool such as a newspaper article, a letter of complaint, photovoice material or a policy statement to deliver a health advocacy communication message.
This course is based on service learning, a pedagogical approach that "combines academic instruction, meaningful service to the community and critical reflective thinking to enhance student learning and social responsibility.

HPCH 209 Digital Health for Public Health 1.2; 2 cr.
Social media mobile apps and artificial intelligence (AI) have become ubiquitous in nearly all aspects of our lives. These technologies are changing the ways healthcare providers interact with and deliver care to their clients. Digital technologies have also changed the way researchers design and implement health promotion and intervention programs, and the way consumers gather health information and make health decisions. This course is designed to introduce students to eHealth, which encompasses the use of digital technologies to deliver healthcare programs and to promote health among different publics. eHealth or digital health encompasses, telehealth (telecare, telemedicine, tele-coaching, tele-rehab), technology-enabled care services, mobile apps, and social media for health promotion campaigns. Prerequisites: MCOM 228 and MCOM 246.

HPCH 210 Health Communication Theory 2.2; 3 cr.
In this course students will learn the main theoretical frameworks and tools applied in health communication. Students will discover how these frameworks can be used to analyze problems and convey health-related content among various audiences in different contexts and settings. A relevant part of this course will discuss the use of communication for health information dissemination and doctor-patient communication, and the politics of healthcare. Through examples and realistic scenarios, students will learn health communication by doing health communication.

HPCH 211 Research Methods 2.2; 3 cr.
This course is an introduction to methodologies for research used in health communication, including both quantitative and qualitative methods. Students will learn how to frame questions, review scientific literature, select appropriate designs and methods to measure knowledge, attitudes, and behavior, and analyze data to guide communication strategies. Students are provided with opportunities to apply various methods of data collection and analysis to interpret research findings for decision-making about health communication activities and programs.

HPCH 212 Design and Evaluation of Health Communication Activities 2.2; 3 cr.
In this course, students learn how to plan, implement, and evaluate health communication activities, starting with the health-related needs assessment in the community to determine priority areas for health promotion. Based on these areas, students go through the process of developing objectives, selecting appropriate activities, and implementing and evaluating an activity. Prerequisites: HPCH 210, HPCH 211, and EPHD 213.

HPCH 215 Project Management Skills 1.2; 2 cr.
This course aims to familiarize students with basic concepts and terminology in project management. Many health communication activities are implemented using projects and project teams. This course introduces students to the core concepts and skills for managing these projects effectively; ensuring they are completed on time, within budget, and meeting performance objectives. This course aims to familiarize students with basic concepts and terminology in project management. It provides an overview of the project life cycle starting from rationale, writing project objectives, developing activities and action plan which includes a budget break-down. The course will also introduce students to how they can set indicators to monitor and evaluate project activities. Prerequisite HPCH 250.

HPCH 237 Theories and Practice of Health Promotion 3.0; 3 cr.
This course introduces students to a range of health promotion theories that address multiple level determinants of health and illness. Current public health challenges will be discussed to enhance understanding of how determinants at the individual, organizational, community and sociopolitical levels interact and contribute to health risks and outcomes. The course emphasizes an ecological approach and the health promotion principle of enabling people to increase control over their health. Readings and class discussions advocate for equitable policies and social justice.

HPCH 250 Practicum 2 cr.
This course provides students with the opportunity of gaining field experience in the development, implementation, and/or evaluation of health communication activities or programs. At the end of the second year of the program, students will be placed at a site where they will be able to apply knowledge and theory learned through their courses. They will engage in an ongoing health communication project or health communication activities of certain projects by undertaking specific tasks under the supervision of a field preceptor and upon the approval of the course coordinator. Students who have completed all first- and second- year HCOM required courses are eligible to enroll in the practicum. Prerequisites at least two of the following: HPCH 204; HPCH 207 and HPCH 208.

HPCH 251 Capstone seminar 0.2; 2 cr.
This seminar is taken during the last term of the BA in health communication program. It is closely linked to the summer internship where students are required to complete it between their second and third year. The course is designed to challenge students to critically reflect on the knowledge they have gained in all their prior coursework and then synthesize that knowledge with field experience, with a focus on the role of health communication in contributing to public health in Lebanon. The course provides students with the opportunity to further develop the full set of competencies essential for a health communication graduate. It also provides them time and space to sharpen their leadership and other professional skills, as well as demonstrate independent thinking and respect for diversity. Prerequisite: HPCH 250.

Modes of Analysis	**Understanding Communication - English and Arabic (9)**	**Cultures and Histories (9) , Human Values (3)**	**Societies and Individuals (6)**	**Understanding the World (6)** **Quantitative Reasoning (5)**	**Major Courses (51+2+2)**	**Community Engaged Learning (3)**	**Other courses (3)**
Lecture Course (9+12 +6+11 +51+2 +2+3+3)	Required Arabic course (3); Required English courses: ENGL 203 (3), 204(3)	12 credits 9 in Cultures and Histories MCOM 215 (3)	Societies and Individuals (6)	Understanding the world electives (3) BIOL 209 or 210 (3) EPHD 203(3) EPHD 213 (2)	HPCH 200(3); HPCH 201(3); HPCH 203(3); HPCH 204(3); HPCH 205(3); HPCH 207(2); HPCH 208(3); HPCH 209(2); HPCH 210(3); HPCH 211(3); HPCH 212(3); HPCH 215(2); HPCH 237(3); MCOM 227(3); MCOM 215(3); MCOM 246(3); MCOM 247 or 226 (3); MCOM 228(3)	HPCH 207 (1); HPCH 208 (1)	ARAB 223 (3)
Lab (3)				EPHD 203(3) EPHD 213 (2)			
Seminar (2)					HPCH 251(2)		
Fieldwork					HPCH 250(2)	HPCH 250 (2)	

Division of Health Professions

Director	Melhem, Nada
Executive Committee	Hannoun, Salem (MIS Program Coordinator) Melhem, Nada (MLS Program Coordinator)

The Division of Health Professions at the Faculty of Health Sciences hosts jointly with the Faculty of Medicine the following programs: medical audiology sciences (MAS, currently frozen), medical imaging sciences (MIS) and medical laboratory sciences (MLS). Students are hosted at the Faculty of Health Sciences and undergo their clinical training to complete their graduation requirements at the American University of Beirut-Medical Center (AUBMC).

Mission

The Division of Health Professions, run jointly by the Faculty of Health Sciences and the Faculty of Medicine, provides excellent educational curricula in all its majors with intensive hands-on training, preparing students to deliver outstanding health services to the patient and community. The division conducts creative research linked to clinical medicine and public health. The Division adheres to ethical values and promotes quality care with dignity and respect.

Vision

The Health Professions Division is a leading program in the region, preparing innovative and versatile health professionals who impact health and advocate patient rights.

Policy on registration of courses during practical training:

At the Division of Health Professions, students are required to abide by the time allocated for the clinical training at AUBMC. Any student registering for a course during that time will be dropped automatically from the course.

BS in Medical Audiology Sciences

Note: This program is frozen.

This program is run in coordination with the Department of Otolaryngology Head and Neck Surgery at the Faculty of Medicine. The mission of the Medical Audiology Sciences (MAS) program is to prepare students for a successful career in audiology by providing them with a foundation in liberal arts education, coupled with a high-quality clinical education that is underpinned by the fundamental sciences of audiology and a rigorous scientific approach. The academic program is designed to produce skilled clinicians who follow professional standards and ethical principles while serving individuals with hearing or balance disorders in Lebanon and the region. Through various professional and community service activities, the program strives to build in its students the importance of continuing education, developing leadership skills, as well as advocating and supporting the needs of all persons with hearing and vestibular disorders. The mission of the program is consistent with the mission of the institution in that it stresses the importance of providing academic excellence in teaching and research, inspiring students to become leaders in their professional field, as well as helping students develop a lifelong sense of learning and civic responsibility.

Promotion

For promotion from year I to year II, students must complete a minimum of 33 credits. For promotion from year II to year III, students must complete a minimum of 68 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, nature of the practical training, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of credits will depend on course equivalency.

Students pursuing the medical audiology sciences major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in medical audiology sciences, students must:

- pass a minimum of 103 credit hours after freshman science class or its equivalent.
- obtain a minimum grade of C+ in each of ORLG 220, ORLG 230, ORLG 240, and ORLG 250.
- achieve a total cumulative GPA of 2.3.
- achieve a cumulative GPA of 2.3 in the major field of study.

Course Descriptions

MAUD 200 Overview of Audiology and Clinical Practice 1.0; 1 cr.
This course is designed to acquaint the students with the profession of audiology and requirements for clinical practice. Students will complete 25 clinical observation hours. First term.

MAUD 201 Anatomy and Physiology of the Auditory - Vestibular System 3.0; 3 cr.
An in-depth coverage of anatomy and physiology of the auditory and vestibular systems. First term. Prerequisite: PHYL 246 or BIOL 202.

MAUD 202 Basic Audiological Procedures 2.2; 3 cr.
A detailed consideration of the rationale, development, and psychoacoustic theory behind pure tone audiometry, speech audiometry, and clinical masking. Acoustic immittance will also be covered. Students will learn to perform and interpret basic audiological procedures and master clinical masking through hands-on training and software-based activities. First term. Pre/corequisite: MAUD 200 or consent of instructor.

MAUD 203 Pediatric Audiology 3.0; 3 cr.
This course surveys methods and procedures used in the evaluation and management of auditory function in neonates, infants, and young children. It includes identification and intervention procedures. There will be a review of special populations of children with hearing loss. Development of early hearing loss detection and intervention programs will be discussed. First term. Pre/corequisite: MAUD 201.

MAUD 204 Acoustics, Psychoacoustics, and Instrumentation 2.2; 3 cr.
This course covers the fundamentals of sound, psychophysical measurement procedures, psychological acoustics, audiometric standards and electro-acoustic calibration of basic audiological equipment. Laboratory exercises are provided to illustrate course content. First term.

MAUD 205 Amplification I 2.2; 3 cr.
This course covers the background and development of the design of hearing aids, ear mold acoustics, electroacoustic characteristics, performance standards, and measurement techniques. Second term. Prerequisite: MAUD 204.

MAUD 206 Amplification II 2.2; 3 cr.
This course covers advanced procedures for selection and fitting of digital and programmable hearing aids. Students will learn subjective quality measurement, current and emerging prescriptive and fitting verification methods, and advanced hearing aid features. Auditory, visual, and vibrotactile receptive communication technologies will be covered, with an emphasis on needs assessment, selection, evaluation, and the verification process. Principles and procedures for implantable hearing devices from pre-candidacy evaluations through postoperative therapies will be discussed. First term. Prerequisite: MAUD 205.

MAUD 207 Auditory Evoked Potentials 3.0; 3 cr.
This course will cover basic concepts in electrophysiological recordings (e.g., electrode types/uses, far and near field recordings, volume conduction, dipole sources). Recording of both near- and far-field electrical responses will be studied. Recording techniques and test interpretation of common clinical evoked potentials will be covered, including electrocochleography (ECochG), auditory brainstem response (ABR), and auditory steady state response (ASSR). Second term. Prerequisites: MAUD 201 and MAUD 202.

MAUD 208 Practicum Project Offered as MAUD 208A: Practicum Project I 0 cr. and MAUD 208B: Practicum Project II 1.4; 3 cr.
This course aims to introduce students to research in the field of Audiology by engaging them in a Capstone project. Projects may take several forms including development of surveys, evidence-based research, business plans, critical literature reviews with applications to clinical problems solving, development of clinical protocols, or participation in on-going research projects in the department. Students will be required to write a scholarly report summarizing the project. Second term. Prerequisite: ORLG 230.

MAUD 209 Vestibular-Balance Assessment and Management 3.0; 3 cr.
The goal of the course is to provide students with a concise overview of the theory behind vestibular and balance testing and practical ways to assess and manage patients who have vestibular/balance problems. First term. Prerequisites: MAUD 201 and ORLG 230.

MAUD 210 Aural Rehabilitation and Counseling 3.0; 3 cr.
Overview of approaches to audiologic management of adults and children with hearing difficulties. Topics include in-depth interview techniques, self-assessment instruments, auditory training, speech reading, interdisciplinary teaming, communication repair strategies, technology, adjustment to amplification, and management of auditory processing disorders. Operation and troubleshooting techniques for amplification systems commonly used in a classroom will be discussed (e.g., hearing aids, FM systems, assistive listening devices, vibrotactile devices, and cochlear implants). The course will also include psychoeducational/ psychosocial and counseling strategies for patients and family management. First term. Prerequisite: ORLG 230.

MAUD 211 Medical Audiology 2.2; 3 cr.
An introduction to the major pathologies of the peripheral and auditory and vestibular systems. The course will include dysfunction arising from genetic factors, disease, and trauma, with an emphasis applied to presenting signs/symptoms, interpretation of laboratory / imaging results, and medical / surgical interventions. Second term. Prerequisite: ORLG 240.

MAUD 212 Special Topics 1.0; 1 cr.
This course is designed to address traditional or emerging topics in the field of audiology. The course will explore, in depth, a comparatively narrow subject which may be topical or of special interest to undergraduate students in medical audiology sciences program. Annually.

MAUD 213 Environmental Audiology 3.0; 3 cr.
This course covers the effects of noise on health and society, hearing conservation programs, and noise measurement. Industrial, school, military, and social settings will be addressed. Annually.

ORLG 220 Screening Procedures Laboratory 1.9; 3 cr.
Beginning level audiologic practicum. Students will complete 90+ hours of clinical training under direct supervision. Clinical activities will include case history intake, biological calibration of equipment, otoscopic examinations, hearing screenings (pure tone, AABR, OAE), basic immittance testing. A weekly class meeting is held to discuss clinical cases and develop student report-writing skills. Infection control will also be discussed. First term. Pre/corequisites: MAUD 200 and MAUD 202.

ORLG 230 Basic Clinical Procedures Laboratory 1.15; 5 cr.
150+ hours of clinically-supervised direct patient care. Students will be expected to perform and interpret basic behavioral and electrophysiological tests. A weekly class meeting is held to discuss clinical decision making and report writing. Management of unique populations will be covered (tinnitus, hyperacusis, malingering, ototoxicity). Second term. Prerequisite: ORLG 220; corequisite: MAUD 207.

ORLG 240 Advanced Clinical Procedures Laboratory 1.15; 5 cr.
50+ hours of clinically-supervised direct patient care. Continued development of audiological assessment and intervention techniques for children and adults. Clinicians will be expected to administer and interpret balance/vestibular tests and electrophysiological tests, conduct electroacoustic assessment of hearing aids, make hearing aid adjustments based on probe microphone and behavioral test results, and assist with the cochlear implant program. Under direct supervision. A weekly class meeting is held to discuss clinical decision making and report writing. First term. Prerequisite: ORLG 230, corequisite MAUD 206 and 209.

ORLG 250 Comprehensive Practice Laboratory 1.15; 5 cr.
150+ hours of clinically-supervised direct patient care. Clinicians will practice all aspects of audiological care, with greater independence. A weekly class meeting is held to discuss professional issues in audiology, including private practice management, coding and reimbursement, marketing and sales, malpractice, credentialing, and ethics and clinical integrity in the practice of the profession of audiology. Second term. Prerequisite: ORLG 240.

BS in Medical Imaging Sciences

Coordinator and Assistant Professor	Hannoun, Salem
Visiting Assistant Professor	Makki, Malek
Clinical Educator	Abbas, Saly

This program is jointly run in with the Department of Diagnostic Radiology at the Faculty of Medicine.

Mission

The mission of the Medical Imaging Sciences (MIS) program is to provide students with excellence in imaging education. MIS aims to produce academically and clinically competent radiographers who will become patient advocates in their field and perform their duties with empathy and respect towards all patients.

Promotion

For promotion from year I to year II, students must complete a minimum of 39 credits. For promotion from year II to year III, students must complete a minimum of 70 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, nature of the practical training, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of credits to be taken will depend on course equivalency.

Students pursuing the medical imaging sciences major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in medical imaging sciences, students must:

- pass a minimum of 102 credit hours after freshman science class or its equivalent.
- achieve a total cumulative GPA of 2.3.
- achieve a cumulative GPA of 2.3 in the major field of study.

Curriculum for Bachelor of Science in Medical Imaging Sciences

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
MIMG 201	Introduction to MIS	2	0	2
ENGL 203	Academic English	3	0	3
ARAB 2xx	Understanding Communication (Arabic)	3	0	3
	Cultures and Histories (History of Ideas)	3	0	3
HUMR 246	Human Morphology	2	2	3
PSYC 201	Introduction to Psychological Sciences	3	0	3
Term Credit Total				**17**
Spring 1				
MIMG 206	Principle of Imaging I	3	0	3
MIMG 206L	Principle of Imaging I Laboratory	0	3	2
ENGL 204	Advanced Academic English	3	0	3
NURS 201	Introduction to Nursing Practice	1	3	2
PHYL 246	Physiology for Nursing Degree Students and Undergraduates	4	0	4
PHYS 205	Modern Physics	3	0	3
Term Credit Total				**17**
Summer 1				
MIMG 202	Imaging Physics	3	0	3
DGRG 220	Clinical Practicum I	0	8	2
Term Credit Total				**5**

Fall 2				
MIMG 203	Medical Imaging Equipment I	3	0	3
MIMG 207	Principle of Imaging II	3	0	3
EPHD 203	Epidemiology and Biostatistics	2	2	3
	Cultures and Histories Elective	3	0	3
DGRG 230	Clinical Practicum II	0	15	4
Term Credit Total				**16**

Spring 2				
MIMG 204	Medical Imaging Equipment II	3	0	3
MIMG 205	Introduction to Principles of Diseases	3	0	3
MIMG 208	Sectional Anatomy	3	0	3
EPHD 213	Survey Methods	1	2	2
DGRG 240	Clinical Practicum III	0	8	2
Term Credit Total				**13**

Summer 2				
DGRG 250	Clinical Practicum IV	0	8	2
Term Credit Total				**2**

Fall 3				
MIMG 210A	Research Project I	3	0	0
HMPD 204	Introduction to Health Services Administration	3	0	3
PHIL 205	Bio Medical Ethics	3	0	3
	Societies and Individuals Elective	3	0	3
HPCH 203	Health Communication	3	0	3
DGRG 260	Clinical Practicum V	0	15	4
Term Credit Total				**16**

Spring 3				
MIMG 209	Quality Management and Image Analysis	3	0	3
MIMG 210B	Research Project II	3	0	3
	Cultures and Histories Elective	3	0	3
	Free Elective	3	0	3
DGRG 270	Clinical Practicum VI	0	15	4
Term Credit Total				**16**
Total Credits				**102**

Course Descriptions

MIMG 201 Introduction to Medical Imaging 2.0; 2 cr.
An overview of the field of radiologic technology and its role in healthcare delivery. Students are oriented to academic and administrative structure, and the profession as a whole. Basic principles of radiation protection are introduced. The ethical and legal responsibilities of the profession are discussed. First term.

MIMG 202 Imaging Physics 3.0; 3 cr.
A course that focuses on AC generators, DC motors, transformers, and rectification of AC. An introduction to modern physics, production of x-rays, x-ray interactions, radioactivity, production of radionuclides, and health physics. Summer. Pre/corequisite: PHYS 205 or PHYS 206.

MIMG 203 Medical Imaging Equipment I 3.0; 3 cr.
An introduction to various image-detecting and processing systems; description of analogue and digital detection systems. A detailed study of the x-ray tubes with methods of kV, mA, exposure time control, and control of scattered radiation. First term. Prerequisite: MIMG 202.

MIMG 204 Medical Imaging Equipment II 3.0; 3 cr.
A detailed study of the equipment design and function in: image intensification, breast imaging, nuclear medicine/PET, computed tomography, ultrasonography and magnetic resonance imaging. Second term. Prerequisite: MIMG 203.

MIMG 205 Introduction to Principles of Diseases 3.0; 3 cr.
An introduction to pathology that focuses on nature and causes of diseases, diseases of the gastrointestinal and hepato-biliary systems, genito-urinary, and endocrine systems. A study of diseases of the nervous system, skeletal system, respiratory, cardio-vascular, and hematopoietic diseases; miscellaneous diseases related to nutrition and immune system. This course offers students information on the pathologic appearance of common diseases on a variety of diagnostic imaging procedures. First term. Prerequisite: PHYL 246 or BIOL 202.

MIMG 206 Principle of Imaging I 3.0; 3 cr.
An introduction to radiographic procedures, radiographic nomenclature, positioning aids, and accessory equipment. This course also provides a description of radiographic procedures pertaining to upper and lower extremity, shoulder girdle, and pelvis; and a description of the radiographic procedures pertaining to the thorax, the vertebral column, the cranium, facial bones, and forensic radiography. Second term. Prerequisites: MIMG 201 & (HUMR 246 or BIOL 201).

MIMG 206L Principle of Imaging I Laboratory 0.4; 2 cr.
A clinical training course in general and emergency radiography within controlled conditions. Second term. Corequisite: MIMG 206.

MIMG 207 Principle of Imaging II 3.0; 3 cr.
An overview of contrast materials used in imaging. This course also provides a study of imaging procedures related to gastrointestinal, hepato-biliary, genitor-urinary, and respiratory systems. Breast imaging techniques and interventional procedures related to different systems are discussed. First term. Prerequisite: MIMG 206.

MIMG 208 Sectional Anatomy 3.0; 3 cr.
A study of the sectional anatomy of the head, neck, thorax, abdomen, pelvis, and extremities. Second term. Prerequisite: HUMR 246 or BIOL 201.

MIMG 209 Quality Management and Image Analysis 3.0; 3 cr.
This course focuses on the quality assurance and quality control of imaging systems. Emphasis is placed on quality assessment of diagnostic equipment/procedures. Second term. Prerequisites: MIMG 204 and MIMG 207.

MIMG 210 Research Project; Offered as MIMG 210A: Research Project I and MIMG 210B: Research Project II
The course will help the students to effectively analyze data from various resources to evaluate and improve professional practice, and to promote growth in the profession. Students will be introduced to current research topics in medical imaging sciences in addition to ethical issues pertinent to evidence-based research.

MIMG 210A Research Project I 0 cr.
Research Project I. Prerequisites: EPHD 203 and EPHD 213.

MIMG 210B Research Project II 3 cr.
Prerequisite: MIMG 210A.

DGRG 220 Clinical Practicum I 0.8; 2 cr.
Clinical training in general radiography, mobile radiography and emergency radiography and general fluoroscopy within the Department of Diagnostic Radiology. Summer (6 weeks). Prerequisite: MIMG 201 MIMG 206, and MIMG 206L.

DGRG 230 Clinical Practicum II 0.15; 4 cr.
Clinical training in general radiography, mobile radiography, emergency radiography and general fluoroscopy within the Department of Diagnostic Radiology. First term (12 weeks). Prerequisite: DGRG 220.

DGRG 240 Clinical Practicum III 0.8; 2 cr.
Clinical training in general radiography, general fluoroscopy, digital subtraction angiography/Interventional (DSA), breast imaging, operating theatre, computed tomography, general ultrasound, nuclear medicine, magnetic resonance imaging within the Department of Diagnostic Radiology. Second term (12 weeks). Prerequisite: DGRG 230.

DGRG 250 Clinical Practicum IV 0.8; 2 cr.
Clinical training in DSA/interventional (digital subtraction angiography/interventional), breast imaging, CT (computed tomography), U/S (ultrasonography) and imaging in the operating theatre. Summer (6 weeks). Prerequisite: DGRG 240.

DGRG 260 Clinical Practicum V 0.15; 4 cr.
Clinical training in Breast Imaging, CT (computed tomography), U/S (ultrasonography) and MRI (magnetic resonance imaging). First term (12 weeks). Prerequisite: DGRG 250.

DGRG 270 Clinical Practicum VI 0.15; 4 cr.
Clinical training in CT (computed tomography), MRI (magnetic resonance imaging) and NM/PET (nuclear medicine/positron emission tomography). Second term (12 weeks). Prerequisite: DGRG 260.

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (9)	Understanding the World (7), Quantitative Reasoning (5)	Major Courses(26+ 2+3+18)	Other required courses (11)	Community-Engaged Learning (3)
Lecture Course (9+12 +9+7 +3+26 +11+3)	Required Arabic Course: (3) Required English Courses: ENGL 203(3), 204(3)	Cultures and Histories (9) Phil 205 (3)	PSYC 201(3) HMPD 204 (3) Elective (3)	PHYL 246(4) PHYS 205(3) EPHD 203(3) EPHD 213(2)	MIMG 201(2), 202(3), 203(3), 204(3), 205(3), 206(3), 207(3), 208(3), 209(3)	HUMR 246 (3) NURS 201 (2) Free Elective (3) HPCH 203 (3)	HMPD 204 (3)
Lab (1+2)				EPHD 203(3)	MIMG 206L (2)		
Research Project (1+3)				EPHD 213(2)	MIMG 210A (0), MIMG 210B (3)		
Practical Training (18)					DGRG 220(2), 230(4), 240(2), 250(2), 260(4), 270(4)		

BS in Medical Laboratory Sciences

Coordinator	Melhem, Nada M.
Professor	Melhem, Nada M.
Associate Professor	Haddad, Nabil
Lecturer	Bou Hamdan, Mirna
Instructor	Khatib, Rolla
Assistant Instructor	Lababidi, Maya

This program is jointly run with the Department of Pathology and Laboratory Medicine at the Faculty of Medicine.

Mission

The Medical Laboratory Sciences (MLS) program graduates committed healthcare professionals to serve and improve the health needs of individuals and communities. Our graduates are highly skilled professionals who perform analytical tests on blood, tissue, and body fluids to provide laboratory information for the detection, diagnosis, and treatment of diseases. Moreover, our degree guarantees immediate career opportunities and constitutes the foundation for advanced graduate studies in medicine, basic sciences, and public health.

Promotion

For promotion from year I to year II, students must complete a minimum of 31 credits. For promotion from year II to year III, students must complete a minimum of 66 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, nature of the practical training, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of credits to be taken will depend on course equivalency.

Students pursuing the medical laboratory sciences major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in medical laboratory sciences, students must:

- pass a minimum of 103 credit hours after freshman science class or its equivalent.
- achieve a total cumulative GPA of 2.3.
- achieve a cumulative GPA of 2.3 in the major field of study (LABM and MLSP courses).

Curriculum for Bachelor of Science in Medical Laboratory Sciences

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
BIOL 201	General Biology I	3	3	4
CHEM 208	Brief Survey of Organic Chemistry	3	0	3
CHEM 209	Introduction Organic Laboratory	1	4	2
ENGL 203	Academic English	3	0	3
	Cultures and Histories (History of Ideas)	3	0	3
Term Credit Total				**15**
Spring 1				
ARAB 2xx	Understanding Communication Arabic	3	0	3
BIOC 255	Biochemistry for MLSP	3	0	3
ENGL 204	Advanced Academic English	3	0	3
PHYL 246	Physiology for Nursing Degree Students and Undergraduates	4	0	4
	Cultures and Histories Elective	3	0	3
Term Credit Total				**16**

Fall 2				
LABM 201	Clinical Chemistry I	2	0	2
MLSP 201	Clinical Hematology I	3	0	3
MLSP 203	General Microbiology	2	4	3
MLSP 207	Immunology and Blood Banking	2	0	2
MLSP 208	General and Diagnostic Virology	2	0	2
	Societies and Individuals Elective	3	0	3
	Cultures and Histories Elective	3	0	3
Term Credit Total				**18**

Spring 2				
LABM 202	Clinical Chemistry II	3	0	3
LABM 210	Cytology and Histological Techniques	2	1	2
MBIM 223	Parasitology for MLS students	2	2	4
MLSP 202	Clinical Hematology II	3	0	3
MLSP 204	Systematic Bacteriology	3	5	4
MLSP 259	Diagnostic Serology	1	0	1
Term Credit Total				**17**

Summer 2				
	Practical Training in Laboratory Medicine	-	-	4
Term Credit Total				**4**

Fall 3				
EPHD 203	Epidemiology and Biostatistics	2	2	3
HMPD 204	Introduction to Health Services Administration	3	0	3
LABM 233	Genetics and Molecular Biology	2	0	2
LABM 235	Medical Mycology	1	0	1
	Practical Training in Laboratory Medicine	-	-	8
Term Credit Total				**17**

Spring 3				
PHIL 205	Bio-Medical Ethics	3	0	3
HPCH 203	Health Communication	3	0	3
LABM 231	Clinical Laboratory Quality Systems	1	0	1
MLSP 211	Seminar	1	0	1
	Practical Training in Laboratory Medicine	-	-	8
Term Credit Total				**16**
Total Credits				**103**

Practical Training in Laboratory Medicine

The practical training in laboratory medicine covers practical experience and application of theoretical knowledge in the following areas of laboratory medicine for the credits indicated below:

Course Number	Course Title	Credits
LABM 220	Clinical Chemistry and Endocrinology	4
LABM 230	Clinical Hematology and Reception	4
LABM 240	Clinical Microbiology	4
LABM 250	Clinical Parasitology and Urinalysis	2
LABM 260	Serology	2
LABM 270	Blood Banking	2
LABM 280	Cytogenetics, Molecular Diagnosis, and Histotechniques	2

Course Descriptions

MLSP 201 Clinical Hematology I 3.2; 3 cr.
This course is intended to introduce students to fundamental concepts in hematology including normal physiology of blood, development of blood cell elements in the erythrocytic, leukocytic and megakaryocytic cell lines as well as blood cell disorders, with a special emphasis on anemias. The course covers the different causes of anemias and prepares students for the diagnosis of the different types of anemia based on laboratory findings. It is based on lectures, discussions, demonstrations, and case studies. Throughout the course, the lectures will be aligned with laboratory sessions introducing students to the basics of hematology, including practical techniques such as blood smear preparation and staining, microscopic examination of blood cells, blood film inspection as well as identification of anemias based on laboratory findings. Prerequisite: BIOL 201. First term.

MLSP 202 Clinical Hematology II 3.2; 3 cr.
This course is intended to introduce students to the various white blood cell anomalies, including numerical and morphologic abnormalities of cells. In addition, students are introduced to the major types of leukemia and lymphoma as well as to the various tools used in the diagnosis of these malignancies, including morphologic criteria, cytochemical stains, immunophenotyping and the chromosomal abnormalities associated with these neoplasms. Throughout the course, laboratory sessions will complement the lectures, providing hands-on training in identifying white blood cell anomalies and diagnosing leukemias using laboratory techniques and findings. Prerequisite: MLSP 201. Second term.

MLSP 203 General Microbiology 2.4; 3 cr.
This course introduces students to the microbial world with emphasis on bacterial taxonomy, host-pathogen interactions, bacterial growth, bacterial genetics as well as antimicrobial susceptibility testing and concepts of bacterial resistance. Throughout the course, the lectures will be aligned with laboratory sessions introducing students to basics of bacterial identification including microscopy, bacterial culture, and susceptibility testing. Prerequisite: BIOL 201. First term.

MLSP 204 Systematic Bacteriology 3.4; 4 cr.
This course is designed to introduce students to clinically significant bacteria, their pathogenesis, the disease(s) they cause, clinical signs and symptoms, treatment and preventive therapies and vaccines. This course offers a laboratory component whereby students perform hands-on sessions addressing the laboratory diagnosis of clinically significant bacteria (microscopy, bacterial isolation, biochemical profiling as well as antimicrobial susceptibility testing). Prerequisite: MLSP 203. Second term.

MLSP 207 Immunology and Blood Banking 2.0; 2 cr.
This is an introductory course in Immunology, Blood Banking and Transfusion Medicine. The course is designed to provide basic knowledge of the immune response and its involvement in health and disease. It introduces students to the basic immunological principles including innate and acquired immunity, humoral versus cell mediated immune responses. In addition, this course advances the basic concepts of blood banking including blood-grouping and antibody systems, donor screening and collection of blood components needed for transfusions among others. Prerequisite: BIOL 201. First term.

MLSP 208 General and Diagnostic Virology 2.0; 2 cr.
This course introduces students to the major virus families and the respective representative viruses of clinical importance. During the course, students will be introduced to the epidemiology, pathogenesis, modes of transmission, laboratory identification and prevention and control measures of pathogenic viruses. Prerequisite: BIOL 201. First term.

MLSP 211 Seminar 1.0; 1 cr.
This course is a one-credit course offered to Medical Laboratory Sciences (MLS) Students during their senior year. This course is designed to train students to search for, read and understand published scientific papers as well as concepts of ethical conduct of research. Moreover, students will be trained to present in class and critically analyze original manuscripts. The presenting student(s) will be guided in class and in one-to-one meetings to learn how to interpret, defend and criticize the published work as well as respond to questions and inquiries. Second term.

MLSP 259 Diagnostic Serology 1.0; 1 cr.
This course introduces students to diagnostic serology testing. Students will learn the principles and purposes of antigen-antibody reactions. Special emphasis will be placed on the study of specific serological procedures used for the diagnosis of diseases. Prerequisite: MLSP 207. Second term.

LABM 201 Clinical Chemistry I 2.0; 2 cr. and LABM 202 Clinical Chemistry II 3.0; 3 cr.
Clinical Chemistry is covered in two courses: LABM 201 in first term and LABM 202 in second term. Clinical Chemistry courses I and II are designed to acquaint students with fundamentals of clinical chemistry, including basic physiological and biochemical processes, instrumentation, principles of analytical procedures, and methods used for reliable determination of clinical analytes. Correlation of laboratory results with clinical manifestation is also an integral part of these courses. These courses cover all aspects of routine clinical chemistry such as carbohydrates, electrolytes, acid-base balance, blood gases, nitrogen metabolites, proteins, enzymes, lipids and lipoproteins, calcium metabolism and liver function. LABM 202 also covers some advanced clinical chemistry topics like hormones, therapeutic drug monitoring, toxicology; and specialized techniques like chromatography (HPLC, GC/MS and so on). Prerequisite of LABM 202 Clinical Chemistry II is LABM 201 Clinical Chemistry I.

LABM 210 Cytology and Histological Techniques 24.16; 2 cr.
A course that includes a series of lectures, demonstrations and hands-on training on cell biology, a review of normal histology of various human organs, examples of pathological changes, lectures, and hands-on training on techniques of tissue handling, preparation, staining and studying of sections and smears for cytological material. Department of Anatomy, Cell Biology, and Physiological Sciences. Second term.

LABM 220 Clinical Chemistry and Endocrinology 0.128; 4 cr.
Practical experience in Clinical Chemistry that includes two parts. The applied manual procedures give students a thorough understanding of test principles and basic laboratory preparations and measurements. The clinical laboratory rotation covers all areas from specimen handling to an overview of automated clinical chemistry analyzers and other specialized areas like electrophoresis and amino acid analysis as well as patient test management. Six weeks. Prerequisites: LABM 201 and LABM 202.

LABM 230 Clinical Hematology and Phlebotomy 0.128; 4 cr.
Practical experience in clinical hematology and phlebotomy. This course covers technical aspects of diagnosis of hematological disorders including peripheral blood smears and bone marrow aspirates examination. In addition, laboratory testing for coagulopathies work-up is exposed in a variety of tests monitoring that take hemostatic characteristics of a case in consideration. Six weeks. Prerequisites: MLSP 201 and MLSP 202.

LABM 231 Clinical Laboratory Quality Systems 1 cr.
This course is intended to give medical laboratory Sciences students a thorough understanding of the quality systems used for implementation of total quality management in the clinical laboratories. The course covers all the basic elements and tools required to implement the quality system essentials across all phases of the laboratory workflow: preanalytical, analytical, postanalytical. In addition, it will include focused lectures related to quality and safety standards required in specialized areas such as blood bank, clinical microbiology, and molecular diagnostics. Practical examples from the laboratory setting will be part and parcel of the lectures to help students relate theory to practice.

LABM 233 Genetics and Molecular Biology 2.0; 2 cr.
This course is an introduction to human genetics, comprising the structure and function of DNA and the classification of genetic disorders, as well as the application of laboratory genetic testing in the clinical differential diagnosis of a variety of disorders. Diagnostic techniques in human genetics (cytogenetics, biochemical and molecular) will be covered and their applications in pathology, oncology, immunology, and microbiology will be reviewed. In addition, there will be learning of performing polymerase chain reaction (PCR) technique, real-time PCR, Sanger sequencing, and Next Generation Sequencing. First term.

LABM 235 Medical Mycology 1.0; 1 cr.
This course covers the different types of fungi and yeasts (e.g., Candida, Cryptococcus) and molds (e.g., dermatophytes, saprophytes, dimorphic). This course discusses their disease spectrum, mode of infection, growth requirements, and culture and non-culture methods of identification and diagnosis as well as antifungal drugs and susceptibility testing. First term.

LABM 240 Clinical Microbiology 3.20; 4 cr.
Students will be introduced to diagnostic procedures used in bacteriology by organ system This course will be offered in a series of short didactic refresher lectures, assigned readings and case-studies. The diagnostic procedures include up-to-date traditional and automated tools for the identification and diagnosis of bacterial infections. The theoretical part of the course is offered at FHS while clinical training takes place at the Bacteriology section, Department of Pathology and Laboratory Medicine at the American University of Beirut -Medical Center. Six weeks. Prerequisites: MLSP 203 and MLSP 204.

LABM 250 Clinical Parasitology and Urinalysis 0.20; 2 cr.
Practical experience covering conventional and automated approaches in clinical microscopy pertaining to parasitology, urinalysis, spermogram, occult blood, calprotectin lactoferrin, Sudan III fat in stool, RBC morphology, and use of different types of microscopic methods for diagnosing particulate material in synovial fluid and other body fluids. Prerequisite: MBIM 223. Three weeks.

LABM 260 Serology 1.5.20; 2 cr.
Practical experience in clinical immunology and various automated and manual serodiagnostic techniques used for the diagnosis of infectious and non-infectious diseases. Three weeks. Prerequisite: MLSP 259.

LABM 270 Blood Banking 1.5.20; 2 cr.
This course introduces students to the various aspects of modern Blood Banking and Transfusion Medicine. Students will learn the theoretical and practical laboratory aspects of Blood Banking including: ABO, Rh and other blood group systems; handling donor and patient samples; infectious screening; and collection/preparation of blood/ blood components for transfusion administration. The course also covers adverse transfusion reactions, hemolytic disease of the newborn and fetus, as well as advanced Blood Bank procedures and quality management. Prerequisite: MLS 207. Three weeks.

LABM 280 Cytogenetics, Molecular Diagnostics, and Histotechniques 0.64; 2 cr.
Practical experience in cytogenetics, molecular diagnostics and histotechniques. Prerequisite: LABM 210. Three weeks.

MBIM 223 Parasitology for MLSP Students 39.39; 4 cr.
A course of diagnostic parasitology. Second term.

Modes of Analysis	**Understanding Communication - English and Arabic (9)**	**Cultures and Histories (9), Human Values (3)**	**Societies and Individuals (6)**	**Understanding the World (11), Quantitative Reasoning (3)**	**Major Courses (34+20)**	**Other required courses (6)**	**Community-Engaged Learning (3)**
Lecture Course (9+12 +6 + 12+30+6 +3)	Required Arabic Course: (3) Required English Courses: ENGL 203(3), 204(3)	Cultures and Histories electives (9) PHIL 205 (3)	HMPD 204 (3) Elective (3)	BIOL 201(4) CHEM 208(3) PHYL 246(4) EPHD 203(3)	MLSP 201(3), 202(3), 203(3), 204(4), 207(2), 208(2), 259(1) LABM 201(2), 202(3), 210(2), 231(1), 233(2), 235(1) MBIM 223(4)	BIOC 255(3) HPCH 203 (3)	HMPD 204 (3)
Lab (4+4)				BIOL 201(4) CHEM 209(2) EPHD 203(3)	MLSP 203(3), MLSP 204(4), MBIM 223(4)		
Seminar (1)					MLSP 211(1)		
Practical Training (20)					LABM 220(4), 230(4), 240(4), 250(2), 260(2), 270(2), 280(2)		

MBIM 223 is a major required course in the discipline. However, it is not counted in the major average. Only LABM and MLSP courses count towards major average.

Department of Epidemiology and Population Health

Chairperson	Ghandour, Lilian
Professors	Chaaya, Monique; DeJong, Jocelyn; Jaffa, Miran; Sibai, Abla
Professor of Public Health Practice	Adib, Salim
Associate Professor	Ghandour, Lilian
Assistant Professors	El Asmar, Khalil; Mumtaz, Ghina
Assistant Professor of Public Health Practice	McCall, Stephen
Instructor of Public Health Practice	Akl, Christelle; Saad, Ghada
Affiliates	Akl, Elie; El Bejjani, Martine; Tamim, Hani; Fahme, Sasha

The department offers undergraduate courses in epidemiology and biostatistics and contributes to courses catered to major and minor programs.

EPHD 203 Epidemiology and Biostatistics 2.2; 3 cr.
An introductory course offered to undergraduates covering the basic principles of epidemiology and biostatistics. This course introduces students to the types and sources of epidemiological data, common measures of morbidity and mortality, the design and analysis of various epidemiological study designs and the main biases and issues that threaten data validity. The course also covers exploratory data analysis, and introduces students to statistical techniques commonly used in the analysis of epidemiological data. The students will learn how to run basic statistical analyses on SPSS and interpret statistical output. The lab sessions for the epidemiology sessions will be in the form of discussion of practice questions or articles, and computer lab sessions will mainly introduce students to statistical analysis using the statistical package SPSS.

EPHD 203A Biases in Epidemiology 1.0; 1 cr.
This course is open only to undergraduate students enrolled in the environmental health program. In this course, the students will be further exposed to all potential types and sources of bias in epidemiological research and ways to avoid them. These concepts will be illustrated via the discussion of weekly readings. The class will engage the students in team activities and group discussion. Corequisite: EPHD 203.

EPHD 213 Survey Methods 1.2; 2 cr.
A course that provides students with a general overview of the principles and stages of survey research. Using secondary data, students will learn to review and synthesize the literature relevant to a particular research question, analyze and summarize the data, as well as present the findings in an oral and written format. Students will also have the opportunity to develop short questionnaires, sample respondents, collect primary data, and enter data on SPSS as part of their course assignments. Throughout the course, students will learn of the main ethical issues that arise through the different research stages. Prerequisites: EPHD 203 or consent of instructor.

Department of Health Management and Policy

Chairperson	Kassak, Kassem
Professors	El-Jardali, Fadi; Saleh, Shadi
Associate Professor of Public Health Practice	Kassak, Kassem
Instructor	Germani, Aline
Instructors of Public Health Practice	Abou Samra, Clara; Bou Karroum, Lama; Fadlallah, Racha; Jamal, Diana
Part-time Instructors	Chaya, Rima; Kanaan, Nivine; Kahhale, Joesph

Departmental courses are designed to introduce students to the principles and practices in the field of health management and policy, with an emphasis on managerial functioning in healthcare organizations. The department offers a few undergraduate courses in health administration and contributes to courses catered to major and minor programs.

Course Descriptions

HMPD 204 Introduction to Health Services Administration 3.0; 3 cr.
This course offers an in-depth examination of the diverse components that form a health system. It provides an opportunity to describe and analyze how provider settings, healthcare personnel, financial resources, technology, and the government interact to meet and serve the healthcare needs of populations. This course includes a “service learning” component through which students will engage with a predetermined organization to identify and address a public health problem. This opportunity will allow students to “share” and “receive” knowledge and expertise leading to enhanced learning among students and benefit to the chosen organization. This course is based on Service Learning (SL), a pedagogical approach that combines academic instruction, meaningful service to the community and critical reflective thinking to enhance student learning and social responsibility. Not open to sophomores and first year students in all faculties.

Center for Public Health Practice (CPHP)

Director	Germani, Aline
Instructors of Public Health Practice	Kalot, Joumana; Najem, Martine

The Center for Public Health Practice advances evidence-based public health practice in Lebanon and the region. It creates opportunities for innovation and engagement that enrich the academic experience of students and faculty. The center nurtures the culture of collective responsibility, partnership building, diversity, and social justice.

Within the framework of its mission, CPHP has adopted the following strategic goals:

- Generate and disseminate knowledge to inform public health practice, research, policy, and curriculum.
- Respond to public health priorities and emerging crisis through innovative programming and sustained partnerships for health and development.
- Lead the field of workforce development in public health locally and regionally.
- Establish platforms for meaningful community engagement of FHS students, faculty, and staff.

CPHP collaborates closely with a variety of partners including national, regional, and international entities such as academic institutions, ministries, UN agencies, NGOs, municipalities, and local communities in Lebanon and throughout the Arab world.

CPHP Tracks

- Training and Workforce Development; in person and e-courses
- Evaluation of Programs/Implementation Research
- Designing Health and Development Programs
- Documenting Best Practices/Knowledge Dissemination
- Developing Resource Material
- Organizing and Delivering Courses for Students
- Creating joint courses and programs with other faculties and universities

CPHP Themes

Youth development, refugee health, sexual and reproductive health, maternal and child health, ageing, health communication, school health and environment, tobacco, child protection and child rights, gender, and gender-based violence, NGO management, among others.

CPHP Reach

Egypt, Iraq, Jordan, Kuwait, Libya, Oman, Syria, Tunisia, Lebanon.

Center for Research on Population and Health (CRPH)

Director	McCall, Stephen
Instructors of Public Health Practice	Akl, Christelle; Saad, Ghada
Assistant Research Professor	Hajj, Samar
Affiliates	Fahme, Sasha; Millet, Christopher; Abi Zeid, Berthe

The Center for Research on Population and Health (CRPH) leads and supports methodologically robust research at the intersection of population and health to improve the health and well-being of populations in Lebanon, the Arab region and globally.

CRPH is a hub for high-impact population and health research. We invest in people through training and capacity building and provide infrastructure for the conduct of rigorous research.

The center promotes interdisciplinary research and innovative approaches to research, and fosters exchanges and collaborations among AUB faculty, graduate students, and colleagues in the Arab region and beyond through conferences, workshops, and seminars.

The center hosts MPH practicum students, MS thesis projects and provides students and researchers at FHS with support in survey development and data management and analyses; access to regional data sets; and support for new areas of research. CRPH also hosts researchers who wish to visit the Faculty of Health Sciences with the goal of collaborating with FHS faculty or of pursuing innovative research or writing activities.

Knowledge to Policy Center (K2P)

Director	El-Jardali, Fadi
Instructors of Public Health Practice	Abou Samra, Clara; Bou Karroum, Lama; Fadlallah, Racha; Jamal, Diana

Knowledge to Policy (K2P) Center draws on an unparalleled breadth of synthesized evidence and context-specific knowledge by producing briefs and conducting policy dialogues to impact policy agendas and action. K2P produces high quality policy products to help policymakers and stakeholders have the clearest understanding of the most important messages, options, and recommendations to address pressing health and social system problems.

K2P harnesses the best available evidence on pressing health and social systems priorities; convenes concerned policy makers, stakeholders, thinkers, researchers, and doers; and prepares leaders to meet pressing health issues by building their capacity in public policymaking.

The K2P team comprises the director, an assistant director for operations, senior scientific officer, research manager, program manager, communication officer, project coordinators, and several specialists.

K2P Functions and Activities

- Inform the production, packaging and sharing of research data and evidence in an objective manner and based on current and emerging policymaking priorities.
- Utilize a rapid response system to inform policymaking in an objective manner using the best available evidence that can be prepared and packaged within time and resource constraints.
- Conduct evidence informed advocacy and support implementation in policy and practice.
- Conduct policy tracing research and develop models for knowledge translation that are context-specific, culturally appropriate, relevant, and effective for the region.
- Support research networks, civil society, researchers, policy makers and the media.
- Engage with citizens to enhance their involvement in the decision and policymaking process on high priority issues.
- Build the capacity of researchers, policymakers and media in knowledge translation (KT) and evidence communication methods to influence policy, practice, and action.
- K2P develops a diverse set of KT products including K2P Policy Briefs, K2P Briefing Notes, K2P Rapid Response, K2P Evidence Summaries, K2P Dialogue Summaries, K2P Policy Memo, K2P Citizens Consultation Summary, and K2P Media Bites. The center also published the K2P Crisis Chronicles, the K2Parliament Series and the K2P COVID19 Series Initiative in response to pressing national and global policy priorities, The center also launched the K2P Mentorship Program that supports research and policy organizations in the six regions of the World Health Organization (WHO).

Collaborations

K2P collaborates with national and international partners including Center for Systematic Reviews on Health Policy and Systems Research (SPARK) and Issam Fares Institute for Public Policy and International Affairs (IFI) at the American University of Beirut; and McMaster Health Forum in Canada and the Evidence Informed Policy Network (EVIPNet) at the World Health Organization (WHO) in Geneva.

WHO Collaborating Center for Evidence-Informed Policy and Practice

Since 2015, the World Health Organization (WHO) has designated K2P Center thrice as a WHO Collaborating Center for Evidence-Informed Policy and Practice. This designation, which has been in effect for three consecutive four-year term, is unique since the K2P Center is the only WHO Collaborating Center for Evidence-Informed Policy and Practice in Lebanon and the region, and is the second center of its kind globally after McMaster Health Forum in Canada.

The Center for Systematic Reviews on Health Policy and Systems Research (SPARK)

Co-Directors	El-Jardali, Fadi; Akl, Elie

The Center for Systematic Reviews on Health Policy and Systems Research (SPARK) at the American University of Beirut (AUB) is a joint collaboration between the Faculty of Health Sciences (FHS) and the Faculty of Medicine (FM). SPARK Center was appointed as the General Secretariat of the Global Evidence Synthesis Initiative (GESI).

SPARK specializes in the production of high-quality and timely systematic reviews and rapid reviews that respond to health policy and systems research priority issues at the national and the regional level. SPARK also invests in developing individual and institutional capacity in the region in conducting systematic reviews and rapid reviews of health policy and systems research.

SPARK Activities

- Conduct priority setting exercises with policymakers and other stakeholders, researchers, and civil society to prioritize review topics on health policy and systems research.
- Produce timely systematic reviews and rapid reviews on prioritized topics and review questions.
- Hold national and regional capacity-building workshops to develop individual and institutional capacities in conducting different types of research evidence syntheses.
- Prepare SUPPORT summaries and hold deliberative dialogues to promote the uptake of evidence from systematic reviews and rapid reviews into policies.
- Contribute to the methodology of research synthesis and knowledge production.

SPARK develops a diverse set of products including systematic reviews, rapid reviews, scoping reviews, SUPPORT summaries, and evidence gap maps.

Collaborations

SPARK collaborates with the Knowledge to Policy (K2P) Center and the AUB GRADE Center at the American University of Beirut.

Faculty of Health Sciences (FHS)

Undergraduate