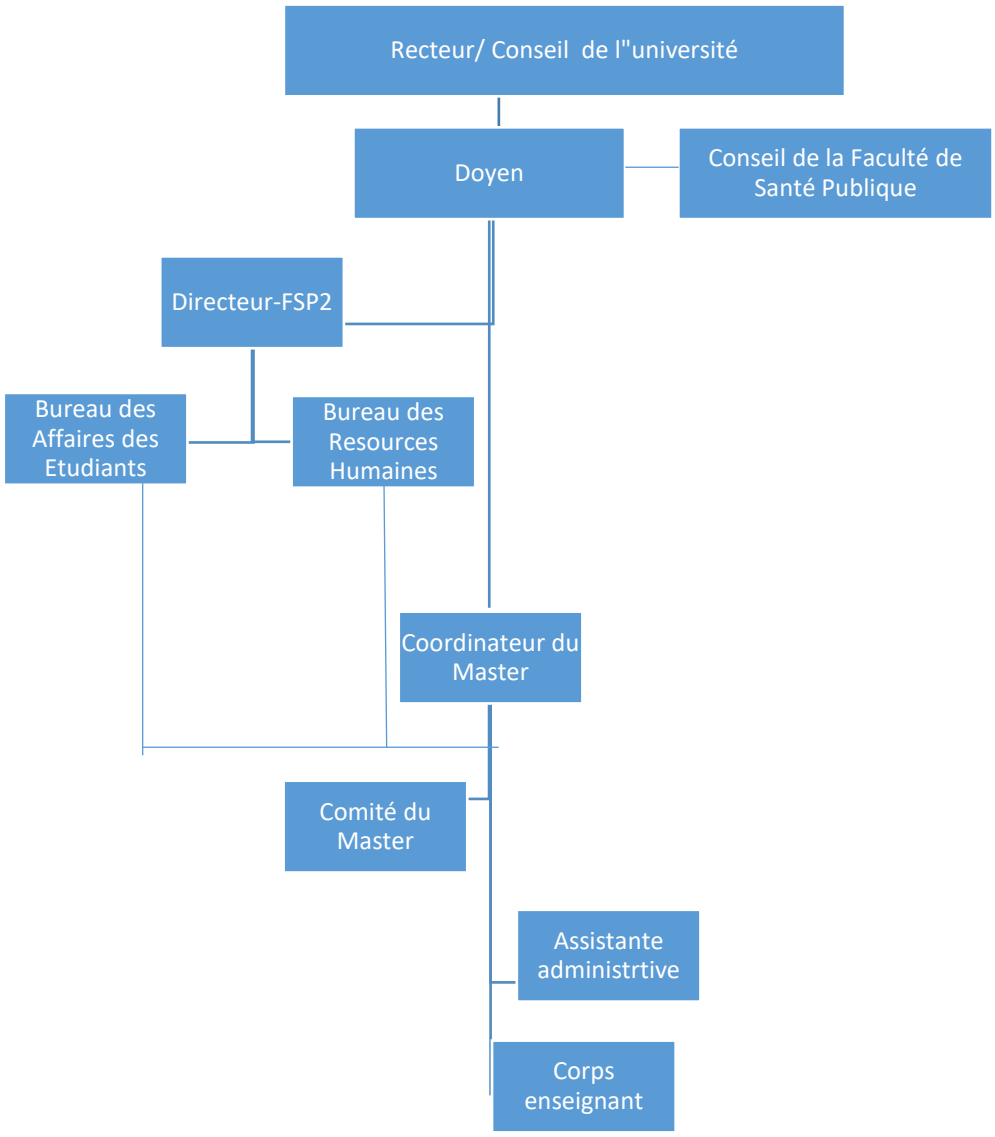
Program	Graduate Program: Master's in Bio-Health: Interactions Host-Infectious agent	Date	30-5-2021
		Department Head	Nabil Haddad

Insert program administrative flowchart/ one for All UNDERGRAD and one for every specialty



A. Program Identification and General Information				
1. Program title	**Master in Bio-Health: Host-Infectious agent Interactions**		Program Code	
2. Total credit hours needed for completion of the program	**120 credits /1092 h (including 450 hours of research internship)**			
3. Award granted on completion of the program				
Master degree in Bio-Health				
4. (a) New Program	N.A		Planned starting date	N.A
(b) Existing Program	Yes	Year of most recent major program review		N.A
5. Name of program chair or coordinator.	Nabil Haddad			
6. Date of approval by the authorized body	September 14, 2015			

B. Program Context

1. Explain why the program was established.

a. Summarize economic reasons, social or cultural reasons, technological developments, national policy developments or other reasons.

This program was established to answer a national and global need for scientifically qualified human resources working on infectious diseases: fundamental knowledge, surveillance and control. Their objectives include but not be limited to :

- Develop research activities related to host-pathogen interactions
- monitoring of infectious agents and their impact on public health
- development of control strategies including vaccination
- conducting related research to advance knowledge in the field .

By answering these needs, this program opens avenues for candidates to join related national and international PhD programs to form qualified human resources potentially involved in fundamental and applied research specifically in health field.

b. Explain the relevance of the program to the mission and goals of the institution.

This Master program is at the core of the missions of the Lebanese University at large and that of the Faculty of Public Health in particular. Indeed:

- The Lebanese University is the only public institution in Lebanon devoted to public higher education, scientific research and continuous training. Its goals include the dissemination of knowledge; the provision of scientifically qualified human resources; community service through studies and continuous training to meet the needs of development and scientific presence at the national, regional and global levels.

- The Faculty of Public Health aims at educating specialists in health, social and environmental fields in addition to research development in the health sector.

2. Relationship (if any) to other programs offered by the institution/college/department.

a. Does this program offer courses that students in other programs are required to take?	□ Yes X No

If yes, what has been done to make sure those courses meet the needs of students in the other programs?

-

b. Does the program require students to take courses taught by other departments?	□ Yes X No

If yes, what has been done to make sure those courses in other departments meet the needs of students in this program?

-

3. Do students who are likely to be enrolled in the program have any special needs or characteristics? (e.g. Part time evening students, physical and academic disabilities, limited IT or language skills).	□ Yes x No

-

4. What modifications or services are you providing for special needs applicants?

- Access to physically disabled students (specified parking places, wheelchair access settings)

C. Mission, Goals and Objectives

1. Program Mission Statement (insert)

This two-year Master's program is designed to broadly train highly skilled specialists in the field of research on Infectious agents with a special focus on the mechanism of their pathogenicity and control strategies. The program is also designed to prepare students to display leadership and initiative in advancing knowledge and know-how on infectious agents in order to join competitive PhD programs. Their expected role is to develop research project to understand the behaviour of pathogens in host cells and to assess their impact of the population.

2. List Program Goals (e.g. long term, broad based initiatives for the program, if any)

Instructional goals

To prepare students to be an exemplary scientist with a broad knowledge background related to the biology of infectious agents, their public health impact and their control methods

Research goal

The Master of Bio-Health program aims to engage students in research to generate evidence-based knowledge on host-infectious agent interactions for better understanding of diseases mechanisms and development of control methods

Service goal

Provide qualified human resources for the research community and for Health authorities able to conduct specific studies on health relevant topics in infectious diseases.

3. List major objectives of the program within to help achieve the mission. For each measurable objective describe the measurable performance indicators to be followed and list the major strategies taken to achieve the objectives.

Measurable Objectives	Measurable performance indicators	Strategies
-Provide and develop student knowledge with fundamentals of Infectious agents and their impact on population health	Quality of courses Qulaity of students learning Student performance Number of faculty members with doctorate qualifications	Surveys for students Surveys for professor Students grades
-Enable student to explore the infectious agent-host interaction mechanisms and host mechanisms of defense		
Train students to scientific critical analysis and research approach: Raise a scientific question, emit hypothesis, design and implement experimental protocols, analyze obtained results and validate/reject hypothesis.	Research paper analysis and discussion Propose a research project	Oral presentation of papers and projects Writing research papers/project proposal
Allow integration and practical application of the learned competencies by conducting practical research projects and in-class projects	Performance of a research project in a research laboratory	Research report/manuscript Research project defense Survey of research director's opinion

D. Program Structure and Organization

1. Program Description: List the core and elective program courses offered each semester from First Year to graduation using the below Curriculum Study Plan Table

Curriculum Study Plan Table

* Prerequisite – list course code numbers that are required prior to taking this course.

Semester #	**Course Code**	**Course Title**	**Required or Elective**	* Prerequisite Courses	**Credit Hours**
S1	**BIOC M1100**	**Advanced Biochimestry (28h)**	**Required**	N. A	**4**

	BIMO M1100	**Advanced Molecular Biology (28h)**	**Required**	N. A	**4**
	EPID M1101	**Epidemiology (28h)**	**Required**	N. A	**4**
	BIOS M1101	**Biostatistics (28h)**	**Required**	N. A	**4**
	INFO M1102	**Survey analysis using SPSS (21h)**	**Required**	N. A	**3**
	INFE M1100	**Molecular basis of infectious diseases (28h)**	**Required**	N. A	**4**
	PHCE M1100	**Cell physiology (28h)**	**Required**	N. A	**4**
	REME M1100	**Initiation to scientific research (21h)**	**Required**	N. A	**3**
S2	**NESC M2100**	**Neurosciences (28h)**	**Required**	N. A	**4**
	BIOI M2100	**Bioinformatic (28h)**	**Required**	N. A	**4**
	MICB M2100	**Microbiology pathology (28h)**	**Required**	N. A	**3**
	ECOL M2100	**Microbial Ecology (21h)**	**Required**	N. A	**3**
	SICE M2100	**Cell signaling (28h)**	**Required**	N. A	**4**
	IMMU M2100	**Integrated and fundumental Immunology (28h)**	**Required**	N. A	**4**
	PHAR M2100	**Pharmacology (28h)**	**Required**	N. A	**4**
	ANGL M2103	**Scientific English (21h)**	**Required**	N. A	**3**
S3	**IFSP M3100**	**Infectious agents and public health (28h)**	**Required**	N. A	**4**
	IFPA M3100	**Host-parasite molecular and cellular interactions (28h)**	**Required**	N. A	**4**

	IFVB M3100	**Host-virus and Host-bacteria molecular and cellular interactions (28h)**	**Required**	N. A	**4**
	IFVT M3100	**Vaccines and anti-infectious therapies (42h)**	**Required**	N. A	**6**
	EPID M3105	**Epidemiology: methods and research applications (28h)**	**Required**	N. A	**4**
	GENF M3100	**Functional genomics (21h)**	**Required**	N. A	**3**
	REME M3109	**Design of a research project (21h)**	**Required**	N. A	**3**
	MEXP M3100	**Experimental models (20h)**	**Required**	N. A	**2**
S4	**BISA M4100**	**Research internship (450 h)**	**Required**	Pass all courses	**30**

2. Required Field Experience Component (if any) (e.g. internship, cooperative program, work experience)

Summary of practical, clinical or internship component required in the program. Note: see Field Experience Specification

a. Brief description of field experience activity

The only required field activity within this program is to conduct a research project within a research facility. The description of the research project is developed below in section 3.

b. At what stage or stages in the program does the field experience occur? (e.g. year, semester)

M2, S4

c. Time allocation and scheduling arrangement.

5-6 months

d. Number of credit hours (if any)

30 credits/450 hours

3. Project or Research Requirements (if any)

Summary of any thesis requirement in the program. (Other than projects or assignments within individual courses)

a. Brief description.

In order to fulfill the program requirement, the student has to conduct a research project related to infectious diseases/infectious agents within a research facility. Under the supervision of an experienced research director, the student is requested to elaborate a research question, design and implement an appropriate experimental protocol, record and analyze obtained results. The student is requested to present his research at the end of his research internship in the form of a thesis. Thesis has to be written following scientific writing rules in terms of sections structure (IMRaD) and referencing requirement.

b. List the major intended learning outcomes of the project or research task.

Following the completion of the research project, the student should be able to:

- define a research question
- Search and collect published data related to the research topic
- Design experimental protocol
- Acquire technical/ bench skills
- Record and validate results
- Develop scientific writing skills

c. At what stage or stages in the program is the project or research undertaken? (e.g. level)

M2, S4

d. Number of credit hours (if any)

30 credits

e. Description of academic advising and support mechanisms provided for students to complete the project.

Several advising and guiding mechanisms exist to accompany students during the research project:

advising to understand and choose the research topic provided by program coordiantor.

- Technical and scientific support provided by the research team of the host facility (assistants, peer students, PhD students, post-docs and scientists)

- Guidance in the form of a thesis writing manual describing the thesis divisions and standard format.

- Access to online sources provided by the program through the academic institution

-Access to the Library of the Faculty of Public Health

f. Description of assessment procedures (including mechanism for verification of standards)

The assessement of the student performance during his research project is done by a jury of scientists. Assessment of the student covers the :

- Quality of the manuscript presenting the research work performed.
- Critical analysis of the student that appears in the discussion of the obtained results.
- Communication skills to present his project and obtained results during defense session
- Acquired topic related Knowledge during the Question/Answer sequence of the defense session.

Learning Outcomes in Domains of Learning, Assessment Methods and Teaching Strategy

Program Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning and teaching.

First, insert the suitable and measurable learning outcomes required in each of the learning domains. **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each program learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process.

	NQF Learning Domains and Learning Outcomes	**Teaching Strategies**	**Assessment Methods**
01	**Knowledge**		
1.1	Advanced knowledge in basic biology sciences including physiology, biochemistry, cell biology, molecular biology, pharmacology .	- Didactic courses - hands-on training in epidemiology, biostatistics and survey analysis - research paper analysis	-Exams, Tests - case studies -Research paper presentation - Exercice solving
1.2	cutting-edge education in the fields of immunology, microbiology, infectious diseases and host-pathogen interactions		
1.4	Deep understanding of Impact of microbial agents on public health, control strategies and challenges		
1.5	Updated insight in Vaccines and immunotherapy		
1.6	sound education in Epidemiology and related disciplines		
02	**Know - How**		
2.1	scientific critical analysis: students should be able to demonstrate critical thinking, assess study feasibility, understand research limitations and explore alternative approaches	- Formal course in initiation to scientific research - Scientific paper presentation and analysis - Training to research project writing - Internship in a research facility providing a rigourous training under the supervision of a researcher. - Presentations of reseach subject, progress and results - The capstone of the training is a thesis dissertation	- Thesis defense - Groupe Presentation of research projects - Exams and tests
2.2	Initiation to research: students should be able to: raise a scientific question, emit hypotheses, set research objectives, design research protocols, conduct epidemiological and experimental research and critically analyze results.		
2.3	Students should be able to demonstrate excellence in oral and written comunication		
2.4.	Handling of small laboratory animals		

		- Laboratory sessions on laboratory animal handling	
03	**Social Skills**		
	Team work	Research paper group presentation Group Writing of a research project Ethical considerations in research projects involving human and animal sampling.	Oral presentationof group work Grading of student social and communication skills by the research project director
	Social integration		
	Bioethics and humane behaviour		
	Communication skills		

Program Learning Outcomes Mapping Matrix

Identify on the table below the courses that are required to achieve the program learning outcomes. Insert the program learning outcomes, according to the level of instruction, from the above table below and indicate the courses and levels that are required to teach each one; use your program's course numbers across the top and the following level scale. Levels: I = Introduction P = Proficient A = Advanced (see help icon)

See Matrix below

5. Admission Requirements for the program

The student must have earned a BS degree in one of the following fields: Biology, Biochemistry, Medical Laboratory Sciences.

6. Attendance and Completion Requirements

Attendance is mandatory with an allowed absence not exceeding 20% of courses' hours.

E- Student Administration and Support

1. Student Academic Counselling

Describe arrangements for academic counselling and advising for students, including both scheduling of faculty office hours and advising on program planning, subject selection and career planning (which might be available at college level).

- A counseling meeting between program coordinator and students is held at the beginning of each academic year. It aims to explain content of the program, aims and regulations.
- A counseling meeting between program coordinator and students is held after the definition of research projects list. This meeting aims to help students to choose their research project and to answer students' questions on the research internship requirements.

- Meeting between student and instructors or program coordinator are arranged upon student request.

G. Learning Resources, Facilities and Equipment

1a. What processes are followed by faculty and teaching staff for planning and acquisition of textbooks, reference and other resource material including electronic and web based resources?

Instructors have access to internet resources, specialized databases through exclusive access to online resources provided by the University. Textbooks are defined in the course syllabus. Both textbooks and reference books are pre-ordered through the faculty library.

1b. What processes are followed by faculty and teaching staff for planning and acquisition resources for library, laboratories, and classrooms.

A formal request is filled by the instructor. It is sent to the coordinator who will forward, after approval, all requests to the section's director where all requests, form all faculty programs are centralized. All these requests are sent to the Library head who process all requests by emitting purchase order from designated distributors/editors.

1.c What processes are followed for textbook acquisition and approval?

Textbooks are predefined in the syllabus. Their order should be approved by the program coordinator and Faculty section director

H. Faculty and other Teaching Staff

1.Appointments

Summarize the process of employment of new faculty and teaching staff to ensure that they are appropriately qualified and experienced for their teaching responsibilities.

A call for job vacancies is officially published on the university website. Applications are centralized at the deanship. A committee of specialists studies and grades each application based on academic and experience records. Shortlisted applicants are invited to make an oral presentation developing their teaching and research activities. The final selection will take into consideration the oral presentation and application assessment.

2. Participation in Program Planning, Monitoring and Review

a. Explain the process for consultation with and involvement of teaching staff in monitoring program quality, annual review and planning for improvement.

Formally, the program committee is responsible for reviewing the program and monitoring its quality and improvement. This is fulfilled through regular assessement meetings. The program quality is regularly assessed using surveys distributed to students and instructors. The anlysis of these surveys allows to highlight the gaps in order to suggest an improvement plan. The Bio-Health program, has been established in 2015. Selective modifications have been undertaken in the syllabus of some courses based on the recommendation formulated by staff and students. A major revision of the program should is to be planned in the coming 2 years.

3. Professional Development

What arrangements are made for professional development of faculty and teaching staff for:
a. Improvement of skills in teaching and student assessment?

At the central level, the university is committed to offer opportunities for staff of all faculties by providing continuous education and professional development possibilities through webinars and workshops in different topics. This is mainly done through the activities of the MINE center. Invitation to attend such activities reach all Lebanese University staff via regular email and newsletter. Lately several activities have taken place related to online teaching. Moreover, workshops on academic performance in terms of new teaching methods and the use of adapted assessement tools have also been offered.

b. Other professional development including knowledge of research and developments in their field of teaching specialty?

The Lebanse university provide travel funding to full-time staff wishing to perform research or training in a host academic institutions. Besides, all faculties can apply to specific national, European and other international agencies (CNRS-L, AUF, Institut Français, Fulbright program,….) to request funding to conduct research or for academic exchange programs.

4. Preparation of New Faculty and Teaching Staff

Describe the process used for orientation and induction of new, visiting or part time teaching staff to ensure full understanding of the program and the role of the course(s) they teach as components within it.

New instructors are advised on the content and implementation of the syllabus during individual meetings with the program coordinator

I. Program Evaluation and Improvement Processes

1. Effectiveness of Teaching

What QA processes are used to evaluate and improve the strategies for developing learning outcomes in the different domains of learning?

Satisfaction surveys are conducted yearly among students, graduates, staff and alumni. These surveys are used to assess the program learning outcomes in terms of knowledge, know-how and social skills.

2. Overall Program Evaluation

a. What strategies are used in the program for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes:

(i) From current students and graduates of the program?

Students and graduates are requested to respond to a specific satisfaction questionnaire.

Authorized Signatures

Name	**Title**	**Signature**	**Date**
Nabil Haddad	**Program coordinator**		

Program Learning Outcomes Mapping Matrix

		Course Offering																								
	NQF Learning Domains and Learning Outcomes	**BIOC M1100**	**BIMO M1100**	**BIOI M2100**	**PHCE M1100**	**NESC M2100**	**PHAR M2100**	**SICE M2100**	**EPID M1101**	**BIOS M1101**	**INFO M1102**	**INFE M1100**	**REME M1100**	**MICB M2100**	**ECOL M2100**	**REM M3109**	**IMMU M2100**	**ANGL M2103**	**EPID M3105**	**IFSP M3100**	**, IFVB M3100**	**IFPA M3100**	**IFVT M3100**	**MEXP M3100**	**GENF M3100**	**BISA M4100**
01	**Knowledge**																									
01.1	Acquire knowledge in basic biology sciences including physiology, biochemistry, cell biology, molecular biology, pharmacology .	**A**	**A**		**A**	**A**	**A**	**A**	**P**					**P**											**A**	
01.2	Cutting-edge education in the fields of immunology, microbiology, infectious diseases and host-pathogen interactions						**I**		**P**			**A**		**A**	**A**		**A**			**P**	**A**	**A**	**A**	**A**		
01.3	Deep understanding of Impact of microbial agents on public health, control strategies and challenges						**I**		**I**					**A**	**A**				**P**	**A**	**P**	**I**	**P**			
01.4	Updated insight in Vaccines and immunotherapy						**I**		**A**												**P**		**A**	**P**		
01.5	Sound education in Epidemiology and related disciplines								**P**	**P**	**P**								**A**							
02	**Know - How**																									

02.1	scientific critical analysis: students will be formed to demonstrate critical thinking, assess study feasibility, understand research limitations and explore alternative approaches	**I**	**P**	**P**	**P**	**P**	**A**	**A**	**A**	**I**	**I**	**P**	**A**			**P**	**P**	**P**	**A**	**A**	**A**	**A**	**A**	**P**	**A**	**A**
02.2	Initiation to research: students should become able to: Raise a scientific question, emit hypotheses, set research objectives, design research protocols, conduct epidemiological and experimental research and critically analyze results.			**P**	**I**		**A**	**A**	**I**	**P**	**P**		**P**			**A**		**A**	**A**	**I**	**I**	**I**	**A**	**P**		**A**
02.3	Determine appropriate sampling method and size, Perform statistical analysis and data validation						**I**		**P**	**P**	**P**		**I**			**I**			**I**							**P**
02.4	Students should be able to demonstrate excellence in oral and written communication		**P**			**P**	**A**			**I**	**I**	**P**	**A**	**P**		**A**	**P**	**A**	**P**	**A**	**P**		**A**	**P**	**A**	**A**
02.5	Handling of small laboratory animals															**I**								**P**		**P**
03	**Social Skills**								**P**																	
03.1	Team work		**A**				**A**			**I**	**I**		**A**	**I**				**A**		**P**	**P**		**A**	**I**		**P**
03.2	Bioethics and humane behaviour						**P**						**P**										**P**			**P**
03.3	Communication skills		**A**		**P**	**P**	**A**	**P**	**P**	**I**	**I**	**P**	**A**	**I**			**P**	**A**		**A**	**P**	**A**	**A**	**I**	**A**	**A**