Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) Programs in Life Science

Curriculum for Master of Philosophy (MPhil) Program in Life Science

The Master of Philosophy (MPhil) program enables students to acquire the experience and knowledge required for research on life science projects. While an original contribution to life science knowledge is not a prerequisite to the completion of the MPhil degree, the attainment of scientific competence is important. The aim of the MPhil program is to train qualified postgraduate students who can conduct supervised research in life science. Students with a first degree in an area not directly related to life science may be required to take additional courses.

To fulfill the degree requirements, students are expected to attend seminars organized in each regular term and present seminars as required, undertake coursework, and conduct thesis research. In the final stage of study, students are required to submit a thesis to the Division and, subsequently, to present and defend it.

Specific program requirements are:

- 6 credits of coursework from the following course list, of which no more than 3 credits of 4000-level courses:

ENVS	6012	Special Topics in Environmental Science
LIFS	4060	Immunology
LIFS	4090	Developmental Biology
LIFS	4140	Tumor Biology
LIFS	4150	Plant Biotechnology
LIFS	4170	Advanced Molecular Genetics
LIFS	4190	Advanced Cell Biology
LIFS	4360	Aquaculture Biotechnology
LIFS	4370	Human Genetics and Personalized Medicine
LIFS	4380	Pharmacology and Toxicology
LIFS	4540	Structure and Function of Proteins
LIFS	4550	Biochemistry of Nutrition
LIFS	4580	Bioinformatics
LIFS	4620	Advanced Biological Chemistry
LIFS	4630	Advanced Topics in Biotechnology
LIFS	4760	Biochemistry of Diseases
LIFS	4950	Neurochemistry
LIFS	5001	Responsible Conduct of Biomedical and Biotechnology Research
LIFS	5070	Workshops in Biosciences
LIFS	5120	Advanced Topics in Biophysical Chemistry
LIFS	5240	Molecular and Developmental Neurobiology
LIFS	5260	Biochemical and Molecular Basis of Diseases
LIFS	5320	Ecotoxicology
LIFS	5710	Cellular Regulation
LIFS	6170	Special Topics in Molecular, Cell and Developmental Biology

LIFS	6660	Molecular Medicine
LIFS	6800	Frontier in Non-coding RNA

Plus:

- Completion of and passing LIFS 6770 Professional Development in Science (Life Science) (2 credits). Students are expected to complete the course in their first year of study. The maximum time allowed for course completion is two years for full-time students, or three years for part-time students. The credits earned from LIFS 6770 cannot be counted toward the credit requirements;
- Taking and passing LANG 5010 Postgraduate English for Science Studies (1 credit) in the first year of study;
- Taking and passing LIFS 6111 Life Science Postgraduate Student Seminar[1] throughout the residency; maximum number of credits to be earned from this course is 2;
- Taking and passing LIFS 6410 Seminar Enrichment Course throughout the residency; maximum number of credits to be earned from this course is 2;
- Registration in LIFS 6990 MPhil Thesis Research; and
- Presentation and oral defense of the MPhil thesis.

No credit transfer will be allowed.

Molecular Medicine Concentration

For students who opt for the Molecular Medicine concentration, specific program requirements are:

- 3 credits of coursework from the following course list:

ENVS	6012	Special Topics in Environmental Science
LIFS	4060	Immunology
LIFS	4090	Developmental Biology
LIFS	4140	Tumor Biology
LIFS	4150	Plant Biotechnology
LIFS	4170	Advanced Molecular Genetics
LIFS	4190	Advanced Cell Biology
LIFS	4360	Aquaculture Biotechnology
LIFS	4370	Human Genetics and Personalized Medicine
LIFS	4380	Pharmacology and Toxicology
LIFS	4540	Structure and Function of Proteins
LIFS	4550	Biochemistry of Nutrition
LIFS	4580	Bioinformatics
LIFS	4620	Advanced Biological Chemistry
LIFS	4630	Advanced Topics in Biotechnology

Note 1: Students with research focus in Marine and Environmental Science may take ENVS 6011 Postgraduate Seminar to substitute LIFS 6111.

LIFS	4760	Biochemistry of Diseases
LIFS	4950	Neurochemistry
LIFS	5001	Responsible Conduct of Biomedical and Biotechnology Research
LIFS	5070	Workshops in Biosciences
LIFS	5120	Advanced Topics in Biophysical Chemistry
LIFS	5240	Molecular and Developmental Neurobiology
LIFS	5260	Biochemical and Molecular Basis of Diseases
LIFS	5320	Ecotoxicology
LIFS	5710	Cellular Regulation
LIFS	6170	Special Topics in Molecular, Cell and Developmental Biology
LIFS	6800	Frontiers in Non-coding RNA

Plus:

- Completion of and passing LIFS 6770 Professional Development in Science (Life Science) (2 credits). Students are expected to complete the course requirements in their first year of study. The maximum time allowed for course completion is two years for full-time students, or three years for part-time students. The credits earned from LIFS 6770 cannot be counted toward the credit requirements;
- Taking and passing LANG 5010 Postgraduate English for Science Studies (1 credit) in the first year of study;
- LIFS 6660 Molecular Medicine;
- Taking and passing LIFS 6111 Life Science Postgraduate Student Seminar[1] throughout the residency; maximum number of credits to be earned from this course is 2;
- Taking and passing LIFS 6410 Seminar Enrichment Course throughout the residency; maximum number of credits to be earned from this course is 2;
- Registration in LIFS 6990 MPhil Thesis Research;
- Conduct research in the area of molecular medicine; and
- Presentation and oral defense of the MPhil thesis.

Note 1: Students with research focus in Marine and Environmental Science may take ENVS 6011 Postgraduate Seminar to substitute LIFS 6111.

Curriculum for Doctor of Philosophy (PhD) Program in Life Science

The Doctor of Philosophy (PhD) program aims to prepare students through completion of a research project, to become independent scientists capable of the design, initiation and execution of original research. This program will train students to prepare and publish their main findings in peer-reviewed international journals and are ready to independently conduct advanced-level research projects by the time of their graduation. Students with a first degree in an area not directly related to life science may be required to take additional courses.

To fulfill the degree requirements, students are expected to attend seminars organized in each regular term and present seminars as required, undertake coursework, and conduct thesis research. Students are also required to pass a qualifying examination set by the Division. In the final stage of study, students are required to submit a thesis and, subsequently, to present and defend it.

Specific program requirements are:

- 9 credits of coursework from the following course list, of which no more than 3 credits of 4000-level courses:

ENVS	6012	Special Topics in Environmental Science
LIFS	4060	Immunology
LIFS	4090	Developmental Biology
LIFS	4140	Tumor Biology
LIFS	4150	Plant Biotechnology
LIFS	4170	Advanced Molecular Genetics
LIFS	4190	Advanced Cell Biology
LIFS	4360	Aquaculture Biotechnology
LIFS	4370	Human Genetics and Personalized Medicine
LIFS	4380	Pharmacology and Toxicology
LIFS	4540	Structure and Function of Proteins
LIFS	4550	Biochemistry of Nutrition
LIFS	4580	Bioinformatics
LIFS	4620	Advanced Biological Chemistry
LIFS	4630	Advanced Topics in Biotechnology
LIFS	4760	Biochemistry of Diseases
LIFS	4950	Neurochemistry
LIFS	5001	Responsible Conduct of Biomedical and Biotechnology Research
LIFS	5070	Workshops in Biosciences
LIFS	5120	Advanced Topics in Biophysical Chemistry
LIFS	5240	Molecular and Development Neurobiology
LIFS	5260	Biochemical and Molecular Basis of Diseases
LIFS	5320	Ecotoxicology
LIFS	5710	Cellular Regulation
LIFS	6170	Special Topics in Molecular, Cell and Developmental Biology
LIFS	6660	Molecular Medicine
LIFS	6800	Frontiers in Non-coding RNA

Plus:

- Completion of and passing LIFS 6770 Professional Development in Science (Life Science) (2 credits). Students are expected to complete the course requirements in their first year of study. The maximum time allowed for course completion is two years for full-time students, or three years for part-time students. HKUST MPhil (LIFS) graduates who have taken and passed this course before may be exempted from this requirement, subject to prior approval from the Division Head and PG Coordinator. The credits earned from LIFS 6770 cannot be counted toward the credit requirements;
- Taking and passing LANG 5010 Postgraduate English for Science Studies (1 credit) in the first year of study. HKUST MPhil graduates may be considered for exemption from this requirement, subject to prior approval from the Division Head and PG Coordinator;
- PhD students admitted without an HKUST MPhil degree in Life Science are required to take and pass one of the courses* listed below in each of the first four regular terms of study, followed by LIFS 6111 Life Science Postgraduate Student Seminar* starting from the fifth term in each regular term throughout the residency:

LIFS	6112	Current Topics in Neuroscience
LIFS	6113	Current Topics in Biochemistry and Biophysics
LIFS	6114	Current Topics in Biotechnology and Traditional Chinese Medicine
LIFS	6115	Current Topics in Development and Systems Biology
LIFS	6116	Current Topics in Genomics and Bioinformatics
LIFS	6117	Current Topics in Cell Biology

  Each course can be taken repeatedly in different terms. Students who fail a course are required to retake the course in a subsequent term. LIFS 6111 taken before the 2017/18 academic year can be used to replace any of these courses;
- Those admitted with an HKUST MPhil degree in Life Science are required to take and pass LIFS 6111 Life Science Postgraduate Student Seminar* in each regular term throughout the residency;
- Taking and passing LIFS 6410 Seminar Enrichment Course throughout the residency; maximum number of credits to be earned from this course is 4 for PhD students. Students who have taken the HKUST MPhil (LIFS) program will be granted credit transfer of up to 1 credit from LIFS 6410 to the PhD program;
- Passing a comprehensive qualifying examination;
- Registration in LIFS 7990 Doctoral Thesis Research; and
- Presentation and oral defense of the PhD thesis.

Molecular Medicine Concentration

For students who opt for the Molecular Medicine concentration, specific program requirements are:

- 3 credits of coursework from the following course list:

ENVS	6012	Special Topics in Environmental Science
LIFS	4060	Immunology
LIFS	4090	Developmental Biology
LIFS	4140	Tumor Biology
LIFS	4150	Plant Biotechnology
LIFS	4170	Advanced Molecular Genetics
LIFS	4190	Advanced Cell Biology
LIFS	4360	Aquaculture Biotechnology
LIFS	4370	Human Genetics and Personalized Medicine
LIFS	4380	Pharmacology and Toxicology
LIFS	4540	Structure and Function of Proteins
LIFS	4550	Biochemistry of Nutrition
LIFS	4580	Bioinformatics
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LIFS	5001	Responsible Conduct of Biomedical and Biotechnology Research
LIFS	5070	Workshops in Biosciences
LIFS	5120	Advanced Topics in Biophysical Chemistry
LIFS	5240	Molecular and Development Neurobiology
LIFS	5320	Ecotoxicology
LIFS	5710	Cellular Regulation
LIFS	6170	Special Topics in Molecular, Cell and Developmental Biology
LIFS	6800	Frontiers in Non-coding RNA

Plus:

- Completion of and passing LIFS 6770 Professional Development in Science (Life Science) (2 credits). Students are expected to complete the course requirements in their first year of study. The maximum time allowed for course completion is two years for full-time students, or three years for part-time students. HKUST MPhil (LIFS) graduates who have taken and passed this course before may be exempted from this requirement, subject to prior approval from the Division Head and PG Coordinator. The credits earned from LIFS 6770 cannot be counted toward the credit requirements;

- Taking and passing LANG 5010 Postgraduate English for Science Studies (1 credit) in the first year of study. HKUST MPhil graduates may be considered for exemption from this requirement, subject to prior approval from the Division Head and PG Coordinator;

- Taking LIFS 5260 Biochemical and Molecular Basis of Diseases;
- Taking LIFS 6660 Molecular Medicine;
- PhD students admitted without an HKUST MPhil degree in Life Science are required to take and pass one of the courses* listed below in each of the first four regular terms of study, followed by LIFS 6111 Life Science Postgraduate Student Seminar* starting from the fifth term in each regular term throughout the residency:

LIFS	6112	Current Topics in Neuroscience
LIFS	6113	Current Topics in Biochemistry and Biophysics
LIFS	6114	Current Topics in Biotechnology and Traditional Chinese Medicine
LIFS	6115	Current Topics in Development and Systems Biology
LIFS	6116	Current Topics in Genomics and Bioinformatics
LIFS	6117	Current Topics in Cell Biology

  Each course can be taken repeatedly in different terms. Students who fail a course are required to retake the course in a subsequent term. LIFS 6111 taken before the 2017/18 academic year can be used to replace any of these courses;

- Those admitted with an HKUST MPhil degree in Life Science are required to take and pass LIFS 6111 Life Science Postgraduate Student Seminar* in each regular term throughout the residency;
- Taking and passing LIFS 6410 Seminar Enrichment Course throughout the residency; maximum number of credits to be earned from this course is 4 for PhD students. Students who have taken the HKUST MPhil (LIFS) program will be granted credit transfer of up to 1 credit from LIFS 6410 to the PhD program;
- Passing a comprehensive qualifying examination;
- Registration in LIFS 7990 Doctoral Thesis Research;
- Conduct research in the area of molecular medicine; and
- Presentation and oral defense of the PhD thesis.

** Students with research focus in Marine and Environmental Science may take ENVS 6011 Postgraduate Seminar to substitute LIFS 6111/ LIFS 6112/ LIFS 6113/ LIFS 6114/ LIFS 6115/ LIFS 6116/ LIFS 6117.*