

深圳北理莫斯科大学

УНИВЕРСИТЕТ МГУ-ППИ В ШЭНЬЧЖЭНЕ

SHENZHEN MSU-BIT UNIVERSITY

MASTER PROGRAMME NANOBIOTECHNOLOGY

PROFILE

The Master Programme in Nanobiotechnology strives to elevate the level of education of Master students, to help them enhance their knowledge base and be accepted into the global scientific community, providing an intellectual and social environment that enhances the quality of graduate education, based on the values of excellence and mutual respect;

We believe that the most important learning derives from the personal encounters and joint work of a teacher and students.

Through the master's degree in the field of nanobiotechnology students:

- Gain an understanding of emerging biomedical technologies, including Raman spectroscopy, cryoelectron microscopy, tissue regeneration, and the use of nanomaterial for drug delivery.
- Build experience in experimental design, scientific data analysis, writing and communication, ethical practices, and effective collaboration.
- Develop knowledge in life science theory, as it relates to nanobiotechnology.

PROGRAMME INFO

The Master programme comprises of 120 ECTS-credits, to be acquired over a two-year period. Each year students register for 60 credits (30 credits per semester).

English is the teaching language for all courses in the Master programme.

The first-year curriculum consists of compulsory courses.

Students can take their chosen elective courses during the beginning of the second year.

During the second year, students should focus on preparing their Master Thesis. The perpetration of the Master Thesis is the final part of the Master programme, where students conduct a scientific study under the supervision of a scientific advisor. Through the Master Thesis students demonstrate their:

- A** scientific background
- B** capacity to understand/apply primary literature
- C** capacity to correctly and adequately communicate the results in a succinct manner via a written document.

Students can also pass their Master thesis internship in Russia (Lomonosov Moscow State University) for a period of up to 6 months. The Master Thesis defense will occur at the end of the second year.

JOB OPPORTUNITIES

Upon successful completion of this program, the graduates will acquire skills that will enable them to strongly improve products and processes in the organizations, in which they operate. Thus, the program contributes to the high demand for skilled workers in the field of nanobiotechnology.

After graduation, students can apply for any PhD program in nanobiotechnology, biophysics or structural biology; some program alumni have already been enrolled into PhD programs in Hong Kong University, Moscow State University, University of British Columbia etc. Alumni can also work in Biotechnological companies (Thermo Fisher Scientific, Johnson & Johnson etc.)

LEARNING OUTCOMES

- 01.** A master is able to independently situate and evaluate a scientific problem and to formulate a hypothesis. He/she has the knowledge and skills required to test the hypothesis within the context of the contemporary scientific understanding and (international) literature.
- 02.** Scientific training allows the Master to set up a problem-solving strategy of experiments and observations. A Master has the necessary skills to carry out these activities, as an individual, or as part of a team.
- 03.** Through data analysis, using appropriate advanced techniques, the Master of Biology can provide a relevant answer to a question and propose solutions, in both an academic and applied context.
- 04.** Using their acquired skills, a Master can summarize, communicate and interpret his/her findings at different levels: to peers, to a broad public or to policy makers, both orally and in writing.



STUDY PROGRAMME AND PROFESSORS

The scientific director of the Nanobiotechnology programme:

Prof. Sokolova O.S. (Professor of Russian Academy of Sciences)

Program director of the Nanobiotechnology programme:

Dr. Arkhipova A.Yu.

Principal Professors and Associate Professors:

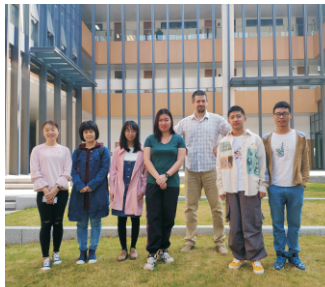
Prof. Rubin A.B. (Member of RAS), Prof. Sokolova O.S. (Professor of Russian Academy of Sciences), Prof. Miroshnikov K.A. (Corresponding Member of RAS), Dr. Kitashov A.V., Prof. Feofanov A.V., Prof. Letarov A.V., Prof. Lyukmanova E.N., Dr. Bonartsev A.P., Dr. Novoseletsky V.N., Dr. Retyunskikh L.T., Dr. Shi Xiangyan, Dr. Bozdaganyan M.E., Dr. Klementyev K.E., Dr. Trusova S.V., Dr. Orekhov P.S., Dr. Arkhipova A.U., Dr. Shevyrdyaeva L.N., Dr. Glukhov G.S., Dr. Parshina E.U., Dr. Bayzhumanov A.A., Dr. Shchepetov D.M., Dr. Popova L.I.

1ST ACADEMIC YEAR

Students take a number of compulsory and optional courses, perform research, participate in internships, and gain 60 ECTS-credits

Compulsory courses:

Module	Course	Credits	Semester
General Courses	Current Issues of Biology	3	1
	History and Methodology of Biology	2	2
	Practical Biology	7	1-2
	Bioinformatics and IT	3	2
	English	4	1-2
	Introduction to Cellular and Molecular Biology	3	1
	Nanostructured materials	2	1
	Introduction to Bionanotechnology	2	1
	Philosophy	2	2
	Bioethics	2	2
Internship and Research	Biophotonics	2	2
	Structural Applications in Nanobiotechnology	3	2
Optional Courses (Electives):	Research	17	1-2
	Physical chemistry	2	1
	Biocompatible Materials	2	1
	Redoxbiology	2	1
	Membrane biology	2	1
	Analytical Methods in Nanobiotechnology	2	1
	Viruses of microbes	2	2
	Bioengineering of recombinant antibodies	2	2
	Membrane modeling media	1	2
	Microbiology	1	2
	Protein production in plants	1	2



2ND ACADEMIC YEAR

Students take a number of compulsory and optional courses, perform research, write their Master's thesis, gain 60 ECTS-credits.

Compulsory courses:

Module	Course	Credits	Semester
General Courses	Biopolymer physics	3	3
	Academic writing	2	3
	Research seminar	2	3
	Practical biology	3	3
	Genomics and genetic engineering	4	3
Internship and Research	Research Internship	31	3-4
Optional Courses (Electives):	Advanced NMR spectroscopy	2	3
	Protein engineering	2	3
	Drug design	2	3
	Advanced bioinformatics	2	3
	Biotechnology	2	3
	Raman spectroscopy	2	3
Master Thesis	Master Thesis	9	4

ADMISSION REQUIREMENTS

Candidates should have a Bachelor's degree in the field of Science, Applied Sciences or Life Sciences that has a strong focus on Biology or Chemistry. They should also have a strong scientific background, including basic knowledge of Mathematics, and Physics. The programme is taught in English, so the candidates must be proficient in this language. Required level: B2 CEFR or 5.5-6.5 IELTS or 87-109 TOEFL iBT.

Candidates must pass an entrance integrated exam in biology with the basics of nanobiotechnology and English language. The results of the Unified National Graduate Entrance Examination will be taken in account as individual achievement.



Контакты:



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