

FORMAL REQUIREMENTS AND ADMINISTRATION OF DOCTORAL STUDIES

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PhD programme: **Microbiology (Mikrobiologie)**

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General outline:

- **Semesters 1 - 4 (first 2 years of study)** - students work on their research project + fulfil other requirements (theoretical courses, preparing for state doctoral exam - SDE, teaching assistance)
- **After 4th semester - SDE (State Doctoral Exam)***
- **Semesters 5 - 8** - main focus on research (work on doctoral project and thesis, publications, presentations at conferences, etc.)

General requirements for all students in the programme (please see detailed requirements for the Individual Study Plan in the detailed table below):

Mandatory duties: *checked by Dean's Office*

XD100	Ph.D. thesis / Příprava dizertační práce	Enrolled every semester during entire studies, recommended 20-25 ECTS for semesters 1-4, 30 ECTS for semesters 5-8, 20 ECTS for semesters 9 +
Bi0100 Bi0101	Seminar for PhD. students I and II / Doktorský seminář ÚEB I a II	Enrolled in semesters 1 – 8 (with exception of stay abroad)
XD010 XD011	MU Life Sciences Seminar	Enrolled in semesters 1 – 4 (with exception of stay abroad)
C7777	Handling chemical substances / Zacházení s chemickými látkami	Enrolled every year of study, every autumn semester, compulsory for all students who manipulate with chemicals during their studies at Faculty of Science MU (zero ECTS).
XD102	Teaching Assistance / Pomoc při výuce	Enrolled 4 times in semesters 1-4, maximum 120 hours in total (recommended 0 ECTS)
XD106	Lecture in the foreign language / Odborná přednáška v cizím jazyce	Minimum once during studies (recommended 0 ECTS)
XD110	Placement Abroad / Zahraniční pracovní pobyt	Minimum 1 month stay, min. once during studies (usually 5 ECTS/month), requirement given by law Instructions for recognition of Placement Abroad: https://www.sci.muni.cz/en/students/go-abroad/recognition-of-stay-abroad (the recognition is done via IS application Internship and Stays, by creating record of the stay and request for recognition; the course is then registered by Dean's Office):

Theoretical courses and all other requirements: *checked by the Head of Doctoral Board / Head of Doctoral Committee*

- minimum 4 courses during semesters 1-4 with corresponding ECTS (before SDE)

(*) Requirements for theoretical SDE:

Theoretical preparation for SDE (after 4th semester). The Doctoral Board will check following points:

- a. deep **understanding to the particular scientific specialization** (40% weight),
- b. **basic skills in the different microbiology disciplines**, i.e. general research in bacteriology, mycology, virology and parasitology (20% weight),
- c. **detailed knowledge within the topic(s) of the doctoral research project** including context (40% weight).

Elements of the ISP		Milestones and their check			
		Enrolment to studies	Semester 1	End of Semester 4 (Theoretical State Doctoral Exam, SDE *)	End of Semester 8 (Preparation for PhD defence)
(A) research and development activities (ca. 75 % of workload)	1. Research, dissertation project , literature search of the actual state of the topic, planning and the scientific activities itself (55%).	Define framework topic of your PhD project with your supervisor for enrolment (Before semester 1) CHECK: Dean's office [enrolment] XD100 for each semester (25 ECTS for semesters 1-4, 30 ECTS for semesters 5-8, 20 ECTS for semesters 9+) CHECK: Dean's office	Submit detailed " <u>research project</u> " for your PhD work to the Supervisor. Max 10 pages containing chapters Background, Research hypothesis and objectives, Approach-methods, Timeline of foreseen activities, Expected outcomes (publications). CHECK: Supervisor	Prepare "short thesis" (15-20 pages) with literature review (text may later be used as Introduction-Background to final PhD thesis), state of the PhD project, results so far. Short thesis is made available to SDE committee – student will upload Short Thesis as an attachment to the "Application to State doctoral exam" in the IS MU Document Office ("Úřadovna"). CHECK: Doctoral Board [SDE assessment]	Submit PhD thesis according to instructions of Doctoral Board (based on 3 published papers or as full text thesis), format according to SCI MUNI requirements CHECK: Doctoral Board, Dean's office
	2. Publications (Thesis should be based on 3 papers demonstrating quality and independence of the student (15%))	No formal check needed	No formal check needed	Publications of the student may be included in the "short thesis" for SDE (if relevant). CHECK: Supervisor	Two papers - <u>minimum</u> criteria: Two student's first-author paper published in IF-journals. One published paper preferentially in 2nd quartile (ISI WOS). CHECK: Doctoral Board [Thesis].

	3. Presentation of results on scientific conferences including preparation of talks and/or poster presentations (5%)	No formal check needed	No formal check needed	List of presentations may be included in the “short thesis” for SDE (if relevant). CHECK: Supervisor	At minimum one documented oral presentation in English to appropriate scientific audience, preferentially international conference. CHECK: Dean’s office [XD106]
(B) Specialized courses and theoretical preparation (15%)	4. Theoretical courses , preparation to the state doctoral exam – SDE (10%)	Identify student’s knowledge gaps and what should be learned for SDE. Depending on requirements select courses for the first two years. Minimum 4 credited courses are required. CHECK: Supervisor	Consider courses at MU or outside. Courses can be updated for each semester. CHECK: Supervisor (if relevant).	Successfully pass at minimum 4 credited theoretical courses. CHECK: Doctoral Board [IS.MUNI]	Not relevant anymore, all requirements fulfilled before.
	5. Doctoral seminars (5%)	Enroll Bi0100 and XD011 (Bi0100 obligatory seminar for 8 semesters; XD011 - 4 semesters) CHECK: Student	CHECK: Supervisor (if relevant).	Semesters when student is at international stay abroad are excluded. CHECK: Dean’s office [4 semesters of Bi0100, XD011]	Get credits for Bi0100 for all semesters when student works at MU in Brno. Semesters when student is at international stay abroad are excluded. CHECK: Dean’s office [IS.MUNI]
(C) International experience and competitiveness	6. Further improving of English competences (attending courses, seminars, conferences, writing publications, all in English).	Knowledge level of English language is check during entrance exam. CHECK: Entrance committee.	No formal check needed CHECK: Supervisor (if relevant).	No formal check needed CHECK: Supervisor (if relevant).	No formal check needed CHECK: Dean’s office [XD106]

	7. Stay or internship abroad - mandatory participation in international cooperation.		No formal check needed	No formal check needed	Minimum is 1 month foreign stay in visiting laboratory, longer stays (3+ months) are preferred considering the topic. CHECK: Dean's office [IS stay abroad XD110]
(D) Pedagogical competences	8. Teaching assistance – (exercises and comparable).	About 120 hours through the entire doctoral studies. Passed during the first four semesters. CHECK: Student and Supervisor	CHECK: Supervisor (if relevant).	CHECK: Dean's office [IS; XD102 for 4 semesters]	Not relevant anymore, all requirements fulfilled before.
(E) Other transferrable skills.	9. Career development - preparation and management of projects, scientific writing, communication, other soft-skills.	No formal check needed	No formal check needed	No formal check needed	No formal check needed

Microbiology - recommended theoretical courses

Bi0954 Bioethics – online cases Bi1700 Cell biology Bi2003 Ecotoxicology Bi2900 Intellectual property rights Bi5000 Bioinformatics Bi5040 Biostatistics	Bi7420 Modern methods for genome analysis Bi7528 Analysis of genomic and proteomic data Bi8150 Evolutionary biology Bi8920 Advanced microscopic methods Bi9001 Statistical analysis of biological data Bi9410 Structural biology DSAK051 Clinical data analysis
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Bi5200 Immunology Bi5444 Analysis of sequencing data Bi6930 Immunotoxicology	DSAS01 Acquisition of scientific information DSMoIM01 Molecular medicine
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