FORMAL REQUIREMENTS AND ADMINISTRATION OF DOCTORAL STUDIES

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PhD programme: **Animal Physiology, Immunology and Developmental Biology**

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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 +*
XD101	**Literatury Study / Studium literatury**	*Enrolled every semester during entire studies*
XD105	**Scientific publication writing / Příprava publikace**	*Enrolled 2-times in semesters 1-8*
	Journal Club / Časopisový klub	*Enrolled every semester 1-8, Journal Club according to your specialisation*
Bi1160	**Courses on Advanced Methods for PhD Students / Kurz pokročilých metodik pro doktorandy FIVBŽ**	*Minimum 2 courses on advanced methods corresponding with your research topic are required during semesters 1-6 (before state doctoral exam)*
Bi0100 **Bi0101**	**Seminar for PhD. students I, II / Doktorský seminář ÚEB I, II**	*obligatory for each semester 1-8, 3 attendances per semester required*
Bi1155	**Practical training for PhD students of PIDBA**	*Minimum once during studies (recommended 0 ECTS), in semesters 1-6*
Bi1150	**Softskills Course for PhD students / Kurz softskills pro doktorandy FIVBŽ**	*Enrolled 1-time in semesters 1-4*
XD010 **XD011**	**MU Life Science Seminar**	*Enrolled every semester 1-8*
C7777	**Handling chemical substances / Zacházení s chemickými látkami**	*Enrolled every year of study, every autumn semester*
XD102	**Teaching Assistance / Pomoc při výuce**	*Enrolled 2-times in semesters 1-4, approx. 100 (max. 150) hours during entire doctoral studies*
Bi1165	**English talk of PIDBA PhD students**	*Minimum once during studies (recommended 0 ECTS), in semesters 1-6*

XD110	**Placement Abroad / Zahraniční pracovní pobyt**	*Minimum 1 month stay, min. 1-time 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*

The requirements for the Individual Study Plan (ISP) are described in a Table below and in detail at the **WEBSITE FOR PHD STUDENTS**.

Requirements for theoretical State Doctoral Exam (SDE):

- Recommended term for the SDE is about a year before the PhD defense (in the 5th semester at the earliest if the student has already fulfilled the milestones required by the 6th semester).

- Milestones required by the end of the 6th semester have to be fulfilled

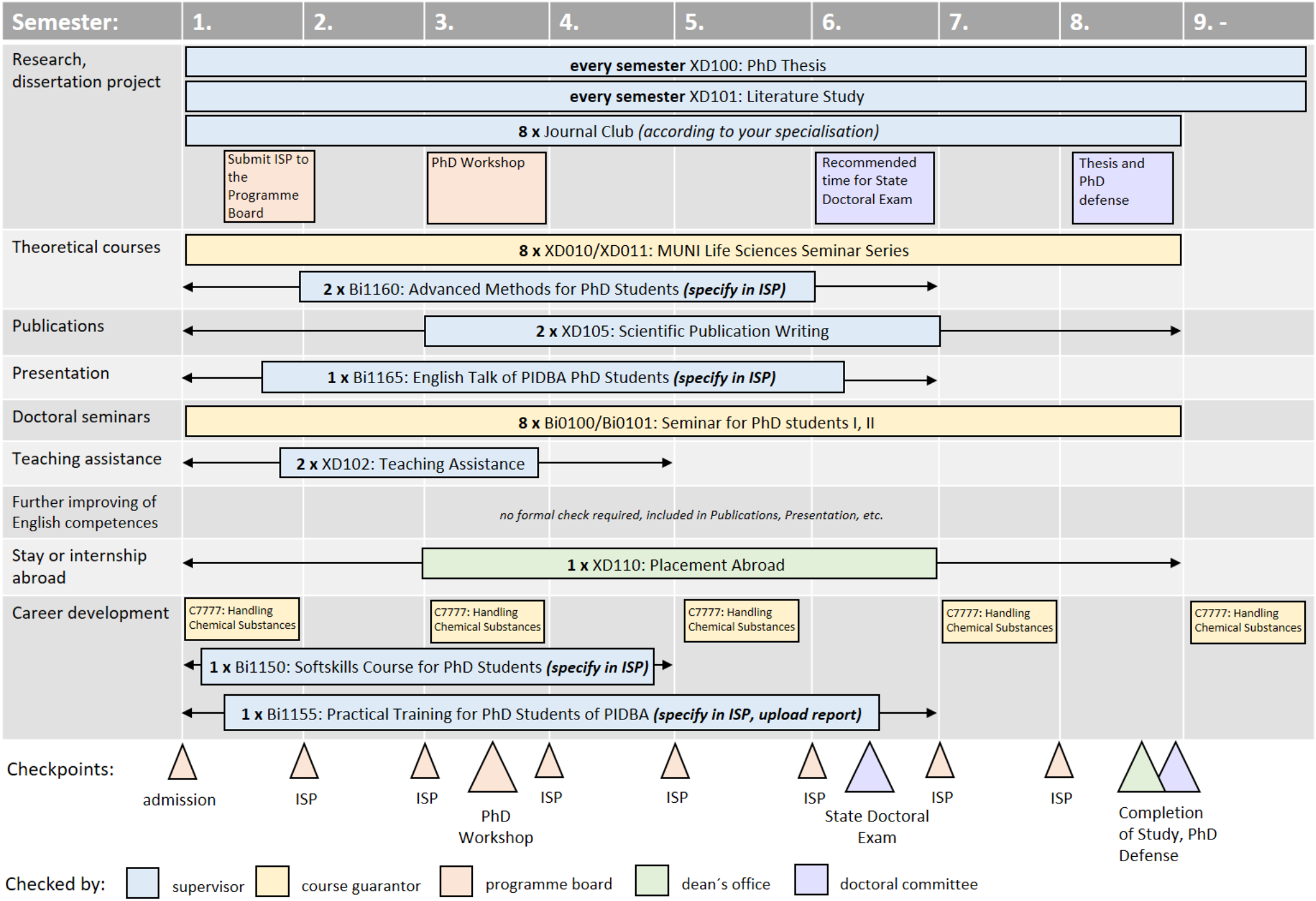
- Inform the head of Doctoral Board about your plan to take SDE.

- Prepare a summary of the state of your project (1 page) and submit it to the Head of Doctoral Board (minimally 1 week ahead of SDE)

- SDE consists of the presentation of your project (20 minutes) and discussion with the doctoral committee. Introduce your project - hypotheses, applied methods, prove your knowledge, present the results and future plans.

- SDE committee will assess:

1) General knowledge of the topic including broader context and meaning, 2) ability to explain and present your work, 3) knowledge of your hypotheses 4) knowledge of experimental techniques, focusing on ability to choose optimal experimental approach, 5) ability to correctly interpret data, deduce and discuss the conclusions.


Semester:
1.
2.
3.
4.
5.
6.
7.
8.
9. -
Research, dissertation project
every semester XD100: PhD Thesis
every semester XD101: Literature Study
8 x Journal Club (according to your specialisation)
Submit ISP to the Programme Board
PhD Workshop
Recommended time for State Doctoral Exam
Thesis and PhD defense
Theoretical courses
8 x XD010/XD011: MUNI Life Sciences Seminar Series
2 x Bi1160: Advanced Methods for PhD Students (specify in ISP)
Publications
2 x XD105: Scientific Publication Writing
Presentation
1 x Bi1165: English Talk of PIDBA PhD Students (specify in ISP)
Doctoral seminars
8 x Bi0100/Bi0101: Seminar for PhD students I, II
Teaching assistance
2 x XD102: Teaching Assistance
Further improving of English competences
no formal check required, included in Publications, Presentation, etc.
Stay or internship abroad
1 x XD110: Placement Abroad
Career development
C7777: Handling Chemical Substances
1 x Bi1150: Softskills Course for PhD Students (specify in ISP)
1 x Bi1155: Practical Training for PhD Students of PIDBA (specify in ISP, upload report)
Checkpoints:
admission
ISP
PhD Workshop
State Doctoral Exam
Completion of Study, PhD Defense
Checked by:
supervisor
course guarantor
programme board
dean´s office
doctoral committee

Elements of the ISP		Milestones and their check					
		Enrolment to studies (Before semester 1)	**At the end of Semester 1**	**At the end of Semester 3**	**By the end of Semester 4**	**By the end of Semester 6 (Theoretical State Doctoral Exam, SDE)**	**By the end of Semester 8 (Preparation for PhD defense)**
(A) research and development activities (ca. 70 % of workload)	1. **Research, dissertation project,** literature search of the actual state of the topic, planning and the scientific activities itself (50 %).	Present a framework topic of your PhD project with your supervisor at the PhD admission interview. Enroll • **XD100**: Ph.D. Thesis (obligatory for each semester, 20-25 ECTS for semesters 1-4, 30 ECTS for semesters 5-8, 20 ECTS for semesters 9+) • **XD101**: Literature Study (obligatory for each semester) • **Journal club** according to your specialisation (labmeetings, obligatory for 8 semesters) CHECK: Supervisor [enrolment]	Submit detailed ISP for your PhD project to the Doctoral Board. CHECK: Doctoral Board [Submitted ISP]	Present your project to the Doctoral Board at the **PhD Workshop**: introduce your hypotheses, applied methods, prove your knowledge and present first preliminary results. Doctoral Board assesses the presentation and approves your progress to the next semester. Enroll and get credits for • **XD104**: Literature research (credits given as a part of preparation for PhD workshop) CHECK: Supervisor, Doctoral Board [Project presentation]		Recommended timing for **State Doctoral Exam (SDE)**. Inform the head of Doctoral Board about your plan to take SDE. Prepare a summary of the state of your project (1 page) and submit it to the head of Doctoral Board (minimally 1 week ahead of SDE). SDE consists of the presentation of your project (20 minutes) and discussion with Doctoral Committee. CHECK: Doctoral Committee [SDE assessment]	Submit the **PhD thesis** according to instructions of Doctoral Board, format according to SCI MUNI requirements. CHECK: Doctoral Committee, Dean´s office [Submitted PhD thesis]

		Enrolment to studies (Before semester 1)	At the end of Semester 1	At the end of Semester 3	By the end of Semester 4	By the end of Semester 6 (SDE)	By the end of Semester 8 (Preparation for PhD defense)
	2. **Publications** Thesis should be based on minimum 2 papers demonstrating quality and independence of the student (15 %)						Get credits for • **XD105**: Scientific publication writing (obligatory for 2 semesters) Minimum criteria for publications: • 1 paper as a first author in journal in Q1 or Q2 according to Journal Citation Reports • at least 1 more paper as co-author (obligatory minimum but for a good grade you need more) CHECK: Supervisor
	3. **Presentation** of results on scientific seminars, symposia, conferences etc., including preparation of talks and/or poster presentations (5 %)					Get credits for • **Bi1165**: Lecture in the foreign language (obligatory once per study period ***specify in ISP*** CHECK: Supervisor	

		Enrolment to studies (Before semester 1)	At the end of Semester 1	At the end of Semester 3	By the end of Semester 4	By the end of Semester 6 (SDE)	By the end of Semester 8 (Preparation for PhD defense)
(B) Specialized courses and theoretical preparation (20 %)	4. **Theoretical courses,** preparation to the state doctoral exam – SDE (15 %)	Enroll: • **XD010, XD011**: MU Life Sciences Seminar (obligatory for 8 semesters, 6 attendances per semester required) CHECK: Course guarantor				Get credits for • **Bi1160:** Advanced Methods for PhD Students (minimum 2 courses on advanced methods related to your research topic are required during semesters 1-6). ***specify in ISP*** CHECK: Supervisor	
	5. **Doctoral seminars** (5 %)	Enroll • **Bi0100/Bi0101**: Seminar for PhD. students I, II (obligatory for 8 semesters, 3 attendances per semester required) CHECK: Course guarantor					
(C) International experience and competitiveness	6. **Further improving of English competences** (attending courses, writing publications, etc., all in English).	No formal check needed, included in element (A) parts 1. Research, dissertation project, 2. Publications and 3. Presentations.					

		Enrolment to studies (Before semester 1)	At the end of Semester 1	At the end of Semester 3	By the end of Semester 4	By the end of Semester 6 (SDE)	By the end of Semester 8 (Preparation for PhD defense)
	7. **Stay or internship abroad** - mandatory participation in international cooperation.						Get credits for • **XD110**: Placement Abroad (obligatory once per study period, minimum 1 month, 3+months preferred) CHECK: Dean's office
(D) Pedagogical competences	8. **Teaching assistance** - classrooms, exercises, advising undergrad students and comparable.				Approx. 100 hours through the study period required during semesters 1-4. Enroll • **XD102**: Teaching assistance (obligatory for 2 semesters) CHECK: Supervisor		

		Enrolment to studies (Before semester 1)	At the end of Semester 1	At the end of Semester 3	By the end of Semester 4	By the end of Semester 6 (SDE)	By the end of Semester 8 (Preparation for PhD defense)
(E) Other transferrable skills.	9. **Career development -** preparation and management of projects, scientific writing, communication, other soft-skills.	Enroll **C7777**: Handling chemical substances (obligatory every autumn semester) CHECK: Course guarantor			Get credits for **Bi1150**: Softskills Course for PhD students (1 course per study period obligatory; see the recommended courses below the table) ***specify in ISP*** **Bi1155**: Practical Training for PhD students of PIDBA (obligatory once per study period, minimum 2 weeks) ***specify in ISP*** CHECK: Supervisor		

Recommended courses:
C7250 Protein characterisation using mass spectrometry
C7350 Protein characterisation using mass spectrometry - practice
CG030 Structure and function of protein complexes
Bi1110 Physiology of animal cell
C7270 Structural biology methods
C7271 Structural biology methods practical
C2110 UNIX and programming
C9940 3-Dimensional Transmission Electron Microscopy (3DEM)
Bi7560 Introduction to R
Bi7527 Data Analysis in R
Bi7528 Analysis of genomic and proteomic data
S2006 Fluorescence methods in life sciences - a journey from molecules to cells
CG030 Structure and function of protein complexes
DSMolM01 Molecular Medicine

Soft skills courses:
S4010 Science Communication Course: Present Your Research Results with
S5040 Publish or perish: The art of research and scientific writing practical course
S4001 Presentations on international events
S4002 Law, ethics and philosophy of science