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## Minimal requirements for ISP of PhD students enrolled in the academic year 2021/2022

Study programme	Form of study	Requirements
Analytical Chemistry (P0531D130036)	full-time	<p>The obligatory part of the individual study plan (ISP) is four examinations in specialized subject, which the doctoral student chooses in agreement with the supervisor from the offer of all departments of the chemical section and other departments of the Faculty of Science of Charles University or from other universities in the Czech Republic and abroad. Selected courses must be approved by the Subject-Area Board.</p> <p>It is also obligatory to pass a certified English examination, e.g. FCE (evaluation, A, B, C), Toefl. These duties must be fulfilled before applying for the state doctoral examination.</p> <p>Study obligations and their fulfillment are specified in the individual study plan. During doctoral studies it is obligatory to complete an internship or a certain period of study at a foreign workplace (at least 3 months) unless there are serious reasons to prevent it.</p> <p>Students report on the results of their experimental work at least once a year before the plenary session of the department (special seminar, department seminar) or at the Department of International Conference “Modern Analytical Chemistry” or another international conference.</p> <p>When submitting a doctoral thesis, at least two original publications on the topic of the doctoral thesis in impacted journals are required, and a Czech or other patent granted is considered a full-fledged publication. Author's extended summary (autoreferat) of the dissertation is not required.</p> <p>Regular attendance at the workplace and carrying out experimental work are necessary.</p> <p>At the end of each year of study, students prepare a self-assessment report for trainers, which may be requested by the Subject Council if necessary.</p>
Analytical Chemistry (P0531D130036)	combined	<p>The obligatory part of the individual study plan (ISP) is four examinations in specialized subject, which the doctoral student chooses in agreement with the supervisor from the offer of all</p>

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		<p>departments of the chemical section and other departments of the Faculty of Science of Charles University or from other universities in the Czech Republic and abroad. Selected courses must be approved by the Subject-Area Board.</p> <p>It is also obligatory to pass a certified English examination, e.g. FCE (evaluation, A, B, C), Toefl. These duties must be fulfilled before applying for the state doctoral examination.</p> <p>Study obligations and their fulfillment are specified in the individual study plan. During doctoral studies it is obligatory to complete an internship or a certain period of study at a foreign workplace (at least 3 months) unless there are serious reasons to prevent it.</p> <p>Students report on the results of their experimental work at least once a year before the plenary session of the department (special seminar, department seminar) or at the Department of International Conference "Modern Analytical Chemistry" or another international conference.</p> <p>When submitting a doctoral thesis, at least two original publications on the topic of the doctoral thesis in impacted journals are required, and a Czech or other patent granted is considered a full-fledged publication. Author's extended summary (autoreferat) of the dissertation is not required.</p> <p>Regular attendance at the workplace and carrying out experimental work are necessary.</p> <p>At the end of each year of study, students prepare a self-assessment report for trainers, which may be requested by the Subject Council if necessary.</p>
Inorganic Chemistry (P0531D130040)	full-time	<p>When preparing the individual study plan (ISP), the student chooses the courses to take after consulting the supervisor and in relation to the dissertation topic and courses already taken. The courses have to include a language exam (preferably English) with international validity (FCE). The number of exams should not exceed five. The ISP can also include shorter courses in Czechia and abroad.</p> <p>The students inform about their progress at department seminars. At the beginning, they are expected to present their doctoral project. Later, the students present their preliminary results and then their final results. The final presentation is done in English. Teaching makes an inherent part of scientific education (according to instructions of the supervisor). In the same way, internship abroad is taken as a natural part of the studies (according to existing opportunities) as well as presenting own results at conferences. The students also regularly take part in the department's seminars and lectures Quo Vadis Chemie.</p> <p>The student can choose between two forms of dissertation: complete and cumulative. The complete form is a full text</p>

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		<p>including introduction, goals, results and their discussion, summary, complete experimental part and references. The length corresponds to the length of three articles in international journals with IF. At least one publication based on the results of the dissertation project must be published before the dissertation is submitted for defence (a text accepted for publication with its own DOI is considered as published). The cumulative form is a monothematic set of publications. It includes introduction, literature overview, definition of aims, discussion of results and a summary (but in a shortened version – 30–40 pages). The core of such dissertation must be at least three articles published in international journals with IF according to the Web of Science (also here the articles with its DOI are considered as published). These articles are included in the dissertation.</p> <p>All the publications included in the dissertation must clearly state the candidate's affiliation to the Department of Inorganic Chemistry, Faculty of Science, Charles University. Where there are more authors, the candidate has to specify his/her contribution.</p> <p>The subject-area board does not require for a summary to be submitted with the dissertation. Instead, the students have to submit a prolonged abstract electronically (PDF). The length is at least 3,000 characters (without spaces, tables or picture captions).</p>
Inorganic Chemistry (P0531D130040)	combined	<p>When preparing the individual study plan (ISP), the student chooses the courses to take after consulting the supervisor and in relation to the dissertation topic and courses already taken. The courses have to include a language exam (preferably English) with international validity (FCE). The number of exams should not exceed five. The ISP can also include shorter courses in Czechia and abroad.</p> <p>The students inform about their progress at department seminars. At the beginning, they are expected to present their doctoral project. Later, the students present their preliminary results and then their final results. The final presentation is done in English. Teaching makes an inherent part of scientific education (according to instructions of the supervisor). In the same way, internship abroad is taken as a natural part of the studies (according to existing opportunities) as well as presenting own results at conferences. The students also regularly take part in the department's seminars and lectures Quo Vadis Chemie.</p> <p>The student can choose between two forms of dissertation: complete and cumulative. The complete form is a full text including introduction, goals, results and their discussion, summary, complete experimental part and references. The length corresponds to the length of three articles in international journals with IF. At least one publication based on the results of the dissertation project must be published before the dissertation is submitted for defence (a text accepted for publication with its own DOI is considered as published). The cumulative form is a monothematic set of publications. It</p>

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		<p>includes introduction, literature overview, definition of aims, discussion of results and a summary (but in a shortened version – 30–40 pages). The core of such dissertation must be at least three articles published in international journals with IF according to the Web of Science (also here the articles with its DOI are considered as published). These articles are included in the dissertation.</p> <p>All the publications included in the dissertation must clearly state the candidate's affiliation to the Department of Inorganic Chemistry, Faculty of Science, Charles University. Where there are more authors, the candidate has to specify his/her contribution.</p> <p>The subject-area board does not require for a summary to be submitted with the dissertation. Instead, the students have to submit a prolonged abstract electronically (PDF). The length is at least 3,000 characters (without spaces, tables or picture captions).</p>
<p>Anthropology and Human Genetics (P0511D030036)</p>	<p>full-time</p>	<p>Mandatory Individual Study Plan subjects are determined individually with regard to the topic of the dissertation work. An English language certificate is required (at the very least ÚJOP UK).</p> <p>The dissertation work may be submitted in two forms of presentation.</p> <p>The classic dissertation form is in-depth text supplemented with two publications in impact journals in the WOS/WOSS database:</p> <p>1st publication: the doctoral student is the lead/corresponding author; the publication summarizes the results or partial results defended in the dissertation work. The published results overlap with the dissertation in terms of the tables used, graphs or findings.</p> <p>2nd publication: the doctoral student is a co-author; the publication need not necessarily directly concern the dissertation work, but there must be at least a clear indirect relationship to the research topic.</p> <p>Summary form of a dissertation work (i.e. dissertation consisting of a summary):</p> <p>A total of 5 publications in impact journals from the WOS/WOSS database are required, 2 of which publish results where the doctoral student is the lead author. In the other three the student may be a co-author. The body of the article must form a coherent concept reflecting the structure of the research work on the dissertation topic. This concept will be reflected in the summary of the dissertation work.</p> <p>For all publications submitted for the defense of the dissertation work it is necessary to show affiliation to the faculty of anthropology and human genetics at the Faculty of Science, Charles University in Prague.</p> <p>The department tries to enable doctoral students to develop their teaching skills and participate in leading specialized</p>

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		<p>training. Students will then work with the supervisors of lectures and training sessions.</p> <p>Students are recommended to participate in an internship program abroad.</p> <p>Students are recommended to present their results at scientific conferences.</p> <p>Students will at the very least also present their results at a department seminar at the conclusion of their studies.</p> <p>The student will also participate in the academic life of the department and training workplace, especially by attending seminars or other professional activities of the department and training workplace.</p>
<p>Anthropology and Human Genetics (P0511D030036)</p>	<p>combined</p>	<p>Mandatory Individual Study Plan subjects are determined individually with regard to the topic of the dissertation work. An English language certificate is required (at the very least ÚJOP UK).</p> <p>The dissertation work may be submitted in two forms of presentation.</p> <p>The classic dissertation form is in-depth text supplemented with two publications in impact journals in the WOS/WOSS database:</p> <p>1st publication: the doctoral student is the lead/corresponding author; the publication summarizes the results or partial results defended in the dissertation work. The published results overlap with the dissertation in terms of the tables used, graphs or findings.</p> <p>2nd publication: the doctoral student is a co-author; the publication need not necessarily directly concern the dissertation work, but there must be at least a clear indirect relationship to the research topic.</p> <p>Summary form of a dissertation work (i.e. dissertation consisting of a summary):</p> <p>A total of 5 publications in impact journals from the WOS/WOSS database are required, 2 of which publish results where the doctoral student is the lead author. In the other three the student may be a co-author. The body of the article must form a coherent concept reflecting the structure of the research work on the dissertation topic. This concept will be reflected in the summary of the dissertation work.</p> <p>For all publications submitted for the defense of the dissertation work it is necessary to show affiliation to the faculty of anthropology and human genetics at the Faculty of Science, Charles University in Prague.</p> <p>The department tries to enable doctoral students to develop their teaching skills and participate in leading specialized training. Students will then work with the supervisors of lectures and training sessions.</p> <p>Students are recommended to participate in an internship</p>

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		<p>program abroad.</p> <p>Students are recommended to present their results at scientific conferences.</p> <p>Students will at the very least also present their results at a department seminar at the conclusion of their studies.</p> <p>The student will also participate in the academic life of the department and training workplace, especially by attending seminars or other professional activities of the department and training workplace.</p>
Applied Geology (P0532D330017)	full-time	<p>The student must pass at least three examinations in specialized subjects at the masters level or above, a greater number of subjects may be taken based on the supervisor's recommendations and the student's own needs. The study plan may also include short courses given in the CR or abroad. A language test is not required if the supervisor acknowledges that the student's foreign language skills (generally English) are sufficient. However, the ISP may be expanded to include a language test at the recommendation of the supervisor or subject area board. A language test is not required if the supervisor acknowledges that the student's foreign language skills (generally English) are sufficient. However, the ISP may be expanded to include a language test at the recommendation of the supervisor or subject area board. An integral part of studies is participation in institute or section seminars and similar scientific activities of the faculty. For four-year studies the study plan should include study abroad or a research stay (professional internship) at a foreign workplace (as recommended by the supervisor) for a period of at least 6 months. The subject area board will regularly check that study obligations are being met each year when 2nd year students and above present the current results of their ongoing dissertation work. A dissertation in classic format is a monograph manuscript containing an introduction to the topic, a critical overview of the current state of knowledge, an elaboration of research questions, an overview of the methods used, results achieved and their discussion, a summary and assessment of scientific contribution. A monograph dissertation must have at least one article published or accepted for publication in a professional peer-reviewed journal with an IF (listed in the ISI Web of Science database); for this work the student must be the lead (primary) author. Appendices may only include publications where the student clearly demonstrates an affiliation to CU FS, and possibly also lists sources of financing as per the instructions of the supervisor (e.g. in case of a Charles University Grant Agency (GAUK) research project). The anticipated scope of this dissertation format is 150-250 pages. A dissertation in cumulative format contains an introduction accompanying scientific publications. The introduction defines and critically evaluates the scientific problem addressed, defines the research questions, the manner in which they are approached, summarizes the main results which were achieved in individual publications and their interrelationship. Further, it contains a thorough discussion of</p>

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		<p>the research results and possible future directions. A cumulative dissertation must contain at least three publications (published or accepted for publication), at least one of which must be in a professional, peer-reviewed journal with IF (in English); in this work the student must be the lead author. The other two works must be published in a professional, peer-reviewed journal (in English). In these other works the student may be the lead author or a co-author; the share of authorship (expressed as a percentage) will be documented by a written affirmation from the lead author, team leader, or supervisor. Appendices may only include publications where the student clearly demonstrates an affiliation to CU FS, and possibly also lists sources of financing as per the instructions of the supervisor (e.g. in case of a Charles University Grant Agency (GAUK) research project). If a collective work lists multiple doctoral students of the same supervisor, the given work may only be used in one dissertation work, which will be determined by the supervisor. An integral part of the scientific training of the doctoral student is the active presentation of the results of research work at international, and possibly also Czech professional conferences and in peer-reviewed publications. With regard to international professional conferences, during the period of his/her studies, the student must personally present a poster at least once and personally deliver a lecture at least once at an international conference. A standard component of studies is a professional internship at a reputable foreign workplace. The internship should be sufficiently long (ideally 6 months or more), so that the student can become familiar with the research procedures at other workplaces and actively become involved in the research there.</p>
Applied Geology (P0532D330017)	combined	<p>The student must pass at least three examinations in specialized subjects at the masters level or above, a greater number of subjects may be taken based on the supervisor's recommendations and the student's own needs. The study plan may also include short courses given in the CR or abroad. A language test is not required if the supervisor acknowledges that the student's foreign language skills (generally English) are sufficient. However, the ISP may be expanded to include a language test at the recommendation of the supervisor or subject area board. A language test is not required if the supervisor acknowledges that the student's foreign language skills (generally English) are sufficient. However, the ISP may be expanded to include a language test at the recommendation of the supervisor or subject area board. An integral part of studies is participation in institute or section seminars and similar scientific activities of the faculty. For four-year studies the study plan should include study abroad or a research stay (professional internship) at a foreign workplace (as recommended by the supervisor) for a period of at least 6 months. The subject area board will regularly check that study obligations are being met each year when 2nd year students and above present the current results of their ongoing dissertation work. A dissertation in classic format is a</p>

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		<p>monograph manuscript containing an introduction to the topic, a critical overview of the current state of knowledge, an elaboration of research questions, an overview of the methods used, results achieved and their discussion, a summary and assessment of scientific contribution. A monograph dissertation must have at least one article published or accepted for publication in a professional peer-reviewed journal with an IF (listed in the ISI Web of Science database); for this work the student must be the lead (primary) author. Appendices may only include publications where the student clearly demonstrates an affiliation to CU FS, and possibly also lists sources of financing as per the instructions of the supervisor (e.g. in case of a Charles University Grant Agency (GAUK) research project). The anticipated scope of this dissertation format is 150-250 pages. A dissertation in cumulative format contains an introduction accompanying scientific publications. The introduction defines and critically evaluates the scientific problem addressed, defines the research questions, the manner in which they are approached, summarizes the main results which were achieved in individual publications and their interrelationship. Further, it contains a thorough discussion of the research results and possible future directions. A cumulative dissertation must contain at least three publications (published or accepted for publication), at least one of which must be in a professional, peer-reviewed journal with IF (in English); in this work the student must be the lead author. The other two works must be published in a professional, peer-reviewed journal (in English). In these other works the student may be the lead author or a co-author; the share of authorship (expressed as a percentage) will be documented by a written affirmation from the lead author, team leader, or supervisor. Appendices may only include publications where the student clearly demonstrates an affiliation to CU FS, and possibly also lists sources of financing as per the instructions of the supervisor (e.g. in case of a Charles University Grant Agency (GAUK) research project). If a collective work lists multiple doctoral students of the same supervisor, the given work may only be used in one dissertation work, which will be determined by the supervisor. An integral part of the scientific training of the doctoral student is the active presentation of the results of research work at international, and possibly also Czech professional conferences and in peer-reviewed publications. With regard to international professional conferences, during the period of his/her studies, the student must personally present a poster at least once and personally deliver a lecture at least once at an international conference. A standard component of studies is a professional internship at a reputable foreign workplace. The internship should be sufficiently long (ideally 6 months or more), so that the student can become familiar with the research procedures at other workplaces and actively become involved in the research there.</p>
Biochemistry (P0512D130016)	full-time	The student should pass at least two specialized courses ending in an examination in subjects thematically related to the dissertation topic, with reference to previous study (e.g. courses



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		<p>provided at FoS CU). Also the short courses organized in Czech Republic or abroad can be suggested to ISP. The language certificate in English with international validity (e.g. FCE – grade B, or appropriate level of CAE TOEFL) is requested (the exams are not arranged by the Subject area board). The State Doctoral Examination from Biochemistry has to be successfully passed before PhD thesis submission.</p> <p>The results of the dissertation work must be published in at least three original, peer-reviewed articles in international impact journals in the field of biochemistry, while the candidate must be the lead/the first author of at least one of these. All publications arising in conjunction with work on the dissertation project (while studying at the Department of Biochemistry) must include the address (affiliation) of the accredited workplace, i.e. Department of Biochemistry FS CU. To different options/forms of PhD thesis (full text or brief/condensed version with attached articles) are allowed. The students have to submit detailed summary of their thesis (in Czech and in English language).</p> <p>Students assist with teaching at the Department of Biochemistry FS CU, especially by helping supervise practical training courses. During their study the students report in a form of oral presentation on achieved results in seminars held by the department.</p> <p>Completion of an internship at Czech or foreign workplaces is required (internships can be funded by Mobility Fund). Active participation in student conferences and professional gatherings is also expected.</p>
Biochemistry (P0512D130016)	combined	<p>The student should pass at least two specialized courses ending in an examination in subjects thematically related to the dissertation topic, with reference to previous study (e.g. courses provided at FoS CU). Also the short courses organized in Czech Republic or abroad can be suggested to ISP. The language certificate in English with international validity (e.g. FCE – grade B, or appropriate level of CAE TOEFL) is requested (the exams are not arranged by the Subject area board). The State Doctoral Examination from Biochemistry has to be successfully passed before PhD thesis submission.</p> <p>The results of the dissertation work must be published in at least three original, peer-reviewed articles in international impact journals in the field of biochemistry, while the candidate must be the lead/the first author of at least one of these. All publications arising in conjunction with work on the dissertation project (while studying at the Department of Biochemistry) must include the address (affiliation) of the accredited workplace, i.e. Department of Biochemistry FS CU. To different options/forms of PhD thesis (full text or brief/condensed version with attached articles) are allowed. The students have to submit detailed summary of their thesis (in Czech and in English language).</p>

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		<p>Students assist with teaching at the Department of Biochemistry FS CU, especially by helping supervise practical training courses. During their study the students report in a form of oral presentation on achieved results in seminars held by the department.</p> <p>Completion of an internship at Czech or foreign workplaces is required (internships can be funded by Mobility Fund). Active participation in student conferences and professional gatherings is also expected.</p>
Botany (P0511D030024)	full-time	<p>By the end of the second semester of study the doctoral student must present his/her topic at a specialized seminar, where public discussion will take place on the topic of the doctoral work. Report on work during the first year of study before a commission appointed by the subject area board is required at the end of the first year. Taking the state doctoral examination is obligatory during the (3rd) - 4th semester of study.</p> <p>No later than the end of the sixth semester, the doctoral student will present the results of his/her project and outlook for the remainder of doctoral studies at doctoral seminars.</p> <p>English exam is not requested, knowledge of English language is anticipated. The anticipated form of dissertation work in the field of botany is a manuscript written in English, composed of at least three thematically related texts in the format of scientific articles, with a broader unifying introduction to the topic and conclusion. At least one of these articles must be published or accepted for publication in an internationally recognized scientific journal (this is generally understood to be a journal with an impact factor defined by ISI; journals with IF in the lower quarter are only suitable in clearly justified cases). Acceptance for publication must be documented in a credible manner. The introduction must be a significant portion of the work (the length of an average article) and must thoroughly present the framework and context of the work, the objective of the work, and must place the individual articles into the overall context. All parts mentioned (introduction, published/accepted articles, unpublished texts in the format of articles) must be part of the dissertation text (and not an appendix). All articles must be related to the dissertation topic.</p> <p>In duly justified cases the dissertation work can have a form of a coherent scientific monograph – the student has to be the lead author and must submit confirmation from the editors that it has been accepted for publication.</p>
Botany (P0511D030024)	combined	<p>By the end of the second semester of study the doctoral student must present his/her topic at a specialized seminar, where public discussion will take place on the topic of the doctoral work. Report on work during the first year of study before a commission appointed by the subject area board is required at the end of the first year. Taking the state doctoral examination is</p>

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		<p>obligatory during the (3rd) - 4th semester of study.</p> <p>No later than the end of the sixth semester, the doctoral student will present the results of his/her project and outlook for the remainder of doctoral studies at doctoral seminars.</p> <p>English exam is not requested, knowledge of English language is anticipated. The anticipated form of dissertation work in the field of botany is a manuscript written in English, composed of at least three thematically related texts in the format of scientific articles, with a broader unifying introduction to the topic and conclusion. At least one of these articles must be published or accepted for publication in an internationally recognized scientific journal (this is generally understood to be a journal with an impact factor defined by ISI; journals with IF in the lower quarter are only suitable in clearly justified cases). Acceptance for publication must be documented in a credible manner. The introduction must be a significant portion of the work (the length of an average article) and must thoroughly present the framework and context of the work, the objective of the work, and must place the individual articles into the overall context. All parts mentioned (introduction, published/accepted articles, unpublished texts in the format of articles) must be part of the dissertation text (and not an appendix). All articles must be related to the dissertation topic.</p> <p>In duly justified cases the dissertation work can have a form of a coherent scientific monograph – the student has to be the lead author and must submit confirmation from the editors that it has been accepted for publication.</p>
Demography (P0532D330015)	full-time	<p>1. Required courses The students have to pass all the courses they have in the ISP by the end of the second year. The students who have master degree in demography have to take at least three courses, which are: MPGS0120 Obecné kolokvium/General colloquium (DEM) and at least two other courses according to the recommended ISP. Students with a master degree in a different field have to take at least five courses: MPGS0120 Obecné kolokvium/General colloquium (DEM), three courses in the basics of demography (MD360P87 Demografická analýza I/Demographic Analysis I, MD360P88 Demografická analýza II/Demographic Analysis II and MD360P86 World Population Development) and one course according to the recommended ISP.</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam (should be passed by the end of the second year), the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations. In case of a monograph, the dissertation has at least 40 standard pages (72,000 characters) with an introductory text</p>

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		<p>that captures the core of the research activities of the student in the field of demography.</p> <p>In case of a dissertation as a set of scientific articles, at least one published/accepted article must be presented with an introductory text that captures the core of the research activities of the student in the field of demography (at least 10 pages) and a plan of publications.</p> <p>The state doctoral exam takes place in front of a committee and it consists of two parts: oral exam (to verify knowledge in the area of the dissertation) and defence of the existing part of dissertation. The dissertation is assessed by two opponents. The defence of the existing text (15-minute long presentation using presentation technology) shall prove the ability to defend preliminary results and to discuss methods chosen even before the thesis is finalized.</p> <p>The oral exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.</p> <p>The dissertation defence (PPT presentation for max. 45 minutes) shall prove the ability to present and defend methods and results of the doctoral project and the ability to discuss problems on a scientific level.</p> <p>To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad</p> <p>The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the “Internships”.</p> <p>4. Publications</p> <p>Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication.</p> <p>Dissertation as a set of publications:</p> <p>The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. In some cases (e.g. due to the topic of the dissertation), the subject-area board can accept substituting one article in a journal with IF with two articles in foreign</p>

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		<p>journals included in the database WoS/Scopus. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>Dissertation as a scientific monograph:  The monographs should be between 150 and 300 standard pages (270 to 540 thousand characters, spaces included). The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation. . In some cases (e.g. due to the topic of the dissertation), the subject-area board can accept substituting one article in a journal with IF with two articles in foreign journals included in the database WoS/Scopus.</p> <p>5. Teaching activities  The students usually participate in teaching activities and are also supervisors and opponents of bachelor theses (sometimes also master theses) and they take part in lectures and practical seminars, excursions, life-long learning courses etc. The teaching activities of the student are coordinated by the supervisor and the head of department. If the classes taught are not directly linked to the doctoral theses and/or are more frequent than one-time classes, these are financially reimbursed (by a separate contract).  In the third year, the student, after consulting the supervisor, has to provide 2-3 topics for bachelor theses in SIS. The topics have to be related to the doctoral project.</p> <p>6. The presence at the department, in hours per week  The students in the full-time study programme and in the standard period of study are present at the department at least for 8 hours per week. The students take part in everyday activities of the department, especially in organizing entrance exams, PR activities, workshops, etc. The students attend the dissertation defences in their study programme and they attend lectures of visiting scholars.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended)  During the course of studies, the students have to present the results of their research at conferences and seminars (both in Czechia and abroad) and they have to publish articles. Every year, the students take part in the seminars for PhD students. At least twice in the course of studies, the students have to present their progress (once before the state doctoral</p>

Study programme	Form of study	Requirements
		<p>exam and once before the defence).            During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Demography (P0532D330015)	combined	<p>1. Required courses            By the end of the third year, the students have to take and successfully pass all the courses in their ISP.            The students who have master degree in demography have to take at least three courses, which are: MPGS0120 Obecné kolokvium/General colloquium (DEM) and at least two other courses according to the recommended ISP. Students with a master degree in a different field have to take at least five courses: MPGS0120 Obecné kolokvium/General colloquium (DEM), three courses in the basics of demography (MD360P87 Demografická analýza I/Demographic Analysis I, MD360P88 Demografická analýza II/ Demographic Analysis II and MD360P86 World Population Development) and one course according to the recommended ISP.</p> <p>2. State doctoral exam and dissertation defence            For registration for the state doctoral exam (should be passed by the end of the third year), the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations.            In case of a monograph, the dissertation has at least 40 standard pages (72,000 characters) with an introductory text that captures the core of the research activities of the student in the field of demography.            In case of a dissertation as a set of scientific articles, at least one published/accepted article must be presented with an introductory text that captures the core of the research activities of the student in the field of demography (at least 10 pages) and a plan of publications.            The state doctoral exam takes place in front of a committee and it consists of two parts: oral exam (to verify knowledge in the area of the dissertation) and defence of the existing part of dissertation. The dissertation is assessed by two opponents. The defence of the existing text (15-minute long presentation using presentation technology) shall prove the ability to defend preliminary results and to discuss methods chosen even before the thesis is finalized.            The oral exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.            The dissertation defence (PPT presentation for max. 45 minutes) shall prove the ability to present and defend methods and results of the doctoral project and the ability to discuss problems on a scientific level.            To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation</p>

Study programme	Form of study	Requirements
		<p>in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the “Internships”.</p> <p>4. Publications Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. Dissertation as a set of publications: The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. In some cases (e.g. due to the topic of the dissertation), the subject-area board can accept substituting one article in a journal with IF with two articles in foreign journals included in the database WoS/Scopus. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research. Dissertation as a scientific monograph: The monographs should be between 150 and 300 standard pages (270 to 540 thousand characters, spaces included). The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation. . In some cases (e.g. due to the topic of the dissertation), the subject-area board can accept substituting one article in a journal with IF with two articles in foreign journals included in the database WoS/Scopus.</p> <p>5. Teaching activities Teaching is not required.</p> <p>6. The presence at the department, in hours per week Is not required.</p>

Study programme	Form of study	Requirements
		<p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended)</p> <p>During the course of studies, the students have to present the results of their research at conferences and seminars (both in Czechia and abroad) and they have to publish articles.</p> <p>Every year, the students take part in the seminars for PhD students. At least twice in the course of studies, the students have to present their progress (once before the state doctoral exam and once before the defence).</p> <p>During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Didactics of Chemistry (P0111D300004)	full-time	<p>The individual study plan must contain at least three courses, language exam, progress in writing dissertation, publications, teaching activities, participation in events related to the didactics of chemistry and internship at another institution, preferably abroad.</p> <p>Each student has to take at least one course in the field of pedagogy/psychology, in the field of didactics of chemistry and in the field of chemistry. The courses should be selected preferably from those offered for doctoral students and registered with all the necessary information. From the first to the fourth grade, the students are obliged to participate actively in the seminars for doctoral students. The students are obliged to take an English exam (or another language exam if relevant; state exam, a certified exam or an exam at the department of language preparation of PhD candidates at one of the faculties in Czechia).</p> <p>Teaching activities can take place on the university level, secondary school level or primary school level. The participation at seminars and conferences on didactics of chemistry is obligatory at least once year. The internship at another institution should last at least one month.</p> <p>State doctoral exam is in a combined form. The oral part of the exam consists of three thematic areas:</p> <ul style="list-style-type: none"> <li>a) didactics of chemistry included general didactics of chemistry, didactics of general and inorganic chemistry and didactics of organic chemistry and biochemistry</li> <li>b) pedagogical-psychological area includes pedagogy, psychology and general didactics</li> <li>c) chemistry includes inorganic chemistry, organic chemistry, analytic chemistry, physical chemistry, biochemistry</li> </ul> <p>For the state exam, the students choose one course for each thematic area.</p> <p>The second part of the state doctoral exam is a written text of a length between 25 and 35 pages. The content and length is determined by the supervisor according to the student's individual study plan. The supervisor provides an assessment of the text for the examining committee.</p> <p>Dissertation is submitted in a form of a scientific text that is between 120 and 200 pages long (appendices included). The students are expected to present their results regularly. This</p>



Study programme	Form of study	Requirements
		<p>can be done by a contribution to a peer-reviewed scientific journal or by being an author or a co-author of a monograph or its chapter. For the defence, at least two scientific articles in a peer-reviewed scientific journal are required. One of the articles can be substituted by authorship or co-authorship of a peer-reviewed monograph (at least 50 pages) or a chapter in a monograph (at least 20 pages).</p>
<p>Didactics of Chemistry (P0111D300004)</p>	<p>combined</p>	<p>The individual study plan must contain at least three courses, language exam, progress in writing dissertation, publications, teaching activities, participation in events related to the didactics of chemistry and internship at another institution, preferably abroad.</p> <p>Each student has to take at least one course in the field of pedagogy/psychology, in the field of didactics of chemistry and in the field of chemistry. The courses should be selected preferably from those offered for doctoral students and registered with all the necessary information. From the first to the fourth grade, the students are obliged to participate actively in the seminars for doctoral students. The students are obliged to take an English exam (or another language exam if relevant; state exam, a certified exam or an exam at the department of language preparation of PhD candidates at one of the faculties in Czechia).</p> <p>Teaching activities can take place on the university level, secondary school level or primary school level. The participation at seminars and conferences on didactics of chemistry is obligatory at least once year. The internship at another institution should last at least one month.</p> <p>State doctoral exam is in a combined form. The oral part of the exam consists of three thematic areas:</p> <ul style="list-style-type: none"> <li>a) didactics of chemistry included general didactics of chemistry, didactics of general and inorganic chemistry and didactics of organic chemistry and biochemistry</li> <li>b) pedagogical-psychological area includes pedagogy, psychology and general didactics</li> <li>c) chemistry includes inorganic chemistry, organic chemistry, analytic chemistry, physical chemistry, biochemistry</li> </ul> <p>For the state exam, the students choose one course for each thematic area.</p> <p>The second part of the state doctoral exam is a written text of a length between 25 and 35 pages. The content and length is determined by the supervisor according to the student's individual study plan. The supervisor provides an assessment of the text for the examining committee.</p> <p>Dissertation is submitted in a form of a scientific text that is between 120 and 200 pages long (appendices included). The students are expected to present their results regularly. This can be done by a contribution to a peer-reviewed scientific journal or by being an author or a co-author of a monograph or its chapter. For the defence, at least two scientific articles in a peer-reviewed scientific journal are required. One of the articles can be substituted by authorship or co-authorship of a peer-reviewed monograph (at least 50 pages) or a chapter in a</p>

Study programme	Form of study	Requirements
		monograph (at least 20 pages).
Didactics of Geography (P0532D330027)	full-time	<p>1. Obligatory courses During the first two year of the studies, PhD students have to pass two obligatory courses: MPGS0125 Obecné kolokvium z didaktiky geografie and MPGS0064 Teoreticko-metodologické otázky didaktiky geografie and at least two elective courses that are relevant for their dissertation. Each course should be from a different set of courses. The courses need to be approved by the supervisor.</p> <p>The elective courses are organized in three sets: 1) Methods of pedagogical research 1.2 Courses at Charles University: NDFY081 Analýza dat v pedagogickém a didaktickém výzkumu (PhDr. Martin Chvál, Ph.D.) OD0513007 Kvalitativní metodologie (doc. PhDr. Miloš Kučera, CSc.) OD0133007 Kvalitativní metody v pedagogickém výzkumu (PhDr. Karel Starý, Ph.D.) OD0133006 Kvantitativní metody výzkumu ve vzdělávání (PhDr. David Greger, Ph.D.) OD0133011 Pokročilé statistické metody v pedagogickém výzkumu (PhDr. Martin Chvál, Ph.D.) OD0133012 Psaní odborných textů (RNDr. Dominik Dvořák, Ph.D.) OD0133005 Statistika v pedagogickém výzkumu (PhDr. Martin Chvál, Ph.D.) MZ340E15 Systematic reviews and meta-analysis (prof. Hynek Pikhart, Ph.D.) NDFY071 Úvod do rešeršní a výzkumné činnosti I. (RNDr. Martina Kekule, Ph.D.) NDFY072 Úvod do rešeršní a výzkumné činnosti II. (RNDr. Martina Kekule, Ph.D.)</p> <p>1.2 Courses at other universities: ZeD0006 Teorie a metodologie výzkumu v didaktice geografie (doc. Petr Knecht, Masaryk University) Other courses are chosen according to specific methodological needs of each dissertation project.</p> <p>2) Pedagogy, psychology, general didactics and subject didactics 2.1 Courses at Charles University: OD0513015 Kulturní psychologie - vztah psychického vývoje a učení (prof. PhDr. Stanislav Štech, CSc.) OD0513010 Motivace a autoregulace žáků (doc. PhDr. Isabella Pavelková, CSc.) OD0513002 Nadání, inteligence a tvořivost (doc. PhDr. Lenka Hříbková, CSc.) OD0513006 Psychologie dětí a mládeže (doc. PhDr. Miloš Kučera, CSc.) OD0133003 Srovnávací pedagogika (prof. PhDr. Eliška Walterová, CSc.)</p>

Study programme	Form of study	Requirements
		<p>OD0114009 Teorie výchovy (doc. PhDr. Jiří Prokop, Ph.D.)  OD0115007 Teorie učitelství (prof. PhDr. Eliška Walterová, CSc.)  OD0513005 Věcné učení (PhDr. Miroslav Klusák, CSc.)  NMST570 Vybraná témata z psychometrie (RNDr. Patřicia Martinková, Ph.D.)</p> <p>2.2 Courses at other universities:  ZeD0003 Pedagogická psychologie (Mgr. et Mgr. Jan Mareš, Ph.D., Masaryk University)  ZeD0009 Kurikulární studia (doc. Mgr. Petr Knecht, Ph.D., Masaryk University)  ZeD0018 Transdisciplinární didaktika: obecné otázky oborových didaktik (prof. PhDr. Mgr. Tomáš Janík, Ph.D., Masaryk University)  Other courses are chosen according to the dissertation topic.</p> <p>3) Geography  3.1 Courses at Charles University:  MPGS0091 Ekonomická geografie pro PGS (prof. RNDr. Petr Pavlínek, Ph.D.)  MPGS0106 Geografie krajiny pro PGS (doc. RNDr. Ivan Bičík, CSc.)  MPGS0094 Geografie města pro PGS (prof. RNDr. Luděk Sýkora, Ph.D.)  MPGS0097 Geografie zdraví pro PGS (prof. RNDr. Dagmar Džurová, CSc.)  MPGS0100 Globální a nadnárodní diferenciacie světa pro PGS (doc. RNDr. Josef Novotný, Ph.D.)  MPGS0096 Historická a kulturní geografie pro PGS (doc. RNDr. Pavel Chromý, Ph.D.)  MPGS0093 Migrace obyvatelstva pro PGS (prof. RNDr. Dušan Drbohlav, Ph.D.)  MPGS0090 Regionální rozvoj a regionální politika pro PGS (doc. RNDr. Jiří Blažek, Ph.D.)  MPGS0104 Rozvojová studia pro PGS (doc. RNDr. Josef Novotný, Ph.D.)  MPGS0099 Teorie politické geografie pro PGS (prof. Petr Dostál, M.A., Ph.D.)  MPGS0098 Teorie regionální geografie pro PGS (doc. RNDr. Pavel Chromý, Ph.D.)  MPGS0088 Teorie sociální geografie pro PGS (prof. RNDr. Luděk Sýkora, Ph.D.)</p> <p>3.2 Courses at other universities:  Not specified.  Other courses are chosen according to the dissertation topic.  At least two courses need to be taken and successfully finished in the first year, the other two in the second year. Before applying for the state doctoral exam (MSZXZ005), the student has to pass the Theoretical-methodological considerations (SGR, MPGS0121); the design of the considerations is discussed and approved by the supervisor. The text of the</p>

Study programme	Form of study	Requirements
		<p>theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department. The state doctoral exam MSZXZ005 Social Geography and Regional Development has to be passed by the end of the second year.</p> <p>2. State doctoral exam and dissertation defence  For registration for the state doctoral exam (should be passed by the end of the second year), the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations.  In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories (e.g. crucial theoretical concepts and researchers) and methodological approaches in the field of geographical education and other relevant fields (geography, pedagogy, psychology, general didactics, geoinformatics, cartography etc.). Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations. The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad  The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p>4. Dissertation and publications  Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication.  Dissertation as a set of publications:  The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be</p>

Study programme	Form of study	Requirements
		<p>published in a journal with IF (according to the Web of Science) and the student has to be the first author. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation.</p> <p>5. Teaching activities The students usually participate in teaching activities and are also supervisors and opponents of bachelor theses (sometimes also master theses) and they take part in lectures and practical seminars, excursions, life-long learning courses etc. The teaching activities of the student are coordinated by the supervisor and the head of department. If the classes taught are not directly linked to the doctoral theses and/or are more frequent than one-time classes, these are financially reimbursed (by a separate contract). After consulting the supervisor, has to provide t-2 topics for bachelor theses in SIS. The topics have to be related to the doctoral project.</p> <p>6. The presence at the department, in hours per week The students in the full-time study programme and in the standard period of study are present at the department at least for 8 hours per week. The students take part in everyday activities of the department, especially in organizing entrance exams, PR activities, workshops, etc. The students attend the dissertation defences in their study programme and they attend lectures of visiting scholars.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Didactics of Geography (P0532D330027)	combined	<p>1. Obligatory courses During the first two year of the studies, PhD students have to pass two obligatory courses: MPGS0125 Obecné kolokvium z didaktiky geografie and MPGS0064 Teoreticko-metodologické otázky didaktiky geografie and at least two elective courses that are relevant for their dissertation. Each course should be from a different set of courses. The courses need to be approved by</p>

Study programme	Form of study	Requirements
		<p>the supervisor.</p> <p>The elective courses are organized in three sets:</p> <p>1) Methods of pedagogical research  1.2 Courses at Charles University:  NDFY081 Analýza dat v pedagogickém a didaktickém výzkumu (PhDr. Martin Chvál, Ph.D.)  OD0513007 Kvalitativní metodologie (doc. PhDr. Miloš Kučera, CSc.)  OD0133007 Kvalitativní metody v pedagogickém výzkumu (PhDr. Karel Starý, Ph.D.)  OD0133006 Kvantitativní metody výzkumu ve vzdělávání (PhDr. David Greger, Ph.D.)  OD0133011 Pokročilé statistické metody v pedagogickém výzkumu (PhDr. Martin Chvál, Ph.D.)  OD0133012 Psaní odborných textů (RNDr. Dominik Dvořák, Ph.D.)  OD0133005 Statistika v pedagogickém výzkumu (PhDr. Martin Chvál, Ph.D.)  MZ340E15 Systematic reviews and meta-analysis (prof. Hynek Pikhart, Ph.D.)  NDFY071 Úvod do rešeršní a výzkumné činnosti I. (RNDr. Martina Kekule, Ph.D.)  NDFY072 Úvod do rešeršní a výzkumné činnosti II. (RNDr. Martina Kekule, Ph.D.)</p> <p>1.2 Courses at other universities:  ZeD0006 Teorie a metodologie výzkumu v didaktice geografie (doc. Petr Knecht, Masaryk University)  Other courses are chosen according to specific methodological needs of each dissertation project.</p> <p>2) Pedagogy, psychology, general didactics and subject didactics  2.1 Courses at Charles University:  OD0513015 Kulturní psychologie - vztah psychického vývoje a učení (prof. PhDr. Stanislav Štech, CSc.)  OD0513010 Motivace a autoregulace žáků (doc. PhDr. Isabella Pavelková, CSc.)  OD0513002 Nadání, inteligence a tvořivost (doc. PhDr. Lenka Hříbková, CSc.)  OD0513006 Psychologie dětí a mládeže (doc. PhDr. Miloš Kučera, CSc.)  OD0133003 Srovnávací pedagogika (prof. PhDr. Eliška Walterová, CSc.)  OD0114009 Teorie výchovy (doc. PhDr. Jiří Prokop, Ph.D.)  OD0115007 Teorie učitelské profese (prof. PhDr. Eliška Walterová, CSc.)  OD0513005 Věcné učení (PhDr. Miroslav Klusák, CSc.)  NMST570 Vybraná témata z psychometrie (RNDr. Patřicia Martinková, Ph.D.)</p>

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		<p>2.2 Courses at other universities:  ZeD0003 Pedagogická psychologie (Mgr. et Mgr. Jan Mareš, Ph.D., Masaryk University)  ZeD0009 Kurikulární studia (doc. Mgr. Petr Knecht, Ph.D., Masaryk University)  ZeD0018 Transdisciplinární didaktika: obecné otázky oborových didaktik (prof. PhDr. Mgr. Tomáš Janík, Ph.D., Masaryk University)  Other courses are chosen according to the dissertation topic.</p> <p>3) Geography  3.1 Courses at Charles University:  MPGS0091 Ekonomická geografie pro PGS (prof. RNDr. Petr Pavlínek, Ph.D.)  MPGS0106 Geografie krajiny pro PGS (doc. RNDr. Ivan Bičík, CSc.)  MPGS0094 Geografie města pro PGS (prof. RNDr. Luděk Sýkora, Ph.D.)  MPGS0097 Geografie zdraví pro PGS (prof. RNDr. Dagmar Džúrová, CSc.)  MPGS0100 Globální a nadnárodní diferenciacie světa pro PGS (doc. RNDr. Josef Novotný, Ph.D.)  MPGS0096 Historická a kulturní geografie pro PGS (doc. RNDr. Pavel Chromý, Ph.D.)  MPGS0093 Migrace obyvatelstva pro PGS (prof. RNDr. Dušan Drbohlav, Ph.D.)  MPGS0090 Regionální rozvoj a regionální politika pro PGS (doc. RNDr. Jiří Blažek, Ph.D.)  MPGS0104 Rozvojová studia pro PGS (doc. RNDr. Josef Novotný, Ph.D.)  MPGS0099 Teorie politické geografie pro PGS (prof. Petr Dostál, M.A., Ph.D.)  MPGS0098 Teorie regionální geografie pro PGS (doc. RNDr. Pavel Chromý, Ph.D.)  MPGS0088 Teorie sociální geografie pro PGS (prof. RNDr. Luděk Sýkora, Ph.D.)</p> <p>3.2 Courses at other universities:  Not specified.  Other courses are chosen according to the dissertation topic.  At least two courses need to be taken and successfully finished by the end of the second year, the rest in the third year. Before applying for the state doctoral exam (MSZXZ005), the student has to pass the Theoretical-methodological considerations (SGR, MPGS0121); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department. The state doctoral exam MSZXZ005 Social Geography and Regional Development has to be passed by the end of the second year.</p>

Study programme	Form of study	Requirements
		<p>2. State doctoral exam and dissertation defence  For registration for the state doctoral exam (should be passed by the end of the second year), the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations.</p> <p>In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories (e.g. crucial theoretical concepts and researchers) and methodological approaches in the field of geographical education and other relevant fields (geography, pedagogy, psychology, general didactics, geoinformatics, cartography etc.). Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations. The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad  The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p>4. Dissertation and publications  Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. Dissertation as a set of publications:  The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text</p>



Study programme	Form of study	Requirements
		<p>that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation.</p> <p>5. Teaching activities Not required.</p> <p>6. The presence at the department, in hours per week Not required.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Ecology (P0511D030025)	full-time	<p>The number of exams is not fixed, the curriculum must be drawn up in cooperation with the supervisor. Each student will present twice in specialized seminars: once in the first year of study and second in the third year. These seminars are held in English.</p> <p>The dissertation thesis consists of a general summary and attached scientific papers - published or accepted peer-reviewed articles (or book chapters or other types of peer-reviewed scientific publications) or unpublished manuscripts (prepared for publication). The total number of manuscripts and publications required is at least three; at least one publication must be published or received in the press in a journal whose impact factor according to ISI Web of Science was at the time of acceptance of manuscript 1 or higher, or at least two publications published or accepted in the press in journals whose impact factor was at the time of receipt 0.5 or higher. At least one of the accepted paper should be the first-authored. The introduction of the dissertation should not only be a brief summary of the content of the attached works, but should put them in a broader context. If the work does not contain a separate chapter with a generalizing conclusion, a passage of similar content in the introduction should be included. The focus of the work is on manuscripts which can be expected to pass a successful peer review in impacted journals).</p> <p>A language exam is not required.</p> <p>Students are not obliged to take part in teaching, but it is positively acknowledged when they help in practice, especially</p>

Study programme	Form of study	Requirements
		<p>in the field.</p> <p>Internships are not a mandatory part of the ISP, but are highly recommended.</p>
<p>Ecology (P0511D030025)</p>	<p>combined</p>	<p>The number of exams is not fixed, the curriculum must be drawn up in cooperation with the supervisor. Each student will present twice in specialized seminars: once in the first year of study and second in the third year. These seminars are held in English.</p> <p>The dissertation thesis consists of a general summary and attached scientific papers - published or accepted peer-reviewed articles (or book chapters or other types of peer-reviewed scientific publications) or unpublished manuscripts (prepared for publication). The total number of manuscripts and publications required is at least three; at least one publication must be published or received in the press in a journal whose impact factor according to ISI Web of Science was at the time of acceptance of manuscript 1 or higher, or at least two publications published or accepted in the press in journals whose impact factor was at the time of receipt 0.5 or higher. At least one of the accepted paper should be the first-authored. The introduction of the dissertation should not only be a brief summary of the content of the attached works, but should put them in a broader context. If the work does not contain a separate chapter with a generalizing conclusion, a passage of similar content in the introduction should be included. The work is written in English. The focus of the work is on manuscripts which can be expected to pass a successful peer review in impacted journals).</p> <p>A language exam is not required.</p> <p>Students are not obliged to take part in teaching, but it is positively acknowledged when they help in practice, especially in the field.</p> <p>Internships are not a mandatory part of the ISP, but are highly recommended. If a student does not go on an internship, it is assumed that his / her international activities are realized in the form of participation in projects with international participation and in publications with foreign co-authors. Participation in conferences abroad is also required.</p>
<p>Environmental Science (P0521D030008)</p>	<p>full-time</p>	<p>Study requirements</p> <p>1st year: 1–2 courses according to the individual study plan and the topic of the doctoral dissertation</p> <p>2nd year: 0–1 courses according to the individual study plan and the topic of the doctoral dissertation</p> <p>1st–2nd year: MO550K01 Annual PhD Conference – a compulsory course during which the students present partial results of their research</p> <p>3rd–4th year: active presentation at the Annual PhD</p>

Study programme	Form of study	Requirements
		<p>Conference</p> <p>Requirements for academic research Four thematically connected publications of the research results, of which:</p> <ul style="list-style-type: none"> <li>• at least one must be published in a journal with IF (Jimp) and one in a journal in the Scopus database (Jsc)</li> <li>• other (at least two) publications can be in the form of a manuscript ready for the review process</li> <li>• the student must be the first author of at least one of the aforementioned publications (this can be a work accepted for publication after peer review)</li> </ul> <p>Requirements for internships In accordance with the standards of the Charles University study programmes, one of the requirements of the individual doctoral study plan is to complete part of the study at a foreign institution (for a cumulative period of at least one month) or directly participate in international cooperation in another form. Longer research stays are desirable but not mandatory.</p> <p>Other study requirements Active participation at an international/national conference.</p> <p>State doctoral examination and defence of dissertation thesis The selection of the study subjects for the state doctoral examination is dependent on the topic of the doctoral dissertation and the individual study plan of the candidate. The exam typically consists of one primary and one secondary study subject chosen from the six below. The primary subject is determined according to the specialization of the doctoral dissertation. The secondary subject (a related field of study) extends and supplements the knowledge of the candidate. The subjects are proposed by the chair of the Subject Area Board after consultation with the members of the board and the candidate's supervisor. For interdisciplinary projects, another relevant topic can be the subject of examination. The students are advised to consult the selection of suitable study subjects with the chair of the Subject Area Board. In accordance with the [<a href="http://www.cuni.cz/UKEN-121.html">http://www.cuni.cz/UKEN-121.html</a> - Study and Examination Code of the Charles University], the state doctoral examination consists of one part, which comprises the two chosen subjects. The study subjects match the main scopes of environmental sciences:</p> <ol style="list-style-type: none"> <li>1) meteorology, climatology, atmospheric chemistry, air quality protection</li> <li>2) hydrochemistry, limnology, water quality protection</li> <li>3) ecology, biodiversity conservation</li> <li>4) pedology, geochemistry, geological environment protection</li> <li>5) general and special methodology in environmental sciences</li> <li>6) ecotoxicology and environmental chemistry</li> </ol>

Study programme	Form of study	Requirements
Environmental Science (P0521D030008)	combined	<p>Study requirements</p> <p>1st year: 1–2 courses according to the individual study plan and the topic of the doctoral dissertation</p> <p>2nd year: 0–1 courses according to the individual study plan and the topic of the doctoral dissertation</p> <p>1st–2nd year: MO550K01 Annual PhD Conference – a compulsory course during which the students present partial results of their research</p> <p>3rd–4th year: active presentation at the Annual PhD Conference</p> <p>Requirements for academic research</p> <p>Four thematically connected publications of the research results, of which:</p> <ul style="list-style-type: none"> <li>• at least one must be published in a journal with IF (Jimp) and one in a journal in the Scopus database (Jsc)</li> <li>• other (at least two) publications can be in the form of a manuscript ready for the review process</li> <li>• the student must be the first author of at least one of the aforementioned publications (this can be a work accepted for publication after peer review)</li> </ul> <p>Requirements for internships</p> <p>In accordance with the standards of the Charles University study programmes, one of the requirements of the individual doctoral study plan is to complete part of the study at a foreign institution (for a cumulative period of at least one month) or directly participate in international cooperation in another form. Longer research stays are desirable but not mandatory.</p> <p>Other study requirements</p> <p>Active participation at an international/national conference.</p> <p>State doctoral examination and defence of dissertation thesis</p> <p>The selection of the study subjects for the state doctoral examination is dependent on the topic of the doctoral dissertation and the individual study plan of the candidate. The exam typically consists of one primary and one secondary study subject chosen from the six below. The primary subject is determined according to the specialization of the doctoral dissertation. The secondary subject (a related field of study) extends and supplements the knowledge of the candidate. The subjects are proposed by the chair of the Subject Area Board after consultation with the members of the board and the candidate's supervisor. For interdisciplinary projects, another relevant topic can be the subject of examination.</p> <p>The students are advised to consult the selection of suitable study subjects with the chair of the Subject Area Board.</p> <p>In accordance with the [<a href="http://www.cuni.cz/UKEN-121.html">http://www.cuni.cz/UKEN-121.html</a> - Study and Examination Code of the Charles University], the state doctoral examination consists of one part, which comprises the two chosen subjects. The study subjects match</p>

Study programme	Form of study	Requirements
		<p>the main scopes of environmental sciences:</p> <ol style="list-style-type: none"> <li>1) meteorology, climatology, atmospheric chemistry, air quality protection</li> <li>2) hydrochemistry, limnology, water quality protection</li> <li>3) ecology, biodiversity conservation</li> <li>4) pedology, geochemistry, geological environment protection</li> <li>5) general and special methodology in environmental sciences</li> <li>6) ecotoxicology and environmental chemistry</li> </ol>
<p>Experimental Plant Biology (P0511D030034)</p>	<p>full-time</p>	<p>The key duty of the PhD candidates is to pursue scientific activities in the field of their dissertation and to deepen their knowledge in the field of plant biology. The primary goal of doctoral studies is to learn scientific methods and thinking in order to be able to specify and solve scientific problems, critically evaluate results obtained and to transform them in publications in internationally renowned scientific journals.</p> <p>Individual study plan After the beginning of the studies, the student prepares the individual study plan (ISP) in collaboration with the supervisor. The plan includes a brief description of planned experimental work and a list of study requirements to be met before applying for the state doctoral exam. Such exam should be passed before the third year of the studies. The courses are chosen jointly by the student and the supervisor, taking into account previous studies. In case of students who obtained their master degrees at the Department of Experimental Plant Biology, Faculty of Science, Charles University, or have obtained a similar degree elsewhere, do not have to include any courses in their plan. The students who have obtained their master degree in a different field are expected to take more courses in order to level up their knowledge (such plan is prepared together with the head of the subject-area board). There is no requirement on taking an English exam, but the students are expected to have sufficient knowledge of English for everyday scientific communication, both written and spoken. The knowledge of English is also confirmed by the results presented as a part of the ISP is also at least one poster or oral presentation at a conference held in English (including students' conferences, for instance organized by the Czech Society of Experimental Plant Biology).</p> <p>Further requirements throughout the studies During the first year, the student prepares, together with the supervisor, a detailed written plan of experimental work – it is then submitted to the subject-area board. The text should be 2–3 pages long, including a short introduction to the topic, aim, hypotheses, methods, references and a detailed plan of experiments in the first year. The document is archived by the subject-area board and it is used as a material for student's evaluation, especially by those members of the subject-area board who work on related topics. The students also discuss his research with these members of the subject-area board. During the first, second and at the beginning of the fourth grade</p>

Study programme	Form of study	Requirements
		<p>(and eventually every next year), the student presents their work in front of the subject-area board and the whole department (the students of the first year present their detailed study plan). At least one of these presentations is in English. The supervisor takes part in the presentation and adds his/her comments on student's results. The following discussion focuses on the project (especially in relation to publishing possibilities) and the independent work of the student. The discussion concludes with recommendation for further work. The quality of the presentation and the discussion is reflected in the annual evaluation of the student's work. The supervisor and the subject-area board comment on student's work at least once a year.</p> <p>During the studies, at least one scientific internship abroad is expected. The length and character of such internship depends on the individual needs of the doctoral project. The length must be at least one month, the recommended length is between 3 and 6 months. Such internship does not have to be taken by students from abroad.</p> <p>It is also recommended to include the student in preparation of grant projects at the department. The student shall also prepare own grant projects (e.g. GAUK).</p> <p>Teaching activities are welcome, especially within the practical classes organized at the Department of Experimental Plant Biology, Faculty of Science. The PhD candidate can supervise bachelor theses and be their opponents, it is also possible to supervise master theses (usually in cooperation with the supervisor) and be their opponent.</p> <p><b>Publications</b></p> <p>Before defending the dissertation, the student has to provide publications. The requirements on publishing depend on the form of the dissertation:</p> <p>1) The shortened form of dissertation is a set of at least three scientific texts accompanied by a commentary. This form is preferred by the subject-area board. The scientific texts included can be articles in journals with impact factor or chapters in monographs related to the doctoral project. These publications must be already published or accepted for publication. In at least two of them, the PhD candidate must be the first author and they must be published in a journal with the IF higher than 1.5 (approx. slightly above the median of the field). In case of publication with the IF higher than 4 (approx. the upper decile in the field), with the PhD candidate as the first author, it is possible to have only two texts published or accepted and the third (or more) only as a manuscript ready for submission.</p> <p>2) Dissertation in a classic form as a monograph must be accompanied by at least one text published or accepted for publication in a journal with IF related to the topic of the dissertation. The PhD candidate must be the first author. In such case, the members of the subject-area board who work on similar topics and the opponents assess whether the</p>

Study programme	Form of study	Requirements
		dissertation contains enough suitable and technically well done experiments and a relevant discussion of the results.
Experimental Plant Biology (P0511D030034)	combined	<p>The key duty of the PhD candidates is to pursue scientific activities in the field of their dissertation and to deepen their knowledge in the field of plant biology. The primary goal of doctoral studies is to learn scientific methods and thinking in order to be able to specify and solve scientific problems, critically evaluate results obtained and to transform them in publications in internationally renowned scientific journals.</p> <p><b>Individual study plan</b> After the beginning of the studies, the student prepares the individual study plan (ISP) in collaboration with the supervisor. The plan includes a brief description of planned experimental work and a list of study requirements to be met before applying for the state doctoral exam. Such exam should be passed before the third year of the studies. The courses are chosen jointly by the student and the supervisor, taking into account previous studies. In case of students who obtained their master degrees at the Department of Experimental Plant Biology, Faculty of Science, Charles University, or have obtained a similar degree elsewhere, do not have to include any courses in their plan. The students who have obtained their master degree in a different field are expected to take more courses in order to level up their knowledge (such plan is prepared together with the head of the subject-area board). There is no requirement on taking an English exam, but the students are expected to have sufficient knowledge of English for everyday scientific communication, both written and spoken. The knowledge of English is also confirmed by the results presented as a part of the ISP is also at least one poster or oral presentation at a conference held in English (including students' conferences, for instance organized by the Czech Society of Experimental Plant Biology).</p> <p><b>Further requirements throughout the studies</b> During the first year, the student prepares, together with the supervisor, a detailed written plan of experimental work – it is then submitted to the subject-area board. The text should be 2–3 pages long, including a short introduction to the topic, aim, hypotheses, methods, references and a detailed plan of experiments in the first year. The document is archived by the subject-area board and it is used as a material for student's evaluation, especially by those members of the subject-area board who work on related topics. The students also discuss his research with these members of the subject-area board. During the first, second and at the beginning of the fourth grade (and eventually every next year), the student presents their work in front of the subject-area board and the whole department (the students of the first year present their detailed study plan). At least one of these presentations is in English. The supervisor takes part in the presentation and adds his/her comments on student's results. The following discussion</p>

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		<p>focuses on the project (especially in relation to publishing possibilities) and the independent work of the student. The discussion concludes with recommendation for further work. The quality of the presentation and the discussion is reflected in the annual evaluation of the student's work. The supervisor and the subject-area board comment on student's work at least once a year.</p> <p>During the studies, at least one scientific internship abroad is expected. The length and character of such internship depends on the individual needs of the doctoral project. The length must be at least one month, the recommended length is between 3 and 6 months. Such internship does not have to be taken by students from abroad.</p> <p>It is also recommended to include the student in preparation of grant projects at the department. The student shall also prepare own grant projects (e.g. GAUK).</p> <p>Teaching activities are welcome, especially within the practical classes organized at the Department of Experimental Plant Biology, Faculty of Science. The PhD candidate can supervise bachelor theses and be their opponents, it is also possible to supervise master theses (usually in cooperation with the supervisor) and be their opponent.</p> <p><b>Publications</b></p> <p>Before defending the dissertation, the student has to provide publications. The requirements on publishing depend on the form of the dissertation:</p> <p>1) The shortened form of dissertation is a set of at least three scientific texts accompanied by a commentary. This form is preferred by the subject-area board. The scientific texts included can be articles in journals with impact factor or chapters in monographs related to the doctoral project. These publications must be already published or accepted for publication. In at least two of them, the PhD candidate must be the first author and they must be published in a journal with the IF higher than 1.5 (approx. slightly above the median of the field). In case of publication with the IF higher than 4 (approx. the upper decile in the field), with the PhD candidate as the first author, it is possible to have only two texts published or accepted and the third (or more) only as a manuscript ready for submission.</p> <p>2) Dissertation in a classic form as a monograph must be accompanied by at least one text published or accepted for publication in a journal with IF related to the topic of the dissertation. The PhD candidate must be the first author. In such case, the members of the subject-area board who work on similar topics and the opponents assess whether the dissertation contains enough suitable and technically well done experiments and a relevant discussion of the results.</p>
Philosophy and History of Science (P0223D030002)	full-time	<p>Study requirements</p> <p>1) The study plan is made individually according to the dissertation topic. The courses are chosen above all from those offered by the Department of Philosophy and History of</p>



Study programme	Form of study	Requirements
		<p>Science, Faculty of Science, Charles University, but also from other courses offered by the Faculty of Arts and Philosophy, Faculty of Science, or by other institutions. The student works in a close cooperation with their supervisor according to whom the subject-area board determines the content of the student's individual plan. The main part of the study programme is the doctoral project whose topic, schedule and solution are the mainly in hands of the PhD candidate. The goal is therefore to develop student's independence and creative potential. The supervisor's role is to stimulate these qualities. The doctoral project is subject to approval of the subject-area board.</p> <p>2) Another requirement is the state final examination. After consulting the supervisor and the head of the subject-area board, the student chooses three sets of questions related to their studies and to the topic of their dissertation.</p> <p>3) The obvious part of studies is also building contacts abroad, usually through a several month long stay at an institution abroad.</p> <p>4) The students are also expected to participate actively in specialized seminars of the department, especially those related to history of science – such participation is expected throughout the studies. The students have to present their progress regularly at these seminars – both in terms of dissertation and publishing activities.</p> <p>5) Subject-area board's requirements on publishing activities of doctoral students:</p> <p>a) Obligatory publications before the submission of dissertation (if the dissertation is a monograph): In general, one publication in a scientific journal or in a thematic book is expected. Such publication should be published in time of the submission or it should be accepted for publication.</p> <p>b) Under relevant circumstances, it is possible to submit a dissertation in a form of a set of publications (if the dissertation is of a cumulative form, i.e. monothematic set of publications): At least three publications in relevant scientific journals accompanied by an introductory text in the dissertation. The requirements given must be met by the end of the fourth grade of studies in order to submit the dissertation successfully.</p> <p><b>Creative activity requirements</b>  In general, one publication in a scientific journal or in a thematic book is expected, i.e. a study, chapter in a monograph or a dictionary, or another adequate output (in case of a cumulative dissertation at least three such publications). The basic requirement is then the student's continuous work on their doctoral project. The progress is regularly discussed with the supervisor and taken into account in every annual assessment. The progress is usually presented at least once a year and discussed in detail at a seminar. In the third grade the latest, the student has to present their progress in front of the meeting of the whole department, the members of the subject-area board included. Another necessary requirement is an active participation and presentation of own work at international</p>

Study programme	Form of study	Requirements
		<p>conferences. The dissertation may be in a classic form (monograph), but in relevant case a cumulative form is allowed. All journal articles and book chapters included in the set of publications in the dissertation shall be closely related to the topic of the doctoral project. The candidate must be able to defend them all. Other work or publications that do not meet the criteria above can be only included in the appendix.</p> <p>Internship requirements The student must participate at least in one month-long internship abroad (for which there is currently a wide range of options), or to participate in other relevant ways in international cooperation. The Department of Philosophy and History of Science has signed multiple bilateral agreements with the following institutions abroad: Friedrich-Schiller-University of Jena (Faculty of Biology and Pharmacy) University of Tartu (Faculty of Philosophy) University of Leeds (Faculty of Arts) University of Ljubjana (Faculty of Arts) Institute of Philosophy, Zagreb Upon agreement, it is possible to stay also at other institutions abroad, or eventually to sign a new agreement. Another possibility how to fund a stay abroad is the mobility fund of the Charles University, or a scholarship based on intergovernmental agreements. There are news on this topic also on the faculty website.</p> <p>Other requirements The student should actively attempt to participate in conferences abroad. The department offers a possibility of pedagogical experience by leading own seminar or by teaching with the supervisor or other colleagues. The participation in common grant projects is welcome and recommended (for instance GAUK). Potential other requirements depend on the topic of the doctoral project and they are specified in the individual study plan.</p>
Philosophy and History of Science (P0223D030002)	combined	<p>Study requirements</p> <p>1) The study plan is made individually according to the dissertation topic. The courses are chosen above all from those offered by the Department of Philosophy and History of Science, Faculty of Science, Charles University, but also from other courses offered by the Faculty of Arts and Philosophy, Faculty of Science, or by other institutions. The student works in a close cooperation with their supervisor according to whom the subject-area board determines the content of the student's individual plan. The main part of the study programme is the doctoral project whose topic, schedule and solution are the mainly in hands of the PhD candidate. The goal is therefore to develop student's independence and creative potential. The supervisor's role is to stimulate these qualities. The doctoral project is subject to approval of the subject-area board.</p> <p>2) Another requirement is the state final examination. After</p>

Study programme	Form of study	Requirements
		<p>consulting the supervisor and the head of the subject-area board, the student chooses three sets of questions related to their studies and to the topic of their dissertation.</p> <p>3) The obvious part of studies is also building contacts abroad, usually through a several month long stay at an institution abroad.</p> <p>4) The students are also expected to participate actively in specialized seminars of the department, especially those related to history of science – such participation is expected throughout the studies. The students have to present their progress regularly at these seminars – both in terms of dissertation and publishing activities.</p> <p>5) Subject-area board's requirements on publishing activities of doctoral students:</p> <p>a) Obligatory publications before the submission of dissertation (if the dissertation is a monograph): In general, one publication in a scientific journal or in a thematic book is expected. Such publication should be published in time of the submission or it should be accepted for publication.</p> <p>b) Under relevant circumstances, it is possible to submit a dissertation in a form of a set of publications (if the dissertation is of a cumulative form, i.e. monothematic set of publications): At least three publications in relevant scientific journals accompanied by an introductory text in the dissertation. The requirements given must be met by the end of the fourth grade of studies in order to submit the dissertation successfully.</p> <p><b>Creative activity requirements</b>  In general, one publication in a scientific journal or in a thematic book is expected, i.e. a study, chapter in a monograph or a dictionary, or another adequate output (in case of a cumulative dissertation at least three such publications). The basic requirement is then the student's continuous work on their doctoral project. The progress is regularly discussed with the supervisor and taken into account in every annual assessment. The progress is usually presented at least once a year and discussed in detail at a seminar. In the third grade the latest, the student has to present their progress in front of the meeting of the whole department, the members of the subject-area board included. Another necessary requirement is an active participation and presentation of own work at international conferences. The dissertation may be in a classic form (monograph), but in relevant case a cumulative form is allowed. All journal articles and book chapters included in the set of publications in the dissertation shall be closely related to the topic of the doctoral project. The candidate must be able to defend them all. Other work or publications that do not meet the criteria above can be only included in the appendix.</p> <p><b>Internship requirements</b>  The student must participate at least in one month-long internship abroad (for which there is currently a wide range of options), or to participate in other relevant ways in international</p>

Study programme	Form of study	Requirements
		<p>cooperation. The Department of Philosophy and History of Science has signed multiple bilateral agreements with the following institutions abroad:  Friedrich-Schiller-University of Jena (Faculty of Biology and Pharmacy)  University of Tartu (Faculty of Philosophy)  University of Leeds (Faculty of Arts)  University of Ljubjana (Faculty of Arts)  Institute of Philosophy, Zagreb</p> <p>Upon agreement, it is possible to stay also at other institutions abroad, or eventually to sign a new agreement. Another possibility how to fund a stay abroad is the mobility fund of the Charles University, or a scholarship based on intergovernmental agreements. There are news on this topic also on the faculty website.</p> <p>Other requirements  The student should actively attempt to participate in conferences abroad. The department offers a possibility of pedagogical experience by leading own seminar or by teaching with the supervisor or other colleagues. The participation in common grant projects is welcome and recommended (for instance GAUK). Potential other requirements depend on the topic of the doctoral project and they are specified in the individual study plan.</p>
Physical Geography and Geoecology (P0532D330021)	full-time	<p>Study requirements  The study plan contains obligatory courses Colloquium of PhD students (zápočet) and General and Regional Physical Geography (exam). The exam in General and Regional Physical Geography is in a form of a written review (15 to 20 pages). The review describes the topic of the dissertation in the context of physical geography, which relevant concepts it develops (it serves as an introduction to the dissertation). The topic is assigned according to the specialization studied. The examiner is (if possible) an associate professor and a person different from the supervisor. The study plan also includes two or three courses (with exams), at least one should be taken outside the Faculty of Science. All the courses are taken in the first two years of the studies. The state doctoral exam is taken between the end of the second year and the end of the third year.  Study requirements and the progress is specified in the study plan.</p> <p>Creative activity requirements  The dissertation contains own results and results that are published or accepted for publication. If the dissertation is a monograph, at least one article must be published in a foreign journal with IF and the other two in the database WoS/SCOPUS. The PhD candidate must be the first author of at least two of these articles.  If the dissertation is a monothematic set of publications, at least one of these publications must be an article in a foreign journal</p>

Study programme	Form of study	Requirements
		<p>with IF. The total number of original scientific texts is four (articles in scientific journals, chapters in monographs). The PhD candidate must be the first author of at least two of these texts.</p> <p>If a publication has not been published yet, the PhD candidate has to submit a confirmation of acceptance for publication. Two of the four publications can be under review. It is recommended that at least one of the articles where the PhD is the first author is published (or accepted for publication) in a journal with IF above the median of the field of physical geography.</p> <p>The result of the defence is determined by a committee according to the quality of the dissertation and the opponents' reports.</p> <p><b>Internship</b> The student has to go abroad for a study or research internship. The international mobility is an integral part of the study plan, the length (at least one month) and the exact form are determined according to the dissertation topic.</p> <p><b>Other study requirements</b> It is recommended for the students to take part in teaching activities in collaboration with their supervisor, the head of the department and the guarantors of the study programmes. The students can also be supervisors and opponents of bachelor theses.</p> <p><b>State doctoral exam</b> The state doctoral exam consists of the defence of the main theses of the dissertation, the obligatory subject of general and regional physical geography and a specialized exam related to the dissertation topic.</p> <p>1. Dissertation theses These theses serve as a material for a scientific discussion on the progress of the dissertation writing.</p> <p>1) Introduction – main research questions and the aims related to them, definition of research problems dealt with in the dissertation, theoretical concepts 2) Literature overview 3) Methods used 4) Progress and preliminary results 5) References 6) Publications the student has already published on the topic (only scientific articles)</p> <p>The theses are presented in 15 minutes. The maximum length is 2,500 words. The theses are sent to the committee at least two weeks in advance.</p> <p>1) General and regional physical geography – examples of topics for the state doctoral exam (The topics are cross-sectional, the aim is to verify the overall knowledge.) Different development of reliefs in different climatic zones</p>

Study programme	Form of study	Requirements
		<p>Formation and development of the glacial zone            Influence of the planetary atmospheric circulation and relief on river regimes            Water supplies on Earth in relation to the environmental changes            Main factors influencing the geodiversity and biodiversity</p> <p>2) Specialized exam – examples of the topics for the state doctoral exam            (This exam verifies knowledge in the field of the dissertation.)            Modelling selected processes in physical geography            Influence of glacial processes on relief development            Extreme river regimes            Drought, its characteristics and causes            Impact landscape fragmentation on biodiversity, organism mobility and substance flows</p>
Physical Geography and Geoecology (P0532D330021)	combined	<p>Study requirements            The study plan contains obligatory courses Colloquium of PhD students (zápočet) and General and Regional Physical Geography (exam). The exam in General and Regional Physical Geography is in a form of a written review (15 to 20 pages). The review describes the topic of the dissertation in the context of physical geography, which relevant concepts it develops (it serves as an introduction to the dissertation). The topic is assigned according to the specialization studied. The examiner is (if possible) an associate professor and a person different from the supervisor. The study plan also includes two or three courses (with exams), at least one should be taken outside the Faculty of Science. All the courses are taken in the first two years of the studies. The state doctoral exam is taken between the end of the second year and the end of the third year.            Study requirements and the progress is specified in the study plan.</p> <p>Creative activity requirements            The dissertation contains own results and results that are published or accepted for publication. If the dissertation is a monograph, at least one article must be published in a foreign journal with IF and the other two in the database WoS/SCOPUS. The PhD candidate must be the first author of at least two of these articles.            If the dissertation is a monothematic set of publications, at least one of these publications must be an article in a foreign journal with IF. The total number of original scientific texts is four (articles in scientific journals, chapters in monographs). The PhD candidate must be the first author of at least two of these texts.            If a publication has not been published yes, the PhD candidate has to submit a confirmation of acceptance for publication. Two of the four publications can be under review. It is recommended that at least one of the articles where the PhD is the first author is published (or accepted for publication) in a journal with IF</p>

Study programme	Form of study	Requirements
		<p>above the median of the field of physical geography. The result of the defence is determined by a committee according to the quality of the dissertation and the opponents' reports.</p> <p><b>Internship</b> The student has to go abroad for a study or research internship. The international mobility is an integral part of the study plan, the length (at least one month) and the exact form are determined according to the dissertation topic.</p> <p><b>Other study requirements</b> It is recommended for the students to take part in teaching activities in collaboration with their supervisor, the head of the department and the guarantors of the study programmes. The students can also be supervisors and opponents of bachelor theses.</p> <p><b>State doctoral exam</b> The state doctoral exam consists of the defence of the main theses of the dissertation, the obligatory subject of general and regional physical geography and a specialized exam related to the dissertation topic.</p> <p>1. Dissertation theses These theses serve as a material for a scientific discussion on the progress of the dissertation writing.</p> <p>1) Introduction – main research questions and the aims related to them, definition of research problems dealt with in the dissertation, theoretical concepts 2) Literature overview 3) Methods used 4) Progress and preliminary results 5) References 6) Publications the student has already published on the topic (only scientific articles)</p> <p>The theses are presented in 15 minutes. The maximum length is 2,500 words. The theses are sent to the committee at least two weeks in advance.</p> <p>1) General and regional physical geography – examples of topics for the state doctoral exam (The topics are cross-sectional, the aim is to verify the overall knowledge.) Different development of reliefs in different climatic zones Formation and development of the glacial zone Influence of the planetary atmospheric circulation and relief on river regimes Water supplies on Earth in relation to the environmental changes Main factors influencing the geodiversity and biodiversity</p> <p>2) Specialized exam – examples of the topics for the state doctoral exam</p>

Study programme	Form of study	Requirements
		<p>(This exam verifies knowledge in the field of the dissertation.)  Modelling selected processes in physical geography  Influence of glacial processes on relief development  Extreme river regimes  Drought, its characteristics and causes  Impact landscape fragmentation on biodiversity, organism mobility and substance flows</p> <p>Note: The combined form of study does not necessarily require stay abroad neither teaching, but these activities are welcome.</p>
Physical Chemistry (P0531D130037)	full-time	<p>Study requirements and their completing is specified in the individual study plan.</p> <p>Requirements</p> <ol style="list-style-type: none"> <li>1) In the first and second year, students must complete at least two courses ending with an exam related to the topic of the dissertation. The courses are chosen after discussion with the supervisor and are subject to the approval of the subject-area board.</li> <li>2) Passing a certified English exam (e.g. FCE, TOEFL) before applying for the state doctoral exam.</li> <li>3) During the third or the fourth year, the students have to pass the state doctoral exam in physical chemistry.</li> <li>4) Publishing at least 2 articles in international peer-reviewed journals with IF on a topic related to the topic of dissertation. The candidate must be the first author of at least one of these articles.</li> <li>5) During the first to the fourth year, the students are expected to participate regularly at seminars where they should also present their results (twice during the whole course of study, i.e. for example in the second and in the fourth year).</li> </ol> <p>Publications and dissertation</p> <p>The candidates have to have at least two articles published (or accepted for publication) in peer-reviewed international journals with IF. The articles must be related to the topic of dissertation. The candidate must be the first author of at least one of these articles (main contributor).</p> <p>Dissertation can be submitted either in a standard form (monograph) or in a shortened form (article-based). For the standard form, it is necessary to have at least two publications. The standard form is a complete text with an introduction, aims, methods, results, discussion, summary and references. The minimum length of the standard form is 50 pages. The shortened form contains a monothematic set of at least four published texts that meet the same criteria as for the standard form. The candidate has to be the first author of at least one of the articles. The shortened form of dissertation contains at least an introduction, methods, results and discussion of the results obtained, but in a shorter text of 30 to 50 pages. The publications are then appendix of such dissertation.</p> <p>Other requirements</p>



Study programme	Form of study	Requirements
		<p>1. Active participation at an international conference that includes presentation of results.</p> <p>2. Regular active participation at seminars of the department (Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University, or institutes of the Academy of Science where the student works on the dissertation) with presentation of own progress (at least twice during the course of studies).</p> <p>State doctoral exams The exam is typically passed during the fourth or fifth semester. It is done in front of a committee. The candidate is examined in the field of physical chemistry and its interdisciplinary relations and current research trends.</p>
Physical Chemistry (P0531D130037)	combined	<p>Study requirements and their completing is specified in the individual study plan.</p> <p>Requirements</p> <p>1) In the first and second year, students must complete at least two courses ending with an exam related to the topic of the dissertation. The courses are chosen after discussion with the supervisor and are subject to the approval of the subject-area board.</p> <p>2) Passing a certified English exam (e.g. FCE, TOEFL) before applying for the state doctoral exam.</p> <p>3) During the third or the fourth year, the students have to pass the state doctoral exam in physical chemistry.</p> <p>4) Publishing at least 2 articles in international peer-reviewed journals with IF on a topic related to the topic of dissertation. The candidate must be the first author of at least one of these articles.</p> <p>5) During the first to the fourth year, the students are expected to participate regularly at seminars where they should also present their results (twice during the whole course of study, i.e. for example in the second and in the fourth year).</p> <p>Publications and dissertation The candidates have to have at least two articles published (or accepted for publication) in peer-reviewed international journals with IF. The articles must be related to the topic of dissertation. The candidate must be the first author of at least one of these articles (main contributor). Dissertation can be submitted either in a standard form (monograph) or in a shortened form (article-based). For the standard form, it is necessary to have at least two publications. The standard form is a complete text with an introduction, aims, methods, results, discussion, summary and references. The minimum length of the standard form is 50 pages. The shortened form contains a monothematic set of at least four published texts that meet the same criteria as for the standard form. The candidate has to be the first author of at least one of the articles. The shortened form of dissertation contains at least an introduction, methods, results and discussion of the results</p>

Study programme	Form of study	Requirements
		<p>obtained, but in a shorter text of 30 to 50 pages. The publications are then appendix of such dissertation.</p> <p>Other requirements</p> <ol style="list-style-type: none"> <li>1. Active participation at an international conference that includes presentation of results.</li> <li>2. Regular active participation at seminars of the department (Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University, or institutes of the Academy of Science where the student works on the dissertation) with presentation of own progress (at least twice during the course of studies).</li> </ol> <p>State doctoral exams</p> <p>The exam is typically passed during the fourth or fifth semester. It is done in front of a committee. The candidate is examined in the field of physical chemistry and its interdisciplinary relations and current research trends.</p>
Animal Physiology (P0511D030032)	full-time	<p>Study obligations</p> <p>Individual study plan (ISP) contains at least two examinations in specialized subjects at the master's level that are related to the dissertation topic. Foreign language examination is not a mandatory requirement. However, ISP can be extended by foreign language examination if recommended by the supervisor or by the subject area board. All these examinations should be done during the first two years of study. The state doctoral examination of Animal Physiology should be completed before the end of the third year of study.</p> <p>Requirements for creative activity</p> <p>Publishing at least two articles in international peer-reviewed journals related to the dissertation topic.</p> <p>Presenting results at a seminar or adequate conference.</p> <p>Writing a thesis either in the classic format ("a monograph thesis") or in the cumulative format ("an article-based thesis").</p> <p>The dissertation thesis in the classic format, which consists of an Abstract in Czech and in English, an Introduction and a detailed Background (literature overview), Aims of the thesis, Materials and methods, Discussion, Conclusions, and a List of references, must contain at least two original scientific articles related to the dissertation topic that were had been accepted for publication in journals with IF. The doctoral student must be the lead author of at least one of these articles. In exceptional cases, if the doctoral student is the lead author of an original scientific article with IF over 5, only one such article may be sufficient. The admissibility of one publication instead of two publications as a base for the dissertation is always judged by the subject area board. A dissertation in cumulative format presents a set of at least four original scientific articles related to the dissertation topic that were accepted for publication in journals with IF. The doctoral student must be the lead author of at least two of these articles. If the doctoral student is the lead author of an original scientific article with IF over 5, only three articles may be sufficient. If the doctoral student is the lead</p>

Study programme	Form of study	Requirements
		<p>author of two original scientific articles with IF over 5, only these two articles may be sufficient. The admissibility of lower number of publications as a base for the dissertation is always judged by the subject area board. The cumulative dissertation must present a commentary of at least 20 pages containing an Abstract in Czech and in English, an Introduction and a detailed Background (literature overview), Aims of the thesis, a brief List of methods, a brief summary of Results, Discussion, Conclusions, and a List of references. The authorship of the requested number of publications is a required condition for dissertation submission and defense but it does not guarantee the award of a doctoral degree. The dissertation can be written in Czech or English.</p> <p>Completion of an international internship According to the regulations of doctoral study programmes at the UK, students are obliged to pass part of the study (at least one month) at a foreign institution, or participate in an international creative project with results published or presented abroad, or otherwise be involved in direct participation in international cooperation. Longer internship is advisable but is not required.</p> <p>Further study obligations Active participation in relevant international conferences. Potential participation in practical training of bachelor or master students and leading and/or evaluating the work of undergraduate students. Teaching activities of doctoral students are always coordinated with the supervisor.</p>
Animal Physiology (P0511D030032)	combined	<p>Study obligations Individual study plan (ISP) contains at least two examinations in specialized subjects at the master's level that are related to the dissertation topic. Foreign language examination is not a mandatory requirement. However, ISP can be extended by foreign language examination if recommended by the supervisor or by the subject area board. All these examinations should be done during the first two years of study. The state doctoral examination of Animal Physiology should be completed before the end of the third year of study.</p> <p>Requirements for creative activity Publishing at least two articles in international peer-reviewed journals related to the dissertation topic. Presenting results at a seminar or adequate conference. Writing a thesis either in the classic format ("a monograph thesis") or in the cumulative format ("an article-based thesis"). The dissertation thesis in the classic format, which consists of an Abstract in Czech and in English, an Introduction and a detailed Background (literature overview), Aims of the thesis, Materials and methods, Discussion, Conclusions, and a List of references, must contain at least two original scientific articles related to the dissertation topic that were had been accepted for publication in journals with IF. The doctoral student must be the lead author of at least one of these articles. In exceptional cases, if the doctoral student is the lead author of an original scientific article with IF over 5, only one such article may be</p>

Study programme	Form of study	Requirements
		<p>sufficient. The admissibility of one publication instead of two publications as a base for the dissertation is always judged by the subject area board. A dissertation in cumulative format presents a set of at least four original scientific articles related to the dissertation topic that were accepted for publication in journals with IF. The doctoral student must be the lead author of at least two of these articles. If the doctoral student is the lead author of an original scientific article with IF over 5, only three articles may be sufficient. If the doctoral student is the lead author of two original scientific articles with IF over 5, only these two articles may be sufficient. The admissibility of lower number of publications as a base for the dissertation is always judged by the subject area board. The cumulative dissertation must present a commentary of at least 20 pages containing an Abstract in Czech and in English, an Introduction and a detailed Background (literature overview), Aims of the thesis, a brief List of methods, a brief summary of Results, Discussion, Conclusions, and a List of references. The authorship of the requested number of publications is a required condition for dissertation submission and defense but it does not guarantee the award of a doctoral degree. The dissertation can be written in Czech or English.</p> <p>Completion of an international internship According to the regulations of doctoral study programmes at the UK, students are obliged to pass part of the study (at least one month) at a foreign institution, or participate in an international creative project with results published or presented abroad, or otherwise be involved in direct participation in international cooperation. Longer internship is advisable but is not required.</p> <p>Further study obligations Active participation in relevant international conferences. Potential participation in practical training of bachelor or master students and leading and/or evaluating the work of undergraduate students. Teaching activities of doctoral students are always coordinated with the supervisor.</p>
Geoinformatics, Cartography and Remote Sensing (P0532D330023)	full-time	<p>Required courses The study plan includes at least 3 courses (completed with an exam) related to the topic of dissertation. At least one of the courses has to be taken outside the Faculty of Science (even abroad). At least half of the courses need to be taken and successfully finished in the first year, the rest in the second year. In each year, the PhD candidate presents (and therefore prove) their progress in dissertation writing during a seminar for PhD students. The preparation for this seminar can be used for the annual evaluation and the discussion at the seminar can help the supervisor and the subject-area board in their assessment of the student's work. Before applying for the state doctoral exam, the student has to pass the Theoretical-methodological considerations; the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral</p>

Study programme	Form of study	Requirements
		<p>exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department.</p> <p>Other requirements for the four years of study:</p> <p>1st year of study: At the end of the first year, the student has to have one article published or received for publication in peer-reviewed journal (ideally with an impact factor), or a manuscript sent to such a journal (in such case the relevance of the article will be assessed by the subject-area board).</p> <p>2nd – 3rd year: In this period, the student publishes at least two articles, at least one of them in a foreign journal with an impact factor. At least once during this period, the student has to present own work at a conference in Czechia and once at a conference abroad.</p> <p>The state doctoral exam is recommended to be taken by the end of the second year and it has to be taken by the end of the third year the latest.</p> <p>Requirements on written production</p> <p>By written production, it is mainly meant work on dissertation and preparation of scientific articles on topics related to the dissertation project. The students are advised to take part in preparation and realization of grant projects at their department. Usually, the students prepare their own application for a grant funded by GA UK, related to the topics of dissertation.</p> <p>Dissertation can consist of a monothematic set of scientific articles or it can be a scientific monograph. It contains original and published results or results accepted for publication.</p> <p>Obligatory publications before the thesis defence:</p> <p>1) Dissertation as a monograph: The student has to publish at least three scientific articles in peer-reviewed scientific journals. At least two of them have to be published in a journal with impact factor (at least one in a journal abroad). The student has to be the first author of at least one of the articles.</p> <p>2) Dissertation as a set of publications: The student has to publish at least four scientific texts (articles in peer-reviewed scientific journals, chapters in peer-reviewed monographs published by renown publishers, eg. Academia, Nakladatelství ČGS, Springer). At least two have to be published in a journal with IF. The student has to be the first author of at least one of the articles. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>The publications accepted for 1) and 2) have to meet the following conditions: a) they are related to the dissertation project b) if a publication is a collective one, the student's contribution is significant and it includes scientific work, not only formal aspects c) only publications with affiliation to the department are accepted.</p> <p>For the collective publications, the student's contribution has to</p>

Study programme	Form of study	Requirements
		<p>be specified – such specification is included in the introduction of the dissertation. If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. For both types of dissertation, it is acceptable that one of the publications is under review (the student provides a confirmation of the submission for a review). In such case, the quality of the text is assessed by the opponents and the committee.</p> <p><b>Study stay abroad</b>  During the standard period of study, the students have to go abroad to study or to conduct research (for the topic related to their dissertation). The length and the character of the stay are related to the specific requirements of the dissertation project. The stay is at least one month long; the recommended length is 3 to 6 months. In exceptional cases, when such stay cannot be realized, the student takes part in international cooperation in a different way, for instance by direct participation in an international research project.</p> <p><b>State doctoral exam and dissertation defence</b>  For registration for the state doctoral exam, the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations.  The exam has a form of a discussion of the theoretical-methodological considerations. The students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). The committee members verify the student's ability to relate a research problem to general theories and methodological approaches. During the discussion, the committee assesses the student's knowledge in one of the study topics (geographical information systems, cartography or remote sensing), according to the dissertation project. The students are expected to have detailed and updated knowledge and to be able to interpret them in a wider context, also in the other two study topics.  The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p><b>Teaching activities</b>  The students usually participate in teaching activities (lectures, seminars, excursions, life-long learning programmes, etc.) and are also supervisors and opponents of bachelor theses (sometimes also master theses). The teaching activities of the student are coordinated by the supervisor and the head of department. If the classes taught are not directly linked to the doctoral theses and/or are more frequent than one-time</p>

Study programme	Form of study	Requirements
		<p>classes, these are financially reimbursed (by a separate contract).</p> <p>The presence and activities at the department, in hours per week  The students in the full-time study programme and in the standard period of study are present at the department at least for 12 hours per week. The students take part in everyday activities of the department, especially in organizing entrance exams, PR activities, workshops, etc. The students attend the dissertation defences in their study programme and they attend lectures of visiting scholars.</p>
<p>Geoinformatics, Cartography and Remote Sensing (P0532D330023)</p>	<p>combined</p>	<p>Required courses  The study plan includes at least 3 courses (completed with an exam) related to the topic of dissertation. At least one of the courses has to be taken outside the Faculty of Science (even abroad). At least half of the courses need to be taken and successfully finished in the first year, the rest in the second year. In each year, the PhD candidate presents (and therefore prove) their progress in dissertation writing during a seminar for PhD students. The preparation for this seminar can be used for the annual evaluation and the discussion at the seminar can help the supervisor and the subject-area board in their assessment of the student's work. Before applying for the state doctoral exam, the student has to pass the Theoretical-methodological considerations; the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department.</p> <p>Other requirements for the four years of study:  1st year of study: At the end of the first year, the student has to have one article published or received for publication in peer-reviewed journal (ideally with an impact factor), or a manuscript sent to such a journal (in such case the relevance of the article will be assessed by the subject-area board).  2nd – 3rd year: In this period, the student publishes at least two articles, at least one of them in a foreign journal with an impact factor. At least once during this period, the student has to present own work at a conference in Czechia and once at a conference abroad.  The state doctoral exam is recommended to be taken by the end of the second year and it has to be taken by the end of the third year the latest.</p> <p>Requirements on written production  By written production, it is mainly meant work on dissertation and preparation of scientific articles on topics related to the dissertation project. The students are advised to take part in preparation and realization of grant projects at their department. Usually, the students prepare their own application for a grant funded by GA UK, related to the topics of dissertation.</p>

Study programme	Form of study	Requirements
		<p>Dissertation can consist of a monothematic set of scientific articles or it can be a scientific monograph. It contains original and published results or results accepted for publication.</p> <p>Obligatory publications before the thesis defence:</p> <p>1) Dissertation as a monograph: The student has to publish at least three scientific articles in peer-reviewed scientific journals. At least two of them have to be published in a journal with impact factor (at least one in a journal abroad). The student has to be the first author of at least one of the articles.</p> <p>2) Dissertation as a set of publications: The student has to publish at least four scientific texts (articles in peer-reviewed scientific journals, chapters in peer-reviewed monographs published by renown publishers, eg. Academia, Nakladatelství ČGS, Springer). At least two have to be published in a journal with IF. The student has to be the first author of at least one of the articles. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>The publications accepted for 1) and 2) have to meet the following conditions: a) they are related to the dissertation project b) if a publication is a collective one, the student's contribution is significant and it includes scientific work, not only formal aspects c) only publications with affiliation to the department are accepted.</p> <p>For the collective publications, the student's contribution has to be specified – such specification is included in the introduction of the dissertation. If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. For both types of dissertation, it is acceptable that one of the publications is under review (the student provides a confirmation of the submission for a review). In such case, the quality of the text is assessed by the opponents and the committee.</p> <p><b>Study stay abroad</b>  During the standard period of study, the students usually go abroad to study or to conduct research (for the topic related to their dissertation). The length and the character of the stay are related to the specific requirements of the dissertation project. The stay is at least one month long; the recommended length is 3 to 6 months. In exceptional cases, when such stay cannot be realized, the student takes part in international cooperation in a different way, for instance by direct participation in an international research project.</p> <p><b>State doctoral exam and dissertation defence</b>  For registration for the state doctoral exam, the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological</p>



Study programme	Form of study	Requirements
		<p>considerations.  The exam has a form of a discussion of the theoretical-methodological considerations. The students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). The committee members verify the student's ability to relate a research problem to general theories and methodological approaches. During the discussion, the committee assesses the student's knowledge in one of the study topics (geographical information systems, cartography or remote sensing), according to the dissertation project. The students are expected to have detailed and updated knowledge and to be able to interpret them in a wider context, also in the other two study topics. The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>Teaching activities  Not required.</p> <p>The presence and activities at the department, in hours per week  Not required.</p>
Geology (P0532D330013)	full-time	<p>The individual study plan (ISP) must contain at least two and no more than five courses on the master level (or higher) related to the topic of the dissertation. The courses (and the exams) are taken in accordance with the individual study plan, usually during the first two years of their studies. The state doctoral exam should be passed during the second year of the studies, during the third year the latest. The state doctoral exam includes two (or if relevant also more) thematic areas related to the dissertation topic and the courses taken by the candidate. The students of the combined study programmes are recommended to complete the ISP (incl. state doctoral exam) by the fourth year of studies. The ISP can contain short courses both in Czechia and abroad. The participation at seminars of the institute and section and other scientific activities at the faculty is an inherent part of doctoral studies. Every year, the subject-area board organized days of doctoral studies where the students present their preliminary results (the presentation is in English). The full-time students are obliged to participate; the students of the combined form of study are expected to participate at least once in two years.</p> <p>The classic form of dissertation means a monograph that includes an introduction, critical evaluation of existing research, research questions, methods overview, results and their discussion, summary and assessment of scientific contribution. As a part or a supplement of a monograph dissertation, the student must provide at least one article published or accepted</p>

Study programme	Form of study	Requirements
		<p>for publication in a journal with IF (included in the Web of Science database, ideally in the first or the second quartile, i.e. Q1 or Q2). The topic of the article must be closely related to the topic of dissertation and the candidate must be the first author. The expected length of dissertation is 150 to 250 pages, including text figures and bibliography (without appendices). Dissertation in the cumulative form contains an introduction to accompany scientific publications. The introduction (minimum 15,000 characters) contains an introduction, critical evaluation of the scientific problem, definition of the research question, methods, summary of main results obtained in different publications and their mutual relations. The cumulative dissertation must contain at least three articles in journals with IF (included in the Web of Science database, ideally in the first or the second quartile, i.e. Q1 or Q2). At least two have to be published or accepted for publication, the others can be manuscripts under review and the candidate must be the first author of at least two of them. All the articles must be related to the topic of the dissertation.</p> <p>In both above mentioned forms of dissertation, only publications with clear affiliation to the department at the Faculty of Science, Charles University, can be accepted (either as the only institution or one of several institutions). Publications without affiliation to the Faculty of Science, Charles University, cannot, therefore, be included in the dissertation.</p> <p>The students have to present their results at conferences in Czechia and abroad, be it with a poster or with an oral presentation.</p> <p>The students are also expected to take a professional internship at a renowned scientific institution for at least one month.</p>
Geology (P0532D330013)	combined	<p>The individual study plan (ISP) must contain at least two and no more than five courses on the master level (or higher) related to the topic of the dissertation. The courses (and the exams) are taken in accordance with the individual study plan, usually during the first two years of their studies. The state doctoral exam should be passed during the second year of the studies, during the third year the latest. The state doctoral exam includes two (or if relevant also more) thematic areas related to the dissertation topic and the courses taken by the candidate.</p> <p>The students of the combined study programmes are recommended to complete the ISP (incl. state doctoral exam) by the fourth year of studies. The ISP can contain short courses both in Czechia and abroad. The participation at seminars of the institute and section and other scientific activities at the faculty is an inherent part of doctoral studies. Every year, the subject-area board organized days of doctoral studies where the students present their preliminary results (the presentation is in English). The full-time students are obliged to participate; the students of the combined form of study are expected to participate at least once in two years.</p> <p>The classic form of dissertation means a monograph that includes an introduction, critical evaluation of existing research,</p>

Study programme	Form of study	Requirements
		<p>research questions, methods overview, results and their discussion, summary and assessment of scientific contribution. As a part or a supplement of a monograph dissertation, the student must provide at least one article published or accepted for publication in a journal with IF (included in the Web of Science database, ideally in the first or the second quartile, i.e. Q1 or Q2). The topic of the article must be closely related to the topic of dissertation and the candidate must be the first author. The expected length of dissertation is 150 to 250 pages, including text figures and bibliography (without appendices). Dissertation in the cumulative form contains an introduction to accompany scientific publications. The introduction (minimum 15,000 characters) contains an introduction, critical evaluation of the scientific problem, definition of the research question, methods, summary of main results obtained in different publications and their mutual relations. The cumulative dissertation must contain at least three articles in journals with IF (included in the Web of Science database, ideally in the first or the second quartile, i.e. Q1 or Q2). At least two have to be published or accepted for publication, the others can be manuscripts under review and the candidate must be the first author of at least two of them. All the articles must be related to the topic of the dissertation.</p> <p>In both above mentioned forms of dissertation, only publications with clear affiliation to the department at the Faculty of Science, Charles University, can be accepted (either as the only institution or one of several institutions). Publications without affiliation to the Faculty of Science, Charles University, cannot, therefore, be included in the dissertation.</p> <p>The students have to present their results at conferences in Czechia and abroad, be it with a poster or with an oral presentation.</p> <p>The students are also expected to take a professional internship at a renowned scientific institution for at least one month.</p>
Immunology (P0511D030041)	full-time	<p>The goal of study is to train students at advanced level in immunology. The students should acquire broad knowledge of the research area, master their research topic, become competent in conducting and planning experiments, get trained in scientific writing, and obtain qualification which would make them competitive candidates for positions in research, teaching, and technologies internationally.</p> <p>Learning goal 1 Students must take at least three study obligations (courses) and schedule them within the first 3 years of study. When preparing their proposal of the individual study plan (ISP) for approval by the Subject area board (Board) in the Study Information System of the Charles University (SIS), students should include all three courses in the plan.</p> <p>(A) All students must take the obligatory “Grant application strategy and preparation of scientific publication” course. After the</p>

Study programme	Form of study	Requirements
		<p>theoretical background is explained in several lectures, the student will prepare a grant application related to the Ph.D. project in English, using the forms and guidelines of the Grant Agency of the Czech Republic.</p> <p>(B) Students choose at least two study obligations from the list below. Students should actively seek the opinion of their mentors about the suitability of courses with respect to their project. The prerequisite for the inclusion of courses is that students have not passed them in previous or concurrent study programs.</p> <p>Theoretical courses</p> <ul style="list-style-type: none"> <li>• Protein dynamics in development and cancer</li> <li>• Innate immunity</li> <li>• Advances in Immunology 1</li> <li>• Immunology</li> <li>• Immunology - a practical course</li> <li>• Clinical Cases in Immunology</li> <li>• Immunology - a systems biology view</li> <li>• Animal models in immunology</li> <li>• Evolutionary and ecological immunology</li> <li>• Molecular mechanisms of immune evolution</li> <li>• Regulation mechanisms of immunity (*)</li> <li>• Viruses and host immune system (*)</li> <li>• Molecular Biology of Cancer I (*)</li> <li>• Molecular Biology of Cancer II</li> </ul> <p>• Fluorescent microscopy in cell biology</p> <p>• Advances in molecular biology and genetics (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a> - <a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a>] (according to the information for the current academic year)</p> <p>(*) enquire about the availability of the course in English</p> <p>Practical courses:</p> <ul style="list-style-type: none"> <li>• Processing and analysis of microscopic image in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a> - <a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a>] (according to the information for the current academic year)</li> <li>• Microscopic methods in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a> - <a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a>] (according to the information for the current academic year)</li> <li>• Transmission electron microscopy in life sciences (Institute of</li> </ul>

Study programme	Form of study	Requirements
		<p>Molecular Genetics of the ASCR, v. v. i.)  <a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">[https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a> - <a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a>]            (according to the information for the current academic year)            • MB140C75E Fluorescence spectroscopy in biology</p> <p>Learning goal 2            Internships and visits in cooperating laboratories            Students conduct part of their work or training at foreign institution for a total length of at least one month or directly participate in other forms of international cooperation, such as participation in an international creative project with results published or presented abroad. The recommended form is an internship (in total for at least three months) with emphasis on advanced methods or new approaches/ models.</p> <p>Presentations of results            Students are required to attend the conference of doctoral students, which is summoned every year by the Board. Students actively participate in its organization. During the conference, students present results of their projects and discuss methods and issues of common interest. Both the Board members and the mentors are invited to the conference. Active participation in international conferences according to the focus and possibilities of the mentor's team is also recommended.</p> <p>Ph.D. exam            The state doctoral exam is an important control point of the study, in addition to the annual ISP checks. The exam serves to test student's understanding of the research project and his/ her orientation in the research field. The committee assesses depth and breadth of knowledge of developmental and cell biology with emphasis on areas related to the project. The recommended timing of the exam is the second semester of the second year of study or the first semester of the third year, so that the exam can serve as a useful feedback for the student. Postponing the exam after the 3rd year without reason may affect student's grading during the subsequent annual evaluation.</p> <p>PhD Thesis            Publication prerequisites:            The applicant must be an author/ co-author of at least two papers accepted in peer-reviewed journals indexed in the Web of Science (preferably with IF above the research field median) and should be a first author on at least one publication (shared first authorship should be communicated ex ante with the Board). In exceptional and warranted cases, the Board may decide otherwise; an example of such situation may be one excellent first author publication.</p>

Study programme	Form of study	Requirements
		<p>PhD Thesis:  The thesis should be written as concise, fair and comprehensive information about the applicant's scientific achievements. It should enable the reviewers and the defense committee to assess whether the candidate has acquired both theoretical knowledge and methodical experience as prerequisite for independent scientific work in the field. The candidate should address the scientific problems and open questions of the project and formulate his/ her independent opinions.  The text contains:</p> <ul style="list-style-type: none"> <li>a) Abstract – It should summarize the project's aims and results for the public; it should not exceed 500 words.</li> <li>b) Introduction – It should be outlined as brief review of current knowledge related to the project. Recommended length is ca 20 pages of standard manuscript formatting.</li> <li>c) Methods, Results – These sections should describe in detail the methods and the results of experiments carried out by the applicant, which have not become part of the published papers/ submitted manuscripts. The published papers/ submitted manuscripts should be included as supplements.</li> <li>d) Discussion – This section gives the author the opportunity to present her/ his independent opinions on the results and their significance. It should reflect the level of knowledge at the date of thesis submission and it should mention relevant literature containing supportive or contradictory results. Minimum length is 10 pages.</li> <li>e) Summary - Summary of the main results. Recommended length is 1 page.</li> <li>f) Accompanying sections - list of abbreviations, list of references, information on data repositories or websites where appropriate, statement describing the contribution of the applicant to the published work, including a detailed statement about his/ her role in the preparation of the publications.</li> <li>g) Publications and submitted manuscripts which contain the results obtained by the student.</li> </ul> <p>The text in parts a) to e) should be written by the student and must not be contained elsewhere. The text cannot be copied, even in part, from the publications in section g) or other texts. The text can be written in English, Czech or Slovak. Formatting of the text, figures, tables and accompanying data should comply with the rules for manuscript submission of a journal of choice, such as the journal where one of the author's papers was published.</p>
Immunology (P0511D030041)	combined	<p>The goal of study is to train students at advanced level in immunology. The students should acquire broad knowledge of the research area, master their research topic, become competent in conducting and planning experiments, get trained in scientific writing, and obtain qualification which would make them competitive candidates for positions in research, teaching, and technologies internationally.</p>

Study programme	Form of study	Requirements
		<p>Learning goal 1 Students must take at least three study obligations (courses) and schedule them within the first 3 years of study. When preparing their proposal of the individual study plan (ISP) for approval by the Subject area board (Board) in the Study Information System of the Charles University (SIS), students should include all three courses in the plan.</p> <p>(A) All students must take the obligatory “Grant application strategy and preparation of scientific publication” course. After the theoretical background is explained in several lectures, the student will prepare a grant application related to the Ph.D. project in English, using the forms and guidelines of the Grant Agency of the Czech Republic.</p> <p>(B) Students choose at least two study obligations from the list below. Students should actively seek the opinion of their mentors about the suitability of courses with respect to their project. The prerequisite for the inclusion of courses is that students have not passed them in previous or concurrent study programs.</p> <p>Theoretical courses</p> <ul style="list-style-type: none"> <li>• Protein dynamics in development and cancer</li> <li>• Innate immunity</li> <li>• Advances in Immunology 1</li> <li>• Immunology</li> <li>• Immunology - a practical course</li> <li>• Clinical Cases in Immunology</li> <li>• Immunology - a systems biology view</li> <li>• Animal models in immunology</li> <li>• Evolutionary and ecological immunology</li> <li>• Molecular mechanisms of immune evolution</li> <li>• Regulation mechanisms of immunity (*)</li> <li>• Viruses and host immune system (*)</li> <li>• Molecular Biology of Cancer I (*)</li> <li>• Molecular Biology of Cancer II</li> </ul> <p>• Fluorescent microscopy in cell biology</p> <p>• Advances in molecular biology and genetics (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a> - <a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a>] (according to the information for the current academic year)</p> <p>(*) enquire about the availability of the course in English</p> <p>Practical courses:</p> <ul style="list-style-type: none"> <li>• Processing and analysis of microscopic image in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a> -</li> </ul>

Study programme	Form of study	Requirements
		<p><a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a>] (according to the information for the current academic year)</p> <ul style="list-style-type: none"> <li>• Microscopic methods in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a>] - <a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a>] (according to the information for the current academic year)</li> <li>• Transmission electron microscopy in life sciences (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a>] - <a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a>] (according to the information for the current academic year)</li> <li>• MB140C75E Fluorescence spectroscopy in biology</li> </ul> <p>Learning goal 2 Internships and visits in cooperating laboratories Students conduct part of their work or training at foreign institution for a total length of at least one month or directly participate in other forms of international cooperation, such as participation in an international creative project with results published or presented abroad. The recommended form is an internship (in total for at least three months) with emphasis on advanced methods or new approaches/ models.</p> <p>Presentations of results Students are required to attend the conference of doctoral students, which is summoned every year by the Board. Students actively participate in its organization. During the conference, students present results of their projects and discuss methods and issues of common interest. Both the Board members and the mentors are invited to the conference. Active participation in international conferences according to the focus and possibilities of the mentor's team is also recommended.</p> <p>Ph.D. exam The state doctoral exam is an important control point of the study, in addition to the annual ISP checks. The exam serves to test student's understanding of the research project and his/ her orientation in the research field. The committee assesses depth and breadth of knowledge of developmental and cell biology with emphasis on areas related to the project. The recommended timing of the exam is the second semester of the second year of study or the first semester of the third year, so that the exam can serve as a useful feedback for the student. Postponing the exam after the 3rd year without reason may affect student's grading during the subsequent annual evaluation.</p> <p>PhD Thesis</p>



Study programme	Form of study	Requirements
		<p>Publication prerequisites: The applicant must be an author/ co-author of at least two papers accepted in peer-reviewed journals indexed in the Web of Science (preferably with IF above the research field median) and should be a first author on at least one publication (shared first authorship should be communicated ex ante with the Board). In exceptional and warranted cases, the Board may decide otherwise; an example of such situation may be one excellent first author publication.</p> <p>PhD Thesis: The thesis should be written as concise, fair and comprehensive information about the applicant's scientific achievements. It should enable the reviewers and the defense committee to assess whether the candidate has acquired both theoretical knowledge and methodical experience as prerequisite for independent scientific work in the field. The candidate should address the scientific problems and open questions of the project and formulate his/ her independent opinions.</p> <p>The text contains:</p> <ul style="list-style-type: none"> <li>a) Abstract – It should summarize the project's aims and results for the public; it should not exceed 500 words.</li> <li>b) Introduction – It should be outlined as brief review of current knowledge related to the project. Recommended length is ca 20 pages of standard manuscript formatting.</li> <li>c) Methods, Results – These sections should describe in detail the methods and the results of experiments carried out by the applicant, which have not become part of the published papers/ submitted manuscripts. The published papers/ submitted manuscripts should be included as supplements.</li> <li>d) Discussion – This section gives the author the opportunity to present her/ his independent opinions on the results and their significance. It should reflect the level of knowledge at the date of thesis submission and it should mention relevant literature containing supportive or contradictory results. Minimum length is 10 pages.</li> <li>e) Summary - Summary of the main results. Recommended length is 1 page.</li> <li>f) Accompanying sections - list of abbreviations, list of references, information on data repositories or websites where appropriate, statement describing the contribution of the applicant to the published work, including a detailed statement about his/ her role in the preparation of the publications.</li> <li>g) Publications and submitted manuscripts which contain the results obtained by the student.</li> </ul> <p>The text in parts a) to e) should be written by the student and must not be contained elsewhere. The text cannot be copied, even in part, from the publications in section g) or other texts. The text can be written in English, Czech or Slovak. Formatting of the text, figures, tables and accompanying data should comply with the rules for manuscript submission of a journal of</p>

Study programme	Form of study	Requirements
		choice, such as the journal where one of the author's papers was published.
Macromolecular Chemistry (P0531D130042)	full-time	<p>Study duties The study obligations of DSP students and their completing are specified in the study plan. An obligatory part of the study plan are at least two exams in professional subjects, which the student chooses in agreement with the supervisor from the offer of DSP and from the offer of other departments of Charles University or other universities in the country and abroad. It is also mandatory to pass a certified English language exam. These obligations must be fulfilled before the student registers for the state doctoral exam.</p> <p>Requirements for creative activity</p> <ul style="list-style-type: none"> <li>• Literary research on the topic of the dissertation and preparation of proposals for project solution, which will then be consulted with the supervisor. (1st semester of study)</li> <li>• Presentation of two lectures focused on the achieved results of the dissertation project at the seminar of the department in English (second and fourth year of study).</li> <li>• Presentation of the results of the dissertation project (in English) at at least one professional conference.</li> <li>• Publication (or acceptance for publication confirmed by DOI) of at least two articles related to the topic of the dissertation in peer-reviewed international journals with an impact factor. In one of the publications, the student must be the first author.</li> <li>• Writing a dissertation, either in full or in summary form. The full form is a complete text containing an introduction, goal setting, experimental part, results and discussion, final summary and references. The summary work is based on a monothematic set of publications forming part of the work, while the work also contains an introduction, literature review, definition of objectives, discussion of results and a general summary, but in abbreviated form (approximately 40 pages). Such a dissertation must be based on at least four publications in peer-reviewed international journals with an impact factor.</li> </ul> <p>Requirements for completing foreign internships In accordance with the rules of study programs at Charles University, part of the study obligations in DSP Macromolecular Chemistry is the completion of part of the study at a foreign institution in a total length of at least one month, or another form of student's direct participation in international cooperation (unless there are serious reasons to the contrary).</p> <p>Additional study obligations Participation in one-off lectures thematically related to the studied scope held within the Charles University and other academic institutions.</p>
Macromolecular Chemistry (P0531D130042)	combined	<p>Study duties The study obligations of DSP students and their completing are specified in the study plan. An obligatory part of the study plan</p>

Study programme	Form of study	Requirements
		<p>are at least two exams in professional subjects, which the student chooses in agreement with the supervisor from the offer of DSP and from the offer of other departments of Charles University or other universities in the country and abroad. It is also mandatory to pass a certified English language exam. These obligations must be fulfilled before the student registers for the state doctoral exam.</p> <p>Requirements for creative activity</p> <ul style="list-style-type: none"> <li>• Literary research on the topic of the dissertation and preparation of proposals for project solution, which will then be consulted with the supervisor. (1st semester of study)</li> <li>• Presentation of two lectures focused on the achieved results of the dissertation project at the seminar of the department in English (second and fourth year of study).</li> <li>• Presentation of the results of the dissertation project (in English) at at least one professional conference.</li> <li>• Publication (or acceptance for publication confirmed by DOI) of at least two articles related to the topic of the dissertation in peer-reviewed international journals with an impact factor. In one of the publications, the student must be the first author.</li> <li>• Writing a dissertation, either in full or in summary form. The full form is a complete text containing an introduction, goal setting, experimental part, results and discussion, final summary and references. The summary work is based on a monothematic set of publications forming part of the work, while the work also contains an introduction, literature review, definition of objectives, discussion of results and a general summary, but in abbreviated form (approximately 40 pages). Such a dissertation must be based on at least four publications in peer-reviewed international journals with an impact factor.</li> </ul> <p>Requirements for completing foreign internships In accordance with the rules of study programs at Charles University, part of the study obligations in DSP Macromolecular Chemistry is the completion of part of the study at a foreign institution in a total length of at least one month, or another form of student's direct participation in international cooperation (unless there are serious reasons to the contrary).</p> <p>Additional study obligations Participation in one-off lectures thematically related to the studied scope held within the Charles University and other academic institutions.</p>
Microbiology (P0511D030030)	full-time	<p>Study duties During the 1st and 2nd year of study, the student completes two compulsory subjects:</p> <ol style="list-style-type: none"> <li>1. Advances in Molecular Biology and Genetics</li> <li>2. Advances in microbiology</li> </ol> <p>The other two subjects are added to the plan depending on the previous education and with regard to the topic of the dissertation. These are courses offered by PřFUK, MFF UK or UK medical faculties.</p>

Study programme	Form of study	Requirements
		<p>Subjects are a condition for submitting an application for the state doctoral examination. Another condition is either a certified English exam (FCE, CAE, TOEFL) or an exam at ÚJOP UK.</p> <p>By the end of the 3rd year of study at the latest: successful completion of the state doctoral exam.</p> <p>Requirements for scientific activity</p> <p>A) Independent original experimental work with publication output, in which the student has a decisive share</p> <p>B) Two presentations at the annual conference of doctoral students in Microbiology during the first 4 years of study</p> <p>C) The minimum publication requirement is the two original scientific papers in impacted journals (WOS). Doctoral student must be the first author of at least one of these papers.</p> <p>Requirements for internships</p> <p>In accordance with the standards of study programs at Charles University, the doctoral student completes an internship abroad at a workplace with related topic of investigation (total length of at least 1 month). Further, the student actively participates in foreign scientific conferences and congresses, reporting on his/her results in the form of oral or poster presentations. If the internship cannot be arranged, students participate in international cooperation in a different way.</p> <p>Additional study obligations</p> <p>It is recommended to actively involve the student in the preparation of grant projects of the workplace. At the same time, the student usually prepares his own proposal for a GA UK grant.</p>
Microbiology (P0511D030030)	combined	<p>Study duties</p> <p>During the 1st and 2nd year of study, the student completes two compulsory subjects:</p> <ol style="list-style-type: none"> <li>1. Advances in Molecular Biology and Genetics</li> <li>2. Advances in microbiology</li> </ol> <p>In justified cases, these compulsory subjects may be replaced by other subjects by agreement.</p> <p>The other two subjects are added to the plan depending on the previous education and with regard to the topic of the dissertation. These are courses offered by PřFUK, MFF UK or UK medical faculties.</p> <p>Subjects are a condition for submitting an application for the state doctoral examination. Another condition is either a certified English exam (FCE, CAE, TOEFL) or an exam at ÚJOP UK.</p> <p>By the end of the 3rd year of study at the latest: successful completion of the state doctoral exam.</p> <p>Requirements for scientific activity</p> <p>A) Independent original experimental work with publication output, in which the student has a decisive share</p> <p>B) Two presentations at the annual conference of doctoral</p>

Study programme	Form of study	Requirements
		<p>students in Microbiology during the first 4 years of study C) The minimum publication requirement is the two original scientific papers in impacted journals (WOS). Doctoral student must be the first author of at least one of these papers.</p> <p>Requirements for internships In accordance with the standards of study programs at Charles University, the doctoral student completes an internship abroad at a workplace with related topic of investigation (total length of at least 1 month). Further, the student actively participates in foreign scientific conferences and congresses, reporting on his/her results in the form of oral or poster presentations. If the internship cannot be arranged, students participate in international cooperation in a different way.</p> <p>Additional study obligations It is recommended to actively involve the student in the preparation of grant projects of the workplace. At the same time, the student usually prepares his own proposal for a GA UK grant.</p>
Modelling of Chemical Properties on Nano- and Biostructures (P0531D130044)	full-time	<p>The study requirements for doctoral students:</p> <ul style="list-style-type: none"> <li>* Pass a certified examination in English (e.g. FCE, TOEFL) before applying for the state doctoral exam.</li> <li>* Pass at least three exams in subjects related to the theme of student's doctoral thesis. The selection must be agreed on with the student's supervisor and it must be approved by the Board of doctoral study program. It is not possible to repeat exams which were already completed during previous (undergraduate) study.</li> </ul> <p>Either a standard form of thesis (monograph) or article-based thesis can be submitted.</p> <p>A monograph is a coherent writing based on the work of the doctoral candidate and written by the candidate, it consists of introduction, goals, model/method description, results, discussion, summary and the list of references. The extent of a monograph form is at least 50 pages. To submit a dissertation in a standard form student must have at least two papers in peer-reviewed international journals with IF &gt; 2 and student must be the first or corresponding author in at least one of these publications. (Manuscripts accepted and assigned with DOI are already considered as publications.)</p> <p>An article-based form of dissertation consists of introduction, model/method description, results overview and discussion (both in abbreviated form), summary and the list of references. The extent of this form is 30-50 pages and, in addition, relevant publications are part of the dissertation in the form of attachments. To submit the dissertation in article-based form student must have at least four papers in peer-reviewed international journals with IF &gt; 2 and student must be the first</p>

Study programme	Form of study	Requirements
		<p>or corresponding author in at least one of these publications. (Manuscripts accepted and assigned with DOI are already considered as publications.) In addition, these four publications must be on related topic and in-line with the theme of thesis.</p> <p>It is obligatory to complete an internship abroad in the length of minimum 3 months or to present the results in English language (by poster or lecture) at least at three international conferences. The internship may be divided into two or three shorter stays (no need for explicit reasons).</p> <p>Students regularly participate in seminars either at the Department of Physical and Macromolecular Chemistry (students carrying out their research there) or at IOCB or IPC partner institutes of AS ĆR, depending on where they carry out their research activities. Students must refer on the progress of their dissertation project within these seminar series.</p>
<p>Modelling of Chemical Properties on Nano- and Biostructures (P0531D130044)</p>	<p>combined</p>	<p>The study requirements for doctoral students:</p> <ul style="list-style-type: none"> <li>* Pass a certified examination in English (e.g. FCE, TOEFL) before applying for the state doctoral exam.</li> <li>* Pass at least three exams in subjects related to the theme of student's doctoral thesis. The selection must be agreed on with the student's supervisor and it must be approved by the Board of doctoral study program. It is not possible to repeat exams which were already completed during previous (undergraduate) study.</li> </ul> <p>Either a standard form of thesis (monograph) or article-based thesis can be submitted.</p> <p>A monograph is a coherent writing based on the work of the doctoral candidate and written by the candidate, it consists of introduction, goals, model/method description, results, discussion, summary and the list of references. The extent of a monograph form is at least 50 pages. To submit a dissertation in a standard form student must have at least two papers in peer-reviewed international journals with IF &gt; 2 and student must be the first or corresponding author in at least one of these publications. (Manuscripts accepted and assigned with DOI are already considered as publications.)</p> <p>An article-based form of dissertation consists of introduction, model/method description, results overview and discussion (both in abbreviated form), summary and the list of references. The extent of this form is 30-50 pages and, in addition, relevant publications are part of the dissertation in the form of attachments. To submit the dissertation in article-based form student must have at least four papers in peer-reviewed international journals with IF &gt; 2 and student must be the first or corresponding author in at least one of these publications. (Manuscripts accepted and assigned with DOI are already considered as publications.) In addition, these four publications</p>

Study programme	Form of study	Requirements
		<p>must be on related topic and in-line with the theme of thesis.</p> <p>It is obligatory to complete an internship abroad in the length of minimum 3 months or to present the results in English language (by poster or lecture) at least at three international conferences. The internship may be divided into two or three shorter stays (no need for explicit reasons).</p> <p>Students regularly participate in seminars either at the Department of Physical and Macromolecular Chemistry (students carrying out their research there) or at IOCB or IPC partner institutes of AS ČR, depending on where they carry out their research activities. Students must refer on the progress of their dissertation project within these seminar series.</p>
<p>Molecular and Cellular Biology, Genetics and Virology (P0511D030040)</p>	<p>full-time</p>	<p><b>Study Duties</b>            Doctoral student must complete at least one scientific lecture/course related to the topic of his/her doctoral thesis and selected from the lists of subjects taught by the Faculty of Science, the First, the Second or the Third Faculty of Medicine, Charles University (including the lectures/courses organized by the co-operating institutions, e.g., the Czech Academy of Sciences). The selection of this lecture/course depends on the scientific/technical needs of the doctoral student and is made by him/her together with his/her supervisor. The successful completion of this lecture/course is a necessary condition prior to submitting an application for the State Doctoral Examination (SDE).</p> <p>Further study duties can be stipulated by the internal rules of the respective faculty the student is registered in. In case it is explicitly stated in these rules, the successful completion of such study duties can be an additional condition necessary to fulfill before submitting an application for the SDE (e.g., the English language certificate at a certain level).</p> <p>Besides this, doctoral students should actively participate in national and international conferences (including various types of regular conferences for doctoral students organized by the respective faculty / supervising institution; participation in this type of conference can even be an obligatory component of the Individual Study Curriculum in case it is explicitly stated in the internal rules of the respective faculty the student is registered in. The active involvement of the student in the preparation of grant proposals of his/her supervising Laboratory is also strongly recommended.</p> <p><b>State Doctoral Examination (SDE)</b>            Doctoral students must apply for the SDE during the third year of their study at the latest. In case the first attempt to pass this examination is not successful, the second attempt must be made during the academic year following the first SDE attempt at the latest.</p> <p>The SDE consists of an oral examination focused on student's knowledge on two subjects which are personalized in accordance with the respective topic of the doctoral thesis.</p>

Study programme	Form of study	Requirements
		<p>These two subjects must be approved by the Study Board prior to the application for the SDE (i.e., the Chair of the Study Board must be contacted and must approve of the subjects). During the SDE, the doctoral students must display advanced and detailed knowledge on the current state of scientific topics directly related to their area of specialisation (this is the first subject for the SDE), including knowledge on various methodical approaches related to their research (including their principles, various advantages and disadvantages) and topics reaching into associated research areas. The doctoral students should also have a good general theoretical background in molecular biology, cellular biology, genetics or virology (students must choose one of these four scientific fields as their second SDE subject), again with the emphasis of the current state of knowledge. During the SDE, it is expected that doctoral students will demonstrate their ability to comprehend the essence of any scientific problem, to place it in a broader context and particularly to propose their own creative solutions. The SDE starts (after the introduction of the doctoral student by the Chair of the Examination Committee) with a brief statement from the student about the current state of his/her doctoral project, its main goals, the methodical approaches used and the most important results already achieved, as well as the current state of his/her publication activity. Student can prepare short ppt or pdf presentation for this; the whole presentation must not take more than 8-10 minutes.</p> <p><b>Participation in International Cooperation</b> The doctoral students are strongly recommended to complete a research internship abroad during their study (total length at least 1 month). The decision on the inclusion of such internship in the Individual Study Curriculum rests mainly with the supervisor and its realization depends on the options and resources of the supervising laboratory. In case such internship is not possible, the doctoral students must participate in international scientific cooperation by some other way in compliance with the Standards of the Study Programmes of Charles University.</p> <p><b>Creative Work and Publication Activity</b> The core of the doctoral study lies in the original, high-quality research independently carried out by the doctoral student. This research must result in at least two original scientific publications relevant to the topic of the doctoral thesis and published during the course of the doctoral study. At least one of these publications must be a research paper of an "original research article" type and the doctoral student must be its first author and must significantly participate in its creation. The required publications must be published in peer-reviewed journals indexed in reputable databases acknowledged by the general scientific community (Web of Science, journals with the impact factor, IF). In exceptional and justified cases (e.g., if the student is the first author of an exceptionally high-quality</p>



Study programme	Form of study	Requirements
		<p>publication), the Study Board can permit change of the publication requirements (e.g., one such paper would be sufficient instead of two commonly required). If the publication is not yet published, the students must present a record of confirmation of its acceptance by the respective scientific journal, otherwise such publication cannot be counted among the required number. The shared first-authorship can be accepted as the first-authorship only after the agreement of the Chair of the Study Board. In case the second required publication is another type than an "original research article", its acceptance as a required publication output should be also in advance consulted with the Chair of the Study Board. Videopublications are not accepted (if they are not accompanied by a full-value scientific text). Further publication requirements (in accordance with the Individual Study Curriculum) can be stipulated by the internal rules of the respective faculty the student is registered in.</p> <p><b>The Doctoral Thesis and Its Defence</b></p> <p>Prior to submission of the doctoral thesis for its defence, all study duties stated in the Individual Study Curriculum must be successfully passed and the same applies for the SDE. In addition to this, the doctoral student must be an author of at least two original scientific publications relevant to the topic of the doctoral thesis and published during the course of the doctoral study (see Creative Work and Publication Activity requirements).</p> <p>The doctoral thesis must be an original work of the doctoral student. It should provide sufficient information necessary for the assessment whether the doctoral student is qualified for the independent research work in his/her respective scientific field. The doctoral student should be able to comprehensively describe and adequately cover the topic of the doctoral thesis, as well as to independently formulate opinions and questions based on the results of his/her doctoral project.</p> <p>Besides the sections required by the university rules and the internal rules of the respective faculty (the title page, the signed declaration of the author, abstracts in Czech and English, etc.) and the supporting parts (the content, the reference list, the abbreviations list if appropriate), the doctoral thesis must contain these sections: 1) Introduction and Literary Overview (the summary of the current knowledge on the topic of the doctoral thesis based on the information available in the scientific literature); 2) clearly defined Aims of the Thesis; 3) Experimental Part (description of the original hypotheses and experiments performed in order to test these hypotheses, i.e., the general conception of experiments, the description of the experimental material and methodical approaches, as well as adequately described results documented in tables and/or figures); 4) Discussion; 5) Summary/Conclusions. These sections of the doctoral thesis can be further divided and appropriately named according to the general character of the doctoral project and the internal rules of the respective faculty</p>

Study programme	Form of study	Requirements
		<p>(some modality in the general structure of the doctoral thesis is possible, e.g., the merging of the Experimental part and Discussion in case of theses from the bioinformatics field, however, this must be consulted in advance with the Chair of the Study Board).</p> <p>The Experimental Part can include (and can be partially replaced by) the original research papers of the doctoral student that are relevant to the topic of the doctoral thesis and were published, accepted for publication or are accepted for review in some IF journal during the course of the doctoral study. However, it is recommended to include only such papers that the student significantly participated in. These papers can be either incorporated directly into the text or can be presented as supplementary section of the doctoral thesis. They should be linked by the original explanatory text written by the student, which should emphasise the related nature of the respective publications in the context of the doctoral project and summarize the main results and conclusions presented in these papers. This text must also contain unambiguous and detailed verbal specification of the contribution of the doctoral student to both obtaining the experimental data and the preparation/writing of the respective manuscript(s). The doctoral student is fully responsible for the presentation of publications in such form that complies with the licencing rights of the respective publisher. However, student must be also aware that the eventual incorporation of their publications into his/her doctoral thesis certainly cannot replace either the Introduction and Literary Overview or the Discussion sections (the text in these sections of the doctoral thesis cannot be simply copied or only slightly reformulated from the respective publications). The Experimental Part should also include all yet unpublished experiments performed by the doctoral student that are relevant to the topic of the doctoral thesis (such experiments and their results should be fully described).</p> <p>The doctoral thesis can be written in Czech, in Slovak or in English (English is recommended)</p> <p>The Board of the Programme does not require a separate „Summary of the Ph.D. Thesis“ if not directly stipulated by the internal rules of the respective faculty the student is registered in.</p>
Molecular and Cellular Biology, Genetics and Virology (P0511D030040)	combined	<p><b>Study Duties</b></p> <p>Doctoral student must complete at least one scientific lecture/course related to the topic of his/her doctoral thesis and selected from the lists of subjects taught by the Faculty of Science, the First, the Second or the Third Faculty of Medicine, Charles University (including the lectures/courses organized by the co-operating institutions, e.g., the Czech Academy of Sciences). The selection of this lecture/course depends on the scientific/technical needs of the doctoral student and is made by him/her together with his/her supervisor. The successful completion of this lecture/course is a necessary condition prior to submitting an application for the State Doctoral Examination (SDE).</p>

Study programme	Form of study	Requirements
		<p>Further study duties can be stipulated by the internal rules of the respective faculty the student is registered in. In case it is explicitly stated in these rules, the successful completion of such study duties can be an additional condition necessary to fulfill before submitting an application for the SDE (e.g., the English language certificate at a certain level).</p> <p>Besides this, doctoral students should actively participate in national and international conferences (including various types of regular conferences for doctoral students organized by the respective faculty / supervising institution; participation in this type of conference can even be an obligatory component of the Individual Study Curriculum in case it is explicitly stated in the internal rules of the respective faculty the student is registered in. The active involvement of the student in the preparation of grant proposals of his/her supervising Laboratory is also strongly recommended.</p> <p><b>State Doctoral Examination (SDE)</b>          Doctoral students must apply for the SDE during the third year of their study at the latest. In case the first attempt to pass this examination is not successful, the second attempt must be made during the academic year following the first SDE attempt at the latest.</p> <p>The SDE consists of an oral examination focused on student's knowledge on two subjects which are personalized in accordance with the respective topic of the doctoral thesis. These two subjects must be approved by the Study Board prior to the application for the SDE (i.e., the Chair of the Study Board must be contacted and must approve of the subjects). During the SDE, the doctoral students must display advanced and detailed knowledge on the current state of scientific topics directly related to their area of specialisation (this is the first subject for the SDE), including knowledge on various methodical approaches related to their research (including their principles, various advantages and disadvantages) and topics reaching into associated research areas. The doctoral students should also have a good general theoretical background in molecular biology, cellular biology, genetics or virology (students must choose one of these four scientific fields as their second SDE subject), again with the emphasis of the current state of knowledge. During the SDE, it is expected that doctoral students will demonstrate their ability to comprehend the essence of any scientific problem, to place it in a broader context and particularly to propose their own creative solutions. The SDE starts (after the introduction of the doctoral student by the Chair of the Examination Committee) with a brief statement from the student about the current state of his/her doctoral project, its main goals, the methodical approaches used and the most important results already achieved, as well as the current state of his/her publication activity. Student can prepare short ppt or pdf presentation for this; the whole presentation must not take more than 8-10 minutes.</p>

Study programme	Form of study	Requirements
		<p><b>Participation in International Cooperation</b>  The doctoral students are strongly recommended to complete a research internship abroad during their study (total length at least 1 month). The decision on the inclusion of such internship in the Individual Study Curriculum rests mainly with the supervisor and its realization depends on the options and resources of the supervising laboratory. In case such internship is not possible, the doctoral students must participate in international scientific cooperation by some other way in compliance with the Standards of the Study Programmes of Charles University.</p> <p><b>Creative Work and Publication Activity</b>  The core of the doctoral study lies in the original, high-quality research independently carried out by the doctoral student. This research must result in at least two original scientific publications relevant to the topic of the doctoral thesis and published during the course of the doctoral study. At least one of these publications must be a research paper of an “original research article” type and the doctoral student must be its first author and must significantly participate in its creation. The required publications must be published in peer-reviewed journals indexed in reputable databases acknowledged by the general scientific community (Web of Science, journals with the impact factor, IF). In exceptional and justified cases (e.g., if the student is the first author of an exceptionally high-quality publication), the Study Board can permit change of the publication requirements (e.g., one such paper would be sufficient instead of two commonly required). If the publication is not yet published, the students must present a record of confirmation of its acceptance by the respective scientific journal, otherwise such publication cannot be counted among the required number. The shared first-authorship can be accepted as the first-authorship only after the agreement of the Chair of the Study Board. In case the second required publication is another type than an “original research article”, its acceptance as a required publication output should be also in advance consulted with the Chair of the Study Board. Videopublications are not accepted (if they are not accompanied by a full-value scientific text). Further publication requirements (in accordance with the Individual Study Curriculum) can be stipulated by the internal rules of the respective faculty the student is registered in.</p> <p><b>The Doctoral Thesis and Its Defence</b>  Prior to submission of the doctoral thesis for its defence, all study duties stated in the Individual Study Curriculum must be successfully passed and the same applies for the SDE. In addition to this, the doctoral student must be an author of at least two original scientific publications relevant to the topic of the doctoral thesis and published during the course of the doctoral study (see Creative Work and Publication Activity requirements).</p>

Study programme	Form of study	Requirements
		<p>The doctoral thesis must be an original work of the doctoral student. It should provide sufficient information necessary for the assessment whether the doctoral student is qualified for the independent research work in his/her respective scientific field. The doctoral student should be able to comprehensively describe and adequately cover the topic of the doctoral thesis, as well as to independently formulate opinions and questions based on the results of his/her doctoral project.</p> <p>Besides the sections required by the university rules and the internal rules of the respective faculty (the title page, the signed declaration of the author, abstracts in Czech and English, etc.) and the supporting parts (the content, the reference list, the abbreviations list if appropriate), the doctoral thesis must contain these sections: 1) Introduction and Literary Overview (the summary of the current knowledge on the topic of the doctoral thesis based on the information available in the scientific literature); 2) clearly defined Aims of the Thesis; 3) Experimental Part (description of the original hypotheses and experiments performed in order to test these hypotheses, i.e., the general conception of experiments, the description of the experimental material and methodical approaches, as well as adequately described results documented in tables and/or figures); 4) Discussion; 5) Summary/Conclusions. These sections of the doctoral thesis can be further divided and appropriately named according to the general character of the doctoral project and the internal rules of the respective faculty (some modality in the general structure of the doctoral thesis is possible, e.g., the merging of the Experimental part and Discussion in case of theses from the bioinformatics field, however, this must be consulted in advance with the Chair of the Study Board).</p> <p>The Experimental Part can include (and can be partially replaced by) the original research papers of the doctoral student that are relevant to the topic of the doctoral thesis and were published, accepted for publication or are accepted for review in some IF journal during the course of the doctoral study. However, it is recommended to include only such papers that the student significantly participated in. These papers can be either incorporated directly into the text or can be presented as supplementary section of the doctoral thesis. They should be linked by the original explanatory text written by the student, which should emphasise the related nature of the respective publications in the context of the doctoral project and summarize the main results and conclusions presented in these papers. This text must also contain unambiguous and detailed verbal specification of the contribution of the doctoral student to both obtaining the experimental data and the preparation/writing of the respective manuscript(s). The doctoral student is fully responsible for the presentation of publications in such form that complies with the licencing rights of the respective publisher. However, student must be also aware that the eventual incorporation of their publications into his/her doctoral thesis certainly cannot replace either the Introduction and Literary</p>

Study programme	Form of study	Requirements
		<p>Overview or the Discussion sections (the text in these sections of the doctoral thesis cannot be simply copied or only slightly re-formulated from the respective publications). The Experimental Part should also include all yet unpublished experiments performed by the doctoral student that are relevant to the topic of the doctoral thesis (such experiments and their results should be fully described).</p> <p>The doctoral thesis can be written in Czech, in Slovak or in English (English is recommended)</p> <p>The Board of the Programme does not require a separate „Summary of the Ph.D. Thesis“ if not directly stipulated by the internal rules of the respective faculty the student is registered in.</p>
General Geography (P0532D330019)	full-time	<p>1. Required courses In the first and second year, the students have to take the course MPGS0119 Obecné kolokvium/General colloquium (OG) and other 3 to 4 courses related to the topic of the dissertation, the courses are selected after discussion with the supervisor. One of the courses is usually taken outside the Faculty of Science. At least two courses need to be taken and successfully finished in the first year, the rest in the second year. Before applying for the state doctoral exam (MSZXZ011), the student has to pass the Theoretical-methodological considerations (OG, MPGS0122); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department. The state doctoral exam MSZXZ011 General Geography has to be passed in the second year (by the end of the third year the latest).</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam, the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations. In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories and methodological approaches. Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations. The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to</p>

Study programme	Form of study	Requirements
		<p>pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad During the standard period of study, the students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p>4. Publications Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. Dissertation as a set of publications: The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. In relevant cases (e.g. due to the dissertation topic), the subject-area board can accept substitution of one article with IF with two articles in the WoS database. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research. Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The second article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation. In relevant cases (e.g. due to the dissertation topic), the subject-area board can accept substitution of one article with IF with two articles in the WoS database.</p> <p>5. Teaching activities The students usually participate in teaching activities (lectures, seminars, excursions, life-long learning programmes, etc.) and are also supervisors and opponents of bachelor theses (sometimes also master theses). The teaching activities of the student are coordinated by the supervisor and the head of</p>

Study programme	Form of study	Requirements
		<p>department. If the classes taught are not directly linked to the doctoral theses and/or are more frequent than one-time classes, these are financially reimbursed (by a separate contract).</p> <p>In the third year, the student, after consulting the supervisor, has to provide 2-3 topics for bachelor theses in SIS. The topics have to be related to the doctoral project.</p> <p>6. The presence at the department, in hours per week The students in the full-time study programme and in the standard period of study are present at the department at least for 8 hours per week. The students take part in everyday activities of the department, especially in organizing entrance exams, PR activities, workshops, etc. The students attend the dissertation defences in their study programme and they attend lectures of visiting scholars.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively in conferences and seminars in Czechia and abroad, they also need to publish in peer-reviewed journals.</p>
General Geography (P0532D330019)	combined	<p>1. Required courses In the first and second year, the students have to take the course MPGS0119 Obecné kolokvium/General colloquium (OG) and other 3 to 4 courses related to the topic of the dissertation, the courses are selected after discussion with the supervisor. One of the courses is usually taken outside the Faculty of Science. At least two courses need to be taken and successfully finished in the first year, the rest in the second year. Before applying for the state doctoral exam (MSZXZ011), the student has to pass the Theoretical-methodological considerations (OG, MPGS0122); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department.</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam, the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations. In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories and methodological approaches. Apart from</p>



Study programme	Form of study	Requirements
		<p>knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.</p> <p>The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad During the standard period of study, the students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p>4. Publications Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication.</p> <p>Dissertation as a set of publications: The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. In relevant cases (e.g. due to the dissertation topic), the subject-area board can accept substitution of one article with IF with two articles in the WoS database. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The second article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation. In relevant cases (e.g. due to the dissertation topic), the subject-area board can accept substitution of one article with IF with two articles in the WoS</p>

Study programme	Form of study	Requirements
		<p>database.</p> <p>5. Teaching Teaching is not required.</p> <p>6. The presence at the department, in hours per week Is not required.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Organic Chemistry (P0531D130034)	full-time	<p>Requirements for individual study plan: Pass a certified examination in English (e.g. FCE, TOEFL) before submitting the application for the state doctoral examination. Pass at least three specialized examinations in subjects thematically related to the dissertation work. The supervisor is consulted to select subjects, which may not be the same subjects already completed in previous levels of study. Systematically work on the dissertation. Regularly attend seminars of the organic chemistry department, where the current doctoral work of all doctoral students is presented and actively, generally once a year, present the progress of his/her own dissertation work. Participation is also expected in the cycle of lectures titled Quo Vadis Chemie.</p> <p>Full-time doctoral students take part in the teaching activities of the faculty, e.g. by leading exercises, seminars, labs, etc.</p> <p>Requirements for publication activity of doctorands: 1) At least two articles published or accepted for publication in a professional peer-reviewed journal with IF &amp;gt;= 2, or one publication published or accepted for publication in a professional peer-reviewed journal with IF &amp;gt;= 4), where the student is the lead author of at least one. If this condition is not met, subject area board will decide by internal vote if the dissertation could be accepted (after reading written explanation of the supervisor). 2) Active participation at least once (verbal presentation or poster) at a conference with international participation. 3) At the appointed time submit the complete doctoral dissertation (not a set of publications with brief commentary).</p>
Organic Chemistry (P0531D130034)	combined	<p>Requirements for individual study plan: Pass a certified examination in English (e.g. FCE, TOEFL) before submitting the application for the state doctoral examination.</p>

Study programme	Form of study	Requirements
		<p>Pass at least three specialized examinations in subjects thematically related to the dissertation work. The supervisor is consulted to select subjects, which may not be the same subjects already completed in previous levels of study. Systematically work on the dissertation. Regularly attend seminars of the organic chemistry department, where the current doctoral work of all doctoral students is presented and actively, generally once a year, present the progress of his/her own dissertation work. Participation is also expected in the cycle of lectures titled Quo Vadis Chemie.</p> <p>Full-time doctoral students take part in the teaching activities of the faculty, e.g. by leading exercises, seminars, labs, etc.</p> <p>Requirements for publication activity of doctorands:</p> <ol style="list-style-type: none"> <li>1) At least two articles published or accepted for publication in a professional peer-reviewed journal with IF &amp;&amp;&amp;&amp;&amp;&gt;= 2, or one publication published or accepted for publication in a professional peer-reviewed journal with IF &amp;&amp;&amp;&amp;&amp;&gt;= 4), where the student is the lead author of at least one. If this condition is not met, subject area board will decided by internal vote if the dissertation could be accepted (after reading written explanation of the supervisor).</li> <li>2) Active participation at least once (verbal presentation or poster) at a conference with international participation.</li> <li>3) At the appointed time submit the complete doctoral dissertation (not a set of publications with brief commentary).</li> </ol>
Parasitology (P0511D030043)	full-time	<p>Within the ISP (Individual Study Plan for Ph.D. students), it is necessary to successfully pass at least four subjects. Of these four subjects, at least three must be completed by exams. The subject "Buněčné a molekulární interakce mezi hostitelem a parazitem" (Cell and Molecular Interaction between the Host and the Parasite) (MB160P31) is obligatory for all Ph.D. students and must be completed by the end of the third year at the latest.</p> <p>For master students graduated in fields other than parasitology, in addition to MB160P31, the following subjects are required: (i) "Základy parazitologie" (Foundations of Parasitology) (MB160P25) including practical courses ("Cvičení ze základů parazitologie" – Introduction to Parasitology: Laboratory Course; MB160C25); the course (MB160P25) may be replaced by Parasitology (MB160P66). It (MB160P25+MB160C25 or MB160P66+MB160C25) must be completed by the end of the second year at the latest. (ii) At least one major specialized lecture with relevant lab (practical course) must be completed by the end of the second year; students can choose from "Biologie parazitických prvoků" (Biology of Parasitic Protists) MB160P37+MB160C30 or "Biologie helmintů" (Biology of Helminths) MB160P33+MB160C28 or "Lékařská entomologie"</p>

Study programme	Form of study	Requirements
		<p>(Medical Entomology) MB160P26+MB160C26. The State Doctoral Examination must be completed by the end of the third year.</p> <p>Active participation at scientific conferences is a natural aspect of the study program; there is an obligation of active participation and presentation of achieved scientific results at least at one international scientific conference until the end of the second year. The results obtained must be published in journals with a known Impact Factor (IF); by the end of the third year, at least one scientific manuscript should be sent to the editorial board for review. All the above-mentioned time limits are binding, but in individual cases, that are exceptional and clearly justified, the Ph.D. board may decide otherwise.</p> <p>Students do not have an obligation to participate actively in teaching (e.g., help with practical courses), however, involvement in this activity is desirable. An obligatory part of the study is also a foreign internship, which should in total last at least three months; this obligation does not have a time limit and in justified cases, it may be forgiven by the Ph.D. board.</p> <p>Additional requirements are (i) a written report on the progress and outlook of the dissertation work (about 2-3 pages; submitted by 10th of October in the second year of study) and (ii) a public presentation of the results of the dissertation work at the seminar of the Department of Parasitology in the third year study (a comprehensive lecture about 30 minutes followed by a discussion).</p> <p>The core of a Ph.D. study in Parasitology is a research project aimed at original scientific findings published in peer-reviewed journals. The recommended form of the thesis contains an introductory chapter and clearly defined aims and goals. The introductory part should not be merely a brief summary of the content of the attached studies (papers) but should explain a wider context of the topic. The introduction should demonstrate deeper insight of the doctoral student, present a critical assessment of the scientific problem and manners of resolving it, and establish the scientific questions and objectives of the submitted work. The thesis must contain a final chapter summarizing the main results of individual publications, their context, and specifying the student's contribution to solving the problem. Before the introductory chapter, the one-page summary/abstract must be included in Czech and English. The thesis includes at least two published or accepted scientific works/papers in international journals (with IF). The Ph.D. student must be the first (lead) author of at least one of these published/accepted papers. Studies under the peer review or prepared manuscripts may also be included (recommended) but are not counted into the mandatory number. All publications included in the thesis must be related to the topic of the dissertation thesis.</p> <p>Prior to submission of the thesis (dissertation) is each student's responsibility to inform in time about the current number of required hard copies of the thesis and the self-summary (at the secretariat of the Department of Parasitology Faculty of</p>

Study programme	Form of study	Requirements
		Science).
Parasitology (P0511D030043)	combined	<p>Within the ISP (Individual Study Plan for Ph.D. students), it is necessary to successfully pass at least four subjects. Of these four subjects, at least three must be completed by exams. The subject “Buněčné a molekulární interakce mezi hostitelem a parazitem“ (Cell and Molecular Interaction between the Host and the Parasite) (MB160P31) is obligatory for all Ph.D. students and must be completed by the end of the third year at the latest.</p> <p>For master students graduated in fields other than parasitology, in addition to MB160P31, the following subjects are required: (i) “Základy parazitologie“ (Foundations of Parasitology) (MB160P25) including practical courses (“Cvičení ze základů parazitologie“ – Introduction to Parasitology: Laboratory Course; MB160C25); the course (MB160P25) may be replaced by Parasitology (MB160P66). It (MB160P25+MB160C25 or MB160P66+MB160C25) must be completed by the end of the second year at the latest. (ii) At least one major specialized lecture with relevant lab (practical course) must be completed by the end of the second year; students can choose from “Biologie parazitických prvoků“ (Biology of Parasitic Protists) MB160P37+MB160C30 or “Biologie helmintů“ (Biology of Helminths) MB160P33+MB160C28 or “Lékařská entomologie“ (Medical Entomology) MB160P26+MB160C26. The State Doctoral Examination must be completed by the end of the third year.</p> <p>Active participation at scientific conferences is a natural aspect of the study program; there is an obligation of active participation and presentation of achieved scientific results at least at one international scientific conference until the end of the second year. The results obtained must be published in journals with a known Impact Factor (IF); by the end of the third year, at least one scientific manuscript should be sent to the editorial board for review. All the above-mentioned time limits are binding, but in individual cases, that are exceptional and clearly justified, the Ph.D. board may decide otherwise. Students do not have an obligation to participate actively in teaching (e.g., help with practical courses), however, involvement in this activity is desirable. An obligatory part of the study is also a foreign internship, which should in total last at least three months; this obligation does not have a time limit and in justified cases, it may be forgiven by the Ph.D. board. Additional requirements are (i) a written report on the progress and outlook of the dissertation work (about 2-3 pages; submitted by 10th of October in the second year of study) and (ii) a public presentation of the results of the dissertation work at the seminar of the Department of Parasitology in the third year study (a comprehensive lecture about 30 minutes followed by a discussion).</p> <p>The core of a Ph.D. study in Parasitology is a research project aimed at original scientific findings published in peer-reviewed journals. The recommended form of the thesis contains an introductory chapter and clearly defined aims and goals. The</p>

Study programme	Form of study	Requirements
		<p>introductory part should not be merely a brief summary of the content of the attached studies (papers) but should explain a wider context of the topic. The introduction should demonstrate deeper insight of the doctoral student, present a critical assessment of the scientific problem and manners of resolving it, and establish the scientific questions and objectives of the submitted work. The thesis must contain a final chapter summarizing the main results of individual publications, their context, and specifying the student's contribution to solving the problem. Before the introductory chapter, the one-page summary/abstract must be included in Czech and English. The thesis includes at least two published or accepted scientific works/papers in international journals (with IF). The Ph.D. student must be the first (lead) author of at least one of these published/accepted papers. Studies under the peer review or prepared manuscripts may also be included (recommended) but are not counted into the mandatory number. All publications included in the thesis must be related to the topic of the dissertation thesis.</p> <p>Prior to submission of the thesis (dissertation) is each student's responsibility to inform in time about the current number of required hard copies of the thesis and the self-summary (at the secretariat of the Department of Parasitology Faculty of Science).</p>
Regional and Political Geography (P0532D330028)	full-time	<p>1. Required courses In the first and second year, the students have to take the course MPGS0119 Obecné kolokvium/General colloquium (RPG) and either MPGS0098 Teorie regionální geografie pro PGS/Theory of Regional Geography for PhD students, or MPGS0099 Teorie politické geografie pro PGS/Theory of Political Geography for PhD students. Other two courses are selected according to the dissertation topic and after discussion with the supervisor. One of the courses is usually taken outside the Faculty of Science. At least two courses need to be taken and successfully finished in the first year, the other two in the second year. Before applying for the state doctoral exam (MSZXZ003), the student has to pass the Theoretical-methodological considerations (RPG, MPGS0123); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department. The state doctoral exam MSZXZ003 Regional and Political Geography has to be passed by the end of the second year.</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam (should be passed by the end of the second year), the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations.</p>

Study programme	Form of study	Requirements
		<p>In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories and methodological approaches. Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.</p> <p>The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p><b>3. Study stay abroad</b> The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p><b>4. Publications</b> Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication.</p> <p><b>Dissertation as a set of publications:</b> The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p><b>Dissertation as a scientific monograph:</b> The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. One article can be replaced by a chapter in a peer-</p>

Study programme	Form of study	Requirements
		<p>reviewed book. The publications must be related to the topic of the dissertation.</p> <p>5. Teaching activities The students usually participate in teaching activities and are also supervisors and opponents of bachelor theses (sometimes also master theses) and they take part in lectures and practical seminars, excursions, life-long learning courses etc. The teaching activities of the student are coordinated by the supervisor and the head of department. If the classes taught are not directly linked to the doctoral theses and/or are more frequent than one-time classes, these are financially reimbursed (by a separate contract). In the third year, the student, after consulting the supervisor, has to provide 2-3 topics for bachelor theses in SIS. The topics have to be related to the doctoral project.</p> <p>6. The presence at the department, in hours per week The students in the full-time study programme and in the standard period of study are present at the department at least for 8 hours per week. The students take part in everyday activities of the department, especially in organizing entrance exams, PR activities, workshops, etc. The students attend the dissertation defences in their study programme and they attend lectures of visiting scholars.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Regional and Political Geography (P0532D330028)	combined	<p>1. Required courses By the end of the third year, the students have to take the course MPGS0119 Obecné kolokvium/General colloquium (RPG) and either MPGS0098 Teorie regionální geografie pro PGS/Theory of Regional Geography for PhD students, or MPGS0099 Teorie politické geografie pro PGS/Theory of Political Geography for PhD students. Other two courses are selected according to the dissertation topic and after discussion with the supervisor. One of the courses is usually taken outside the Faculty of Science. At least two courses need to be taken and successfully finished in the first year, the other two in the second year. Before applying for the state doctoral exam (MSZXZ003), the student has to pass the Theoretical-methodological considerations (RPG, MPGS0123); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department.</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam, the students need</p>



Study programme	Form of study	Requirements
		<p>to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations.</p> <p>In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories and methodological approaches. Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.</p> <p>The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.).</p> <p><b>3. Study stay abroad</b> The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p><b>4. Publications</b> Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication.</p> <p>Dissertation as a set of publications: The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research.</p> <p>Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50%</p>

Study programme	Form of study	Requirements
		<p>contribution. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation.</p> <p>5. Teaching Teaching is not required.</p> <p>6. The presence at the department, in hours per week Is not required.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
<p>Social Geography and Regional Development (P0532D330030)</p>	<p>full-time</p>	<p>1. Required courses In the first and second year, the students have to take the course MPGS0119 Obecné kolokvium/General colloquium (SGRR) and either MPGS0088 Teorie sociální geografie pro PGS/Theory of Social Geography for PhD students, or MPGS0089 Teorie regionálního rozvoje pro PGS/Theory of regional development for PhD students. Other two courses are selected according to the dissertation topic and after discussion with the supervisor. One of the courses is usually taken outside the Faculty of Science. At least two courses need to be taken and successfully finished in the first year, the other two in the second year. Before applying for the state doctoral exam (MSZXZ005), the student has to pass the Theoretical-methodological considerations (SGR, MPGS0121); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department. The state doctoral exam MSZXZ005 Social Geography and Regional Development has to be passed by the end of the second year.</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam (should be passed by the end of the second year), the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations. In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization, verifies the student's ability to relate a research problem to general theories and methodological approaches. Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings,</p>

Study programme	Form of study	Requirements
		<p>argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.</p> <p>The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.). The student submits the dissertation in such time that the defence can be done before the standard period of study is over.</p> <p>3. Study stay abroad The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p>4. Publications Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. Dissertation as a set of publications: The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research. Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation.</p> <p>5. Teaching activities The students usually participate in teaching activities and are also supervisors and opponents of bachelor theses (sometimes also master theses) and they take part in lectures and practical seminars, excursions, life-long learning courses etc. The teaching activities of the student are coordinated by the</p>

Study programme	Form of study	Requirements
		<p>supervisor and the head of department. If the classes taught are not directly linked to the doctoral theses and/or are more frequent than one-time classes, these are financially reimbursed (by a separate contract).</p> <p>In the third year, the student, after consulting the supervisor, has to provide 2-3 topics for bachelor theses in SIS. The topics have to be related to the doctoral project.</p> <p>6. The presence at the department, in hours per week The students in the full-time study programme and in the standard period of study are present at the department at least for 8 hours per week. The students take part in everyday activities of the department, especially in organizing entrance exams, PR activities, workshops, etc. The students attend the dissertation defences in their study programme and they attend lectures of visiting scholars.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended) During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Social Geography and Regional Development (P0532D330030)	combined	<p>1. Required courses By the end of the third year, the students have to take the course MPGS0119 Obecné kolokvium/General colloquium (SGRR) and either MPGS0088 Teorie sociální geografie pro PGS/Theory of Social Geography for PhD students, or MPGS0089 Teorie regionálního rozvoje pro PGS/Theory of regional development for PhD students. Other two courses are selected according to the dissertation topic and after discussion with the supervisor. One of the courses is usually taken outside the Faculty of Science. At least two courses need to be taken and successfully finished in the first year, the other two in the second year. Before applying for the state doctoral exam (MSZXZ005), the student has to pass the Theoretical-methodological considerations (SGR, MPGS0121); the design of the considerations is discussed and approved by the supervisor. The text of the theoretical-methodological considerations is submitted electronically together with the application for the state doctoral exam at the Department of Student Affairs. A copy is provided to the coordinator of doctoral studies at the department.</p> <p>2. State doctoral exam and dissertation defence For registration for the state doctoral exam, the students need to fulfil their duties (courses) in the ISP and they have to submit the electronic version of the theoretical-methodological considerations. In the first part of the state doctoral exam, the students present their specialization, research topic, theoretical concepts and progress in writing dissertation (max. 15 minutes). It is followed by a discussion. In the second part of the state doctoral exam, the committee, taking into account student's specialization,</p>

Study programme	Form of study	Requirements
		<p>verifies the student's ability to relate a research problem to general theories and methodological approaches. Apart from knowledge, the exam is aimed at verifying the following skills: critical thinking, explaining a problem, differentiate meanings, argue, put a problem in a wider context, differentiate between general and specific issues, present relevant empirical examples, make generalizations.</p> <p>The dissertation defence has to prove the student's ability to defend own results in a wider forum and the ability to discuss scientific problems. To apply for a defence, the students have to pass the state doctoral exam and to have all the duties in the ISP fulfilled (stay abroad, publications, etc.).</p> <p>3. Study stay abroad The students have to go abroad to study or to conduct research abroad (for the topic related to their dissertation). The stay is at least one month long. In SIS, it is included in the "Internships".</p> <p>4. Publications Dissertation can consist of several scientific articles or it can be a scientific monograph. Both forms require publications, as specified below. Only publications with affiliation to the department are accepted. In case of collective work, the students has to specify own contribution (included in the dissertation). If the text has not been published yet, the student has to submit a confirmation of acceptance for publication. Dissertation as a set of publications: The student has to publish at least four scientific articles in peer-reviewed scientific journals. At least one has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. The set of publications can include a chapter in a peer-reviewed book. The publications must form a logically organized thematic set. The set of articles in the dissertation is accompanied by an introduction and a conclusion. The articles are provided in the appendix. The introductory chapter must be a substantial text that captures the core of the research activities of the student. In the conclusion, the student has to discuss the key conclusions and possibilities of further research. Dissertation as a scientific monograph: The student has to publish at least two scientific articles in peer-reviewed scientific journals. At least one of them has to be published in a journal with IF (according to the Web of Science) and the student has to be the first author with at least 50% contribution. One article can be replaced by a chapter in a peer-reviewed book. The publications must be related to the topic of the dissertation.</p> <p>5. Teaching Teaching is not required.</p> <p>6. The presence at the department, in hours per week</p>

Study programme	Form of study	Requirements
		<p>Is not required.</p> <p>7. Specific requirements for the given study programme (for instance requirements by the subject-area board on minimum number of conferences attended)            During the course of studies, the students have to participate actively at least in one conference in Czechia and one abroad.</p>
Theoretical and Evolutionary Biology (P0511D030038)	full-time	<p>Study requirements</p> <p>1) The individual study plan is determined by the topic of the dissertation. The courses are selected from those offered by the Department of Philosophy and History of Science, Faculty of Science, Charles University, and other courses offered at the Faculty of Science, Faculty of Mathematics and Physics and Faculty of Arts and Philosophy. The student works in a close cooperation with their supervisor according to whom the subject-area board determines the content of the student's individual plan. The main part of the study programme is the doctoral project whose topic, schedule and solution are the mainly in hands of the PhD candidate. The goal is therefore to develop student's independence and creative potential. The supervisor's role is to stimulate these qualities. The doctoral project is subject to approval of the subject-area board.</p> <p>2) Another requirement is the state final examination. After consulting the supervisor and the head of the subject-area board, the student chooses three sets of questions related to their studies and to the topic of their dissertation.</p> <p>3) The obvious part of studies is also building contacts abroad, usually through a several month long stay at an institution abroad.</p> <p>4) The students are also expected to participate actively in specialized seminars of the department, especially those related to history of science – such participation is expected throughout the studies. The students have to present their progress regularly at these seminars – both in terms of dissertation and publishing activities.</p> <p>5) Subject-area board's requirements on publishing activities of doctoral students:</p> <p>a) Obligatory publications before the submission of dissertation (if the dissertation is a monograph): In general, one publication in a scientific journal with IF or in a thematic book is expected, the candidate should be the first and the corresponding author. Such publication should be published in time of the submission or it should be accepted for publication.</p> <p>b) Set of publications (if the dissertation is of a cumulative form, i.e. monothematic set of publications): At least three publications in relevant scientific journals accompanied by an introductory text in the dissertation. At least two publications should be in a journal with IF (exceptions shall be discussed and approved by the subject-area board). The candidate must be the first and corresponding (or the only) author of at least of these articles – such article must be published in a journal with IF.</p> <p>The requirements given should be met by the end of the fourth</p>

Study programme	Form of study	Requirements
		<p>grade of studies in order to submit the dissertation successfully.</p> <p><b>Creative activity requirements</b>  The main requirement is the creative activity of the student and continuous work on the doctoral project. The progress is regularly consulted with the supervisor and is taken into account at the annual assessment. The results are usually presented and discussed in detail once a year at a seminar. In the third year the latest, the candidate is obliged to present own work in front of the department and the members of the subject-area board. Another necessary requirement is an active participation and presentation of own work at international conferences, be it with a poster or an oral presentation. The dissertation may be in a classic form (monograph), or in a cumulative form (set of thematic articles with an introduction). All journal articles and book chapters included in the set of publications in the dissertation shall be closely related to the topic of the doctoral project and must meet the requirements in the point 5 above (see the general study plan). The candidate must be able to defend them all. Other work or publications that do not meet the criteria above can be only included in the appendix.</p> <p><b>Internship requirements</b>  The student is highly recommended to participate at least in one month-long internship abroad (for which there is currently a wide range of options). The Department of Philosophy and History of Science has signed multiple bilateral agreements with the following institutions abroad:</p> <ul style="list-style-type: none"> <li>[li]Friedrich-Schiller-University of Jena (Faculty of Biology and Pharmacy) link: <a href="http://www.ehh.uni-jena.de/">http://www.ehh.uni-jena.de/</a>[/li]</li> <li>[li]University of Tartu (Faculty of Philosophy) link: <a href="http://www.flfi.ut.ee/en/department-semiotics/">http://www.flfi.ut.ee/en/department-semiotics/</a>[/li]</li> <li>[li]University of Leeds (Faculty of Arts) link: <a href="https://www.leeds.ac.uk/arts/info/20042/school_of_philosophy_religion_and_history_of_science/">https://www.leeds.ac.uk/arts/info/20042/school_of_philosophy_religion_and_history_of_science/</a>[/li]</li> <li>[li]University of Ljubljana (Faculty of Arts) link: <a href="https://www.uni-lj.si/academies_and_faculties/faculties/2013071111490274/">https://www.uni-lj.si/academies_and_faculties/faculties/2013071111490274/</a>[/li]</li> </ul> <p>[li]Upon agreement, it is possible to stay also at other institutions abroad, or eventually to sign a new agreement. If you are interested in this way, contact in advance the department's coordinator: <a href="mailto:lucie.cermakova@natur.cuni.cz">lucie.cermakova@natur.cuni.cz</a>[/li]</p> <ul style="list-style-type: none"> <li>[/ul]</li> </ul> <p>Another possibility how to fund a stay abroad is the mobility fund of the Charles University (<a href="https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita/fond-mobility-uk/">https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita/fond-mobility-uk/</a>), or a scholarship based on intergovernmental agreements (<a href="http://www.dzs.cz/cz/akademicka-informacni-agentura/43_mezinarodni_smlouvy-rozpis_kvot/">http://www.dzs.cz/cz/akademicka-informacni-agentura/43_mezinarodni_smlouvy-rozpis_kvot/</a>). There are news on this topic also on the faculty website (<a href="https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita">https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita</a>).</p>

Study programme	Form of study	Requirements
		<p>Other requirements</p> <p>The student should actively attempt to participate in conferences abroad, ideally at least once a year. The department offers a possibility of pedagogical experience by leading own seminar or by teaching with the supervisor or other colleagues. The participation in common grant projects is welcome and recommended (for instance GAUK).</p> <p>The students are recommended to pass the state doctoral exam by the end of the third year of their studies. The exam takes place in front of a committee appointed by the dean upon the recommendation of the subject-area board and the approval of the Research Board of the Faculty. The exam is public. The candidate shall prove deep knowledge in the field and also knowledge in terms of own specialization. This is done by presenting three selected topics (related to the doctoral project) and mainly by an academic discussion with the committee members. The emphasis is given to methodological and interpretational issues. The candidate is expected to prove clearly own knowledge of the field, creative thinking, independent academic thinking, and clear orientation towards finishing the dissertation. The topics for presenting and discussion are chosen by the committee in relation to the specialization of the candidate (but the aim is not to double the topic of dissertation itself).</p>
Theoretical and Evolutionary Biology (P0511D030038)	combined	<p>Study requirements</p> <p>1) The individual study plan is determined by the topic of the dissertation. The courses are selected from those offered by the Department of Philosophy and History of Science, Faculty of Science, Charles University, and other courses offered at the Faculty of Science, Faculty of Mathematics and Physics and Faculty of Arts and Philosophy. The student works in a close cooperation with their supervisor according to whom the subject-area board determines the content of the student's individual plan. The main part of the study programme is the doctoral project whose topic, schedule and solution are the mainly in hands of the PhD candidate. The goal is therefore to develop student's independence and creative potential. The supervisor's role is to stimulate these qualities. The doctoral project is subject to approval of the subject-area board.</p> <p>2) Another requirement is the state final examination. After consulting the supervisor and the head of the subject-area board, the student chooses three sets of questions related to their studies and to the topic of their dissertation.</p> <p>3) The obvious part of studies is also building contacts abroad, usually through a several month long stay at an institution abroad.</p> <p>4) The students are also expected to participate actively in specialized seminars of the department, especially those related to history of science – such participation is expected throughout the studies. The students have to present their progress regularly at these seminars – both in terms of dissertation and publishing activities.</p> <p>5) Subject-area board's requirements on publishing activities of</p>



Study programme	Form of study	Requirements
		<p>doctoral students:</p> <p>a) Obligatory publications before the submission of dissertation (if the dissertation is a monograph): In general, one publication in a scientific journal with IF or in a thematic book is expected, the candidate should be the first and the corresponding author. Such publication should be published in time of the submission or it should be accepted for publication.</p> <p>b) Set of publications (if the dissertation is of a cumulative form, i.e. monothematic set of publications): At least three publications in relevant scientific journals accompanied by an introductory text in the dissertation. At least two publications should be in a journal with IF (exceptions shall be discussed and approved by the subject-area board). The candidate must be the first and corresponding (or the only) author of at least of these articles – such article must be published in a journal with IF.</p> <p>The requirements given should be met by the end of the fourth grade of studies in order to submit the dissertation successfully.</p> <p><b>Creative activity requirements</b>  The main requirement is the creative activity of the student and continuous work on the doctoral project. The progress is regularly consulted with the supervisor and is taken into account at the annual assessment. The results are usually presented and discussed in detail once a year at a seminar. In the third year the latest, the candidate is obliged to present own work in front of the department and the members of the subject-area board. Another necessary requirement is an active participation and presentation of own work at international conferences, be it with a poster or an oral presentation. The dissertation may be in a classic form (monograph), or in a cumulative form (set of thematic articles with an introduction). All journal articles and book chapters included in the set of publications in the dissertation shall be closely related to the topic of the doctoral project and must meet the requirements in the point 5 above (see the general study plan). The candidate must be able to defend them all. Other work or publications that do not meet the criteria above can be only included in the appendix.</p> <p><b>Internship requirements</b>  The student is highly recommended to participate at least in one month-long internship abroad (for which there is currently a wide range of options). The Department of Philosophy and History of Science has signed multiple bilateral agreements with the following institutions abroad:</p> <ul style="list-style-type: none"> <li>[li]Friedrich-Schiller-University of Jena (Faculty of Biology and Pharmacy) link: <a href="http://www.ehh.uni-jena.de/">http://www.ehh.uni-jena.de/</a>[/li]</li> <li>[li]University of Tartu (Faculty of Philosophy) link: <a href="http://www.flfi.ut.ee/en/department-semiotics/">http://www.flfi.ut.ee/en/department-semiotics/</a>[/li]</li> <li>[li]University of Leeds (Faculty of Arts) link: <a href="https://www.leeds.ac.uk/arts/info/20042/school_of_philosophy_religion_and_history_of_science/">https://www.leeds.ac.uk/arts/info/20042/school_of_philosophy_religion_and_history_of_science/</a>[/li]</li> </ul>

Study programme	Form of study	Requirements
		<p>[li]University of Ljubljana (Faculty of Arts) link: <a href="https://www.uni-lj.si/academies_and_faculties/faculties/2013071111490274/">https://www.uni-lj.si/academies_and_faculties/faculties/2013071111490274/</a>[/li]  [li]Upon agreement, it is possible to stay also at other institutions abroad, or eventually to sign a new agreement. If you are interested in this way, contact in advance the department's coordinator: <a href="mailto:lucie.cermakova@natur.cuni.cz">lucie.cermakova@natur.cuni.cz</a>[/li]  [/ul]</p> <p>Another possibility how to fund a stay abroad is the mobility fund of the Charles University (<a href="https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita/fond-mobility-uk">https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita/fond-mobility-uk</a>), or a scholarship based on intergovernmental agreements (<a href="http://www.dzs.cz/cz/akademicka-informacni-agentura/43_mezinarodni_smlouvy-rozpis_kvot/">http://www.dzs.cz/cz/akademicka-informacni-agentura/43_mezinarodni_smlouvy-rozpis_kvot/</a>). There are news on this topic also on the faculty website (<a href="https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita">https://www.natur.cuni.cz/fakulta/oddeleni-pro-vedu/zahranicni-mobilita</a>).</p> <p>Other requirements  The student should actively attempt to participate in conferences abroad, ideally at least once a year. The department offers a possibility of pedagogical experience by leading own seminar or by teaching with the supervisor or other colleagues. The participation in common grant projects is welcome and recommended (for instance GAUK).  The students are recommended to pass the state doctoral exam by the end of the third year of their studies. The exam takes place in front of a committee appointed by the dean upon the recommendation of the subject-area board and the approval of the Research Board of the Faculty. The exam is public. The candidate shall prove deep knowledge in the field and also knowledge in terms of own specialization. This is done by presenting three selected topics (related to the doctoral project) and mainly by an academic discussion with the committee members. The emphasis is given to methodological and interpretational issues. The candidate is expected to prove clearly own knowledge of the field, creative thinking, independent academic thinking, and clear orientation towards finishing the dissertation. The topics for presenting and discussion are chosen by the committee in relation to the specialization of the candidate (but the aim is not to double the topic of dissertation itself).</p>
Developmental and Cell Biology (P0511D030046)	full-time	<p>The goal of study is to train students at advanced level in developmental and cell biology. The students should acquire broad knowledge of the research area, master their research topic, become competent in conducting and planning experiments, get trained in scientific writing, and obtain qualification which would make them competitive candidates for positions in research, teaching, and technologies internationally.</p> <p>Learning goal 1  Students must take at least three study obligations (courses) and schedule them within the first 3 years of study. When preparing their proposal of the individual study plan (ISP) for</p>

Study programme	Form of study	Requirements
		<p>approval by the Subject area board (Board) in the Study Information System of the Charles University (SIS), students should include all three courses in the plan.</p> <p>(A) All students must take the obligatory “Grant application strategy and preparation of scientific publication” course. After the theoretical background is explained in several lectures, the student will prepare a grant application related to the Ph.D. project in English, using the forms and guidelines of the Grant Agency of the Czech Republic.</p> <p>(B) Students choose at least two study obligations from the list below. Students should actively seek the opinion of their mentors about the suitability of courses with respect to their project. The prerequisite for the inclusion of courses is that students have not passed them in previous or concurrent study programs.</p> <p>Theoretical courses</p> <ul style="list-style-type: none"> <li>• MB140P82 Advances in molecular virology</li> <li>• MB150P23 Cells and tissues in vitro (*)</li> <li>• MB150P32E Cell differentiation in ontogenesis</li> <li>• MB160P44 Computational Genomics</li> <li>• MB151P80E Cytometry</li> <li>• MB151P96E Fluorescent microscopy in cell biology</li> <li>• MB151P102 Genomic methods</li> <li>• MB140P86 Methods of functional genomics</li> <li>• MB150P89 Molecular Biology of Cancer I (*)</li> <li>• MB151P105 Molecular Biology of Cancer II</li> <li>• MB150P79E Molecular mechanisms of apoptosis</li> <li>• MB150P84 Molecular mechanisms of cell cycle regulation</li> <li>• MB150P66 Molecular mechanisms of fertilization (*)</li> <li>• MB150P83E Model organisms in developmental biology</li> <li>• MB151P107E Protein dynamics in development and cancer</li> <li>• MB150P09 Proteins of signaling cascades</li> <li>• MB150P10 Reproduction biology</li> <li>• MB150P91E RNA structure and function</li> <li>• MB151P116 Structural bioinformatics</li> <li>• MB150P67 Structure and function of cytoskeleton (*)</li> </ul> <p>• Advances in molecular biology and genetics (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a> - <a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a>] (according to the information for the current academic year)</p> <p>(*) enquire about the availability of the course in English</p> <p>Practical courses:</p> <ul style="list-style-type: none"> <li>• Processing and analysis of microscopic image in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a> -</li> </ul>

Study programme	Form of study	Requirements
		<p><a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a>] (according to the information for the current academic year)</p> <ul style="list-style-type: none"> <li>• Microscopic methods in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a>] - <a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a>] (according to the information for the current academic year)</li> <li>• Transmission electron microscopy in life sciences (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a>] - <a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a>] (according to the information for the current academic year)</li> <li>• MB140C75E Fluorescence spectroscopy in biology</li> </ul> <p>Learning goal 2 Internships and visits in cooperating laboratories Students conduct part of their work or training at foreign institution for a total length of at least one month or directly participate in other forms of international cooperation, such as participation in an international creative project with results published or presented abroad. The recommended form is an internship (in total for at least three months) with emphasis on advanced methods or new approaches/ models.</p> <p>Presentations of results Students are required to attend the conference of doctoral students, which is summoned every year by the Board. Students actively participate in its organization. During the conference, students present results of their projects and discuss methods and issues of common interest. Both the Board members and the mentors are invited to the conference. Active participation in international conferences according to the focus and possibilities of the mentor's team is also recommended.</p> <p>Ph.D. exam The state doctoral exam is an important control point of the study, in addition to the annual ISP checks. The exam serves to test student's understanding of the research project and his/ her orientation in the research field. The committee assesses depth and breadth of knowledge of developmental and cell biology with emphasis on areas related to the project. The recommended timing of the exam is the second semester of the second year of study or the first semester of the third year, so that the exam can serve as a useful feedback for the student. Postponing the exam after the 3rd year without reason may affect student's grading during the subsequent annual evaluation.</p> <p>PhD Thesis</p>

Study programme	Form of study	Requirements
		<p>Publication prerequisites: The applicant must be an author/ co-author of at least two papers accepted in peer-reviewed journals indexed in the Web of Science (preferably with IF above the research field median) and should be a first author on at least one publication (shared first authorship should be communicated ex ante with the Board). In exceptional and warranted cases, the Board may decide otherwise; an example of such situation may be one excellent first author publication.</p> <p>PhD Thesis: The thesis should be written as concise, fair and comprehensive information about the applicant's scientific achievements. It should enable the reviewers and the defense committee to assess whether the candidate has acquired both theoretical knowledge and methodical experience as prerequisite for independent scientific work in the field. The candidate should address the scientific problems and open questions of the project and formulate his/ her independent opinions.</p> <p>The text contains:</p> <p>a) Abstract – It should summarize the project's aims and results for the public; it should not exceed 500 words.</p> <p>b) Introduction – It should be outlined as brief review of current knowledge related to the project. Recommended length is ca 20 pages of standard manuscript formatting.</p> <p>c) Methods, Results – These sections should describe in detail the methods and the results of experiments carried out by the applicant, which have not become part of the published papers/ submitted manuscripts. The published papers/ submitted manuscripts should be included as supplements.</p> <p>d) Discussion – This section gives the author the opportunity to present her/ his independent opinions on the results and their significance. It should reflect the level of knowledge at the date of thesis submission and it should mention relevant literature containing supportive or contradictory results. Minimum length is 10 pages.</p> <p>e) Summary - Summary of the main results. Recommended length is 1 page.</p> <p>f) Accompanying sections - list of abbreviations, list of references, information on data repositories or websites where appropriate, statement describing the contribution of the applicant to the published work, including a detailed statement about his/ her role in the preparation of the publications.</p> <p>g) Publications and submitted manuscripts which contain the results obtained by the student.</p> <p>The text in parts a) to e) should be written by the student and must not be contained elsewhere. The text cannot be copied, even in part, from the publications in section g) or other texts. The text can be written in English, Czech or Slovak. Formatting of the text, figures, tables and accompanying data should comply with the rules for manuscript submission of a journal of choice, such as the journal where one of the author's papers</p>

Study programme	Form of study	Requirements
		was published.
Developmental and Cell Biology (P0511D030046)	combined	<p>The goal of study is to train students at advanced level in developmental and cell biology. The students should acquire broad knowledge of the research area, master their research topic, become competent in conducting and planning experiments, get trained in scientific writing, and obtain qualification which would make them competitive candidates for positions in research, teaching, and technologies internationally.</p> <p>Learning goal 1 Students must take at least three study obligations (courses) and schedule them within the first 3 years of study. When preparing their proposal of the individual study plan (ISP) for approval by the Subject area board (Board) in the Study Information System of the Charles University (SIS), students should include all three courses in the plan.</p> <p>(A) All students must take the obligatory “Grant application strategy and preparation of scientific publication” course. After the theoretical background is explained in several lectures, the student will prepare a grant application related to the Ph.D. project in English, using the forms and guidelines of the Grant Agency of the Czech Republic.</p> <p>(B) Students choose at least two study obligations from the list below. Students should actively seek the opinion of their mentors about the suitability of courses with respect to their project. The prerequisite for the inclusion of courses is that students have not passed them in previous or concurrent study programs.</p> <p>Theoretical courses</p> <ul style="list-style-type: none"> <li>• MB140P82 Advances in molecular virology</li> <li>• MB150P23 Cells and tissues in vitro (*)</li> <li>• MB150P32E Cell differentiation in ontogenesis</li> <li>• MB160P44 Computational Genomics</li> <li>• MB151P80E Cytometry</li> <li>• MB151P96E Fluorescent microscopy in cell biology</li> <li>• MB151P102 Genomic methods</li> <li>• MB140P86 Methods of functional genomics</li> <li>• MB150P89 Molecular Biology of Cancer I (*)</li> <li>• MB151P105 Molecular Biology of Cancer II</li> <li>• MB150P79E Molecular mechanisms of apoptosis</li> <li>• MB150P84 Molecular mechanisms of cell cycle regulation</li> <li>• MB150P66 Molecular mechanisms of fertilization (*)</li> <li>• MB150P83E Model organisms in developmental biology</li> <li>• MB151P107E Protein dynamics in development and cancer</li> <li>• MB150P09 Proteins of signaling cascades</li> <li>• MB150P10 Reproduction biology</li> <li>• MB150P91E RNA structure and function</li> <li>• MB151P116 Structural bioinformatics</li> <li>• MB150P67 Structure and function of cytoskeleton (*)</li> </ul>

Study programme	Form of study	Requirements
		<ul style="list-style-type: none"> <li>• Advances in molecular biology and genetics (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a> - <a href="https://pokroky.img.cas.cz/">https://pokroky.img.cas.cz/</a>] (according to the information for the current academic year)</li> </ul> <p>(*) enquire about the availability of the course in English</p> <p>Practical courses:</p> <ul style="list-style-type: none"> <li>• Processing and analysis of microscopic image in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a> - <a href="https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/">https://www.img.cas.cz/2016/04/26119-zpracovani-a-analyza-mikroskopicky-obrazu-v-biomedicine/</a>] (according to the information for the current academic year)</li> <li>• Microscopic methods in biomedicine (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a> - <a href="https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/">https://www.img.cas.cz/2013/06/15613-mikroskopicke-metody-v-biomedicine/</a>] (according to the information for the current academic year)</li> <li>• Transmission electron microscopy in life sciences (Institute of Molecular Genetics of the ASCR, v. v. i.) [<a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a> - <a href="https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/">https://www.img.cas.cz/2015/02/21825-transmission-electron-microscopy-in-life-sciences/</a>] (according to the information for the current academic year)</li> <li>• MB140C75E Fluorescence spectroscopy in biology</li> </ul> <p>Learning goal 2 Internships and visits in cooperating laboratories Students conduct part of their work or training at foreign institution for a total length of at least one month or directly participate in other forms of international cooperation, such as participation in an international creative project with results published or presented abroad. The recommended form is an internship (in total for at least three months) with emphasis on advanced methods or new approaches/ models.</p> <p>Presentations of results Students are required to attend the conference of doctoral students, which is summoned every year by the Board. Students actively participate in its organization. During the conference, students present results of their projects and discuss methods and issues of common interest. Both the Board members and the mentors are invited to the conference. Active participation in international conferences according to the focus and possibilities of the mentor's team is also recommended.</p> <p>Ph.D. exam</p>

Study programme	Form of study	Requirements
		<p>The state doctoral exam is an important control point of the study, in addition to the annual ISP checks. The exam serves to test student's understanding of the research project and his/ her orientation in the research field. The committee assesses depth and breadth of knowledge of developmental and cell biology with emphasis on areas related to the project. The recommended timing of the exam is the second semester of the second year of study or the first semester of the third year, so that the exam can serve as a useful feedback for the student. Postponing the exam after the 3rd year without reason may affect student's grading during the subsequent annual evaluation.</p> <p>PhD Thesis  Publication prerequisites:  The applicant must be an author/ co-author of at least two papers accepted in peer-reviewed journals indexed in the Web of Science (preferably with IF above the research field median) and should be a first author on at least one publication (shared first authorship should be communicated ex ante with the Board). In exceptional and warranted cases, the Board may decide otherwise; an example of such situation may be one excellent first author publication.</p> <p>PhD Thesis:  The thesis should be written as concise, fair and comprehensive information about the applicant's scientific achievements. It should enable the reviewers and the defense committee to assess whether the candidate has acquired both theoretical knowledge and methodical experience as prerequisite for independent scientific work in the field. The candidate should address the scientific problems and open questions of the project and formulate his/ her independent opinions.</p> <p>The text contains:</p> <ul style="list-style-type: none"> <li>a) Abstract – It should summarize the project's aims and results for the public; it should not exceed 500 words.</li> <li>b) Introduction – It should be outlined as brief review of current knowledge related to the project. Recommended length is ca 20 pages of standard manuscript formatting.</li> <li>c) Methods, Results – These sections should describe in detail the methods and the results of experiments carried out by the applicant, which have not become part of the published papers/ submitted manuscripts. The published papers/ submitted manuscripts should be included as supplements.</li> <li>d) Discussion – This section gives the author the opportunity to present her/ his independent opinions on the results and their significance. It should reflect the level of knowledge at the date of thesis submission and it should mention relevant literature containing supportive or contradictory results. Minimum length is 10 pages.</li> <li>e) Summary - Summary of the main results. Recommended length is 1 page.</li> <li>f) Accompanying sections - list of abbreviations, list of</li> </ul>



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		<p>references, information on data repositories or websites where appropriate, statement describing the contribution of the applicant to the published work, including a detailed statement about his/ her role in the preparation of the publications. g) Publications and submitted manuscripts which contain the results obtained by the student.</p> <p>The text in parts a) to e) should be written by the student and must not be contained elsewhere. The text cannot be copied, even in part, from the publications in section g) or other texts. The text can be written in English, Czech or Slovak. Formatting of the text, figures, tables and accompanying data should comply with the rules for manuscript submission of a journal of choice, such as the journal where one of the author's papers was published.</p>
Zoology (P0511D030027)	full-time	<p>Study obligations are always determined individually depending on the needs of the given student and the dissertation project. Generally includes at least 2 examinations from specialized subjects at the master's level or higher, in addition, regular participation in department seminars and possible completion of specialized courses.</p> <p>Regardless of whether the dissertation is written in classic (monograph) or cumulative format (set of works with an introduction), the work must include at least one article published or accepted for publication in a journal with IF which is closely related to the dissertation topic and the doctoral student is a co-author. We expressly point out that this condition is required, but in itself not sufficient. Failure to meet this condition clearly prevents acceptance of dissertation work, but meeting this condition does not guarantee the award of a doctoral degree in the field of zoology. The assessment is up to the defense committee in the context of the typical level of defended dissertation work seen by our subject area board. We must point out that the average quality of defended work is quickly growing.</p> <p>A typical, successfully defended dissertation however generally consists of three to eleven scientific articles in journals (mostly with IF) or books, at least some of which have already been published or have been accepted for publication when the dissertation is submitted, while the remaining works may be manuscripts still in the review process at this time. It is presumed that the work included in the dissertation is work to which the doctoral student has made significant contributions in all aspects and not simply the collection of material, laboratory work, statistical analysis or writing of the text. Co-authorship of the supervisor is permitted. All articles included in the set of dissertation work must be related to the dissertation topic (others may only be included as informative appendices) and the doctoral student must be able to defend them to full extent. We do not require any formal language examination. However, we presume incoming doctoral students to have sufficient knowledge of English to enable basic scientific communication</p>

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		<p>both written and oral. If a student is found to be severely deficient in this area, the subject area board may require instruction. Knowledge of additional languages (world, local and possibly dead - depending on the needs of the specific concentration) is very welcome, taken into consideration, but is not a mandatory requirement, unless absolutely necessary for the given dissertation topic.</p> <p>To a reasonable degree doctoral students will take part in regular instruction during labs, excursions and seminars in individual fields. This participation is always subject to approval by the teacher responsible for the given instruction or task. The exact extent of this participation will be primarily be determined by the supervisor, or by the subject area board in unclear situations. During the course of the semester doctoral students are required to regularly attend the seminars of individual "departments" as well as the defense of theses and actively contribute to the creative atmosphere of the entire workplace (for part-time study this applies commensurately). In justified cases they may be invited as thesis supervisors (only for undergraduates), consultants or readers.</p> <p>Internships at foreign workplaces and on expeditions are considered a major component of study. Internships are carried out within the scope of financial possibilities. Since internships depend on external financing which the workplace can only influence partially, they cannot be required of every doctoral student. The relevance of a planned trip abroad and its recognition as a part of doctoral study is primarily determined by the supervisor or subject area board.</p>
Zoology (P0511D030027)	combined	<p>Study obligations are always determined individually depending on the needs of the given student and the dissertation project. Generally includes at least 2 examinations from specialized subjects at the master's level or higher, in addition, regular participation in department seminars and possible completion of specialized courses.</p> <p>Regardless of whether the dissertation is written in classic (monograph) or cumulative format (set of works with an introduction), the work must include at least one article published or accepted for publication in a journal with IF which is closely related to the dissertation topic and the doctoral student is a co-author. We expressly point out that this condition is required, but in itself not sufficient. Failure to meet this condition clearly prevents acceptance of dissertation work, but meeting this condition does not guarantee the award of a doctoral degree in the field of zoology. The assessment is up to the defense committee in the context of the typical level of defended dissertation work seen by our subject area board. We must point out that the average quality of defended work is quickly growing.</p> <p>A typical, successfully defended dissertation however generally consists of three to eleven scientific articles in journals (mostly</p>

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		<p>with IF) or books, at least some of which have already been published or have been accepted for publication when the dissertation is submitted, while the remaining works may be manuscripts still in the review process at this time. It is presumed that the work included in the dissertation is work to which the doctoral student has made significant contributions in all aspects and not simply the collection of material, laboratory work, statistical analysis or writing of the text. Co-authorship of the supervisor is permitted. All articles included in the set of dissertation work must be related to the dissertation topic (others may only be included as informative appendices) and the doctoral student must be able to defend them to full extent. We do not require any formal language examination. However, we presume incoming doctoral students to have sufficient knowledge of English to enable basic scientific communication both written and oral. If a student is found to be severely deficient in this area, the subject area board may require instruction. Knowledge of additional languages (world, local and possibly dead - depending on the needs of the specific concentration) is very welcome, taken into consideration, but is not a mandatory requirement, unless absolutely necessary for the given dissertation topic.</p> <p>To a reasonable degree doctoral students will take part in regular instruction during labs, excursions and seminars in individual fields. This participation is always subject to approval by the teacher responsible for the given instruction or task. The exact extent of this participation will be primarily be determined by the supervisor, or by the subject area board in unclear situations. During the course of the semester doctoral students are required to regularly attend the seminars of individual "departments" as well as the defense of theses and actively contribute to the creative atmosphere of the entire workplace (for part-time study this applies commensurately). In justified cases they may be invited as thesis supervisors (only for undergraduates), consultants or readers.</p> <p>Internships at foreign workplaces and on expeditions are considered a major component of study. Internships are carried out within the scope of financial possibilities. Since internships depend on external financing which the workplace can only influence partially, they cannot be required of every doctoral student. The relevance of a planned trip abroad and its recognition as a part of doctoral study is primarily determined by the supervisor or subject area board.</p>