

The Ph.D. Board in Anatomy, Histology and Embryology, Charles University, Faculty of Medicine in Pilsen, 2nd Faculty of Medicine, and 3rd Faculty of Medicine

Study program Anatomy, Histology and Embryology (P0912D350016)

Ph.D. Learning Outcomes

Graduates of the doctoral program are guided from the outset by their supervisors and examination boards to be able to by the date of graduation:

- Map current knowledge in their research area using global information databases. Summarize the main ideas of the scientific publications in the form of a literature review.
- Name scientific questions that are still unanswered in your research field; identify the knowledge gap and justify why these questions deserve clarification. Formulate testable hypotheses to answer these questions.
- Select methods that can lead to testing the hypothesis of your own research.
- Design experiments that will lead to testing the hypothesis. Design the sample size with respect to the statistical evaluability of the study. Select appropriate methods to achieve the objectives.
- Master the methodology necessary to obtain your own original results. Master and combine the necessary methodological approaches, including laboratory work and instrumentation techniques, and work to improve them further.
- Conduct your own research activities (observations, experiments) in collaboration with other experts including those from other disciplines. Gradually develop a well-defined area in which you will be able to act as a scientist with your own expertise.
- Learn to take valid data. Evaluate the data statistically, taking into account the design of your study and the characteristics of the data. Interpret the results for communication purposes (scientific paper, presentation at a conference). Draw a conclusion from the findings, or further direction for the research. Define the range of validity or limitations of your scientific procedures.
- Develop a Data Management Plan and treat your data according to the principles: Findable, Accessible, Interoperable, Reusable.
- Plan your scientific work in coordination with other members of the scientific teams realistically and taking into account financial and time costs. Construct a Gantt chart.
- Perform a risk analysis of a scientific project plan and propose alternative strategies for difficult to predict scenarios.
- Consider the ethics of research and publishing, including the balance of benefits and risks.
- Write and submit an application for your own scientific project to the Charles University Grant Agency competition. In case of failure, take into account the comments of the opponents and reporters. Engage in research projects of the supervisor or other scientists.
- Demonstrate communication skills in English on B2 or C1 level, preferably in the form of an internationally recognized language exam.
- Gain international experience to a degree that will allow you to get involved as a full member of an international research team, actively contributing to research activities; ideally including publications with co-authors from abroad.
- Present the results of your own scientific work in the form of lectures, discussions, posters at international scientific conferences. Formulate your results in a way that is understandable to the professional and lay public (science communication, press release options, etc.)
- Master the methodology of scientific writing to contribute significantly to the coordination of other authors, writing and revision of your own first-authored article with original scientific results. Become familiar with the role of a corresponding author or better to take it on directly.
- Become a valid member of the scientific community, cultivate critical thinking, work on your further self-education, analyze your own mistakes, gain experience and pass it on to other collaborators.