

PhD position in Mathematical Modeling in Virology

at Faculty of Medicine and Faculty of Pharmacy in Hradec Králové, Charles University

STUDY PROGRAM AND RESEARCH GROUP

The PhD position is available in the research group Mathematical Pharmacy at the Faculty of Pharmacy in Hradec Králové, Charles University, from October 1st, 2024. Formally, the student will enroll into the doctoral study program **Pharmacology and Toxicology** at the Faculty of Pharmacy and in October 2025 will have the opportunity to transfer into a newly created joint doctoral study program between the Faculties of Medicine and Pharmacy **Applied Physics and Mathematics in Medicine and Pharmacy**. For more information visit group's webpage: <https://portal.faf.cuni.cz/Groups/Mathematical-Pharmacy/>.

PROJECT

The PhD thesis will be conducted as a part of the research project supported by the Johannes Amos Comenius Programme (OP JAK) and by the Strategic Programme Excellence Initiative „Quality of research for quality of life – qLife PRA“ at the Jagiellonian University in Kraków, Poland. The research project aims to develop mathematical models of enterovirus lifecycle using high resolution experimental data. The PhD student will develop novel deterministic/stochastic spatiotemporal mathematical models of the enterovirus infection *in vitro* which will bridge intracellular viral replication dynamics with strain-specific strategy of viral release from the cell. These mathematical models will be calibrated using a variety of high-quality temporal and spatial experimental data (viral loads, cell counts, fluorescence data). The models will then be used to inform targeted antiviral strategies.

REQUIREMENTS

- Master's (or equivalent) degree in Mathematics, Physics or Computer Science (or a related quantitative field),
- Experience with scientific computing and programming (Matlab, Python, R or similar),
- At least intermediate (B2 level or higher) knowledge of English (written and oral),
- Highly self-motivated, exceptionally organized and a team player.

WE OFFER

- A joint PhD position at Faculties of Medicine and Pharmacy in Hradec Králové, Charles University in a four-year doctoral programme,
- Unique opportunity to participate in a highly international and interdisciplinary collaboration on a cutting-edge research topic,
- Faculty stipend of 15 thousand CZK (tax-exempt),
- Employment at the Faculty of Pharmacy at 0,5 FTE with monthly pay of 20 thousand CZK (tax-deductible) which includes comprehensive health insurance for the duration of employment (the stipend and the salary allow for a comfortable student lifestyle in the Czech Republic),
- 3-months internship at any of the partner universities through ERASMUS exchange programme,
- Opportunity to attend prestigious international scientific conferences in and outside of Europe,
- Opportunity to apply for additional funding through university-wide graduate student grant scheme GAUK,
- Flexible working hours,
- International working environment with rich networking opportunities.

HOW TO APPLY

- The position will remain open until filled with a suitable candidate.
- The admission process has two steps:
 1. Invited candidates will have an online interview with Dr. Veronika Bernhauerová who will be the supervisor of the PhD thesis.
 2. The selected candidate will formally apply for the position following the faculty's admission process.
- Address your **motivation letter**, **CV**, and contact information of **two referees** to Dr. Veronika Bernhauerová. Informal queries are highly encouraged.
- **Send to:** bernhauve@faf.cuni.cz