

# INTEGRATIVE LIFE SCIENCE (ILS) DOCTORAL PROGRAM

## DEGREE STRUCTURE – starting 1.8.2020



Note that the curriculum is to a large extent choice-based and may contain optional courses and studies not listed here.

Obligatory parts of the curriculum are marked in red.

Numbers after the courses indicate ECTS study credits.

<b>1. Doctoral Thesis</b>	
<p><b>2. Scientific Content Studies 30</b></p> <p><b>2.1. General Scientific Competence ≥10</b></p> <ul style="list-style-type: none"> <li>• Thesis Committee Meetings 0</li> <li>• ILS Introductory course 1</li> <li>• ILS Workshop &amp; Retreat 1</li> <li>• Research Ethics for Health Scientists (or other courses) 1</li> <li>• Scientific conferences in Finland and abroad 2/event, max 6</li> <li>• ILS Student Symposium</li> <li>• Philosophy of science 2</li> <li>• Laboratory Animal Science 2-5</li> <li>• Book exam 1-5</li> <li>• Literature Review 2</li> <li>• Viikki Monday Seminars 2</li> <li>• Statistical analysis with SPSS 5</li> <li>• Research visit</li> <li>• Scientific seminars</li> <li>• Article outside thesis</li> <li>• Elective course(s)</li> </ul> <p><b>2.2. Thematic Scientific Competence ≥15</b>          ILS students are recommended to take courses from at least two categories</p> <p><b>Proteomics and Metabolomics</b></p> <ul style="list-style-type: none"> <li>• Proteomics 1 2</li> <li>• Proteomics 2A: Analysis of Protein Complexes 4</li> <li>• Proteomics 2B: Data Analysis in Quantitative Proteomics 4</li> <li>• Elective course(s)</li> </ul> <p><b>Genetics and Genomics</b></p> <ul style="list-style-type: none"> <li>• NGG Pre-Symposium Journal Club 1</li> <li>• NGG Symposium 1-2</li> <li>• Next Generation Genomics Workshop I 2</li> <li>• Next Generation Genomics Workshop II 2</li> <li>• Genome Club 1-2</li> <li>• Elective course(s)</li> </ul> <p><b>Developmental Biology and Physiology</b></p> <ul style="list-style-type: none"> <li>• Evo-devo of vertebrate systems 5</li> <li>• Developmental biology journal club 2</li> <li>• Growth factors and their receptors 3-5</li> <li>• Stem Cells and organogenesis 5</li> <li>• Elective course(s)</li> </ul> <p><b>Cell and Molecular Biology</b></p> <ul style="list-style-type: none"> <li>• Imaging technologies in biological sciences 2</li> <li>• Special symposium on advanced imaging techniques 2</li> <li>• Light microscopy - practical course 2</li> <li>• EM practical course 3</li> <li>• Cell Biology Club 1-2</li> <li>• Elective course(s)</li> </ul> <p><b>Bioinformatics and Systems Biology</b></p> <ul style="list-style-type: none"> <li>• Introduction to Systems Biology 5</li> <li>• Introduction to Bioinformatics 5</li> <li>• Elective course(s)</li> </ul> <p><b>Biochemistry, Biophysics and Structural Biology</b></p> <ul style="list-style-type: none"> <li>• Introduction to Structural Biology and Biophysics 5</li> <li>• Protein structure, function and folding 5</li> <li>• Workshop on cryo-electron microscopy 2</li> <li>• CryoEM image reconstruction workshop 2</li> <li>• Elective course(s)</li> </ul>	<p><b>3. General Competence Studies 10</b></p> <p><b>Communication and teaching</b></p> <ul style="list-style-type: none"> <li>• Academic writing and editing 2</li> <li>• Grant Writing I &amp; II 1+1</li> <li>• Principles of Peer Review 1</li> <li>• Writing Doctoral Research 3</li> <li>• Conference Presentations 2</li> <li>• Academic Pitching 1</li> <li>• Tieteen popularisointi - näin kerron tutkimuksestani 1</li> <li>• Academic Rhetoric and argumentation 1</li> <li>• Create a beautiful and credible scientific poster 2</li> <li>• Theory of pedagogics 1-5</li> <li>• Teaching in courses 1-2</li> <li>• Shut Up &amp; Write – A Weekly Open Workshop for Writers 1-3</li> <li>• Facing the Final Frontier: Preparing the Doctoral Dissertation Book 1</li> <li>• Principles of scientific writing 1 &amp; 2 2+2</li> <li>• Creative Scientists – Path towards breakthrough ideas 3</li> <li>• Scientific Writing Boot Camp 2</li> </ul> <p><b>Management &amp; entrepreneurship</b></p> <ul style="list-style-type: none"> <li>• Project management and Leadership 2</li> <li>• Research Funding 1-2</li> <li>• Introduction to quality management 1-2</li> <li>• PhDs to Business life 3</li> <li>• Company visits 1-2</li> <li>• Working in a company 1-2</li> <li>• Student council and doctoral programme/ school activities 1-2</li> <li>• From Idea to Impact 2</li> <li>• Innovate, Protect, Spin it off and Start it up 2</li> </ul> <p><b>Career planning and development</b></p> <ul style="list-style-type: none"> <li>• DSHealth Career Day 1</li> <li>• PhD Career Course 2</li> <li>• Designing Your Life – Preparing for Life after the PhD 2</li> </ul> <p><b>Legislation</b></p> <ul style="list-style-type: none"> <li>• IPR&amp;Copyrights 1-2</li> <li>• Biomedical view to patenting 1</li> <li>• Medical and Bio Law 1-2</li> <li>• Introduction to Labour Law 1-2</li> </ul> <p><b>Basic research tools and skills</b></p> <ul style="list-style-type: none"> <li>• Managing Scientific Information 1</li> <li>• Open science online course 1</li> <li>• Introduction to open data science 5</li> <li>• Philosophy of Biological and Biomedical Sciences 3</li> <li>• Science Communication and Public Engagement 1-5</li> </ul> <p><b>Other courses</b></p> <ul style="list-style-type: none"> <li>• Laboratory Animal Science 2-5</li> <li>• Nordic Summit for Doctoral Candidates</li> <li>• NorDoc PhD Summit Helsinki</li> <li>• Optional courses 1-10</li> </ul>