

ANNEX 1 (Update September 2021 – valid from Academic Year 2022/2023)

STUDY PLAN OF THE MASTER DOUBLE DEGREE PROGRAMME

At UCT Prague:

Programme “Přírodní látky a léčiva”, specialization: “Biotechnologie léčiv” = Programme “Natural Compounds and Pharmaceuticals”, specialization “Biotechnology of Pharmaceuticals” (accredited in Czech language)

Programme “Biotechnology and Food Science” (accredited in English language)

At FHNW School of Life Sciences

“Master of Sciences in Life Sciences – Specializations: Bioanalytics, Pharmatechnology or Biotechnology”

Students from FHNW School of Life Sciences (MuttENZ) → UCT Prague

| Semester | Module offer (ECTS) | Total ECTS | Location |
|----------|--|------------|----------|
| 1-2 | <p>Specialisation <i>Pharmatechnology</i>:</p> <p>Five of:</p> <ul style="list-style-type: none"> - Continuous Pharmaceutical Production - Formulation of Biologics and Routes of Drug Delivery - Pharmaceutical Production Facilities - Drug formulation and delivery for solid dosage forms - Physicochemical Principles of Pharmaceutics - Materials Science <p>Two of:</p> <ul style="list-style-type: none"> - Compound Profiling in Pharmaceutical Drug Discovery - Process Analytical Technology - Bioanalytics in a regulated Environment - Laboratory Automation in the Pharmaceutical Industry - Chromatography and Mass-Spectrometry - Proteomics and Protein Analytics - Biostructures and Solid State Sciences <p>Three of:</p> <ul style="list-style-type: none"> - Sustainable Process Development - Process Data Analysis - Process Transfer and Scale-up | 50-60 | MuttENZ |

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| | <ul style="list-style-type: none"> - Process Development and Technology - Process Technology for Industrial Pollution control - Costs and Benefits of Sustainable Production - Regulatory Affairs <p>Specialisation <i>Biotechnology</i>:</p> <p>Five of:</p> <ul style="list-style-type: none"> - Gene- and Cell- Therapeutics - Process Analytical Technology - Continuous Biomanufacturing - Industrial Automation - Chromatography and Mass-Spectrometry for Bioanalytics - Formulation of Biologics and Routes of Drug Delivery <p>Two of:</p> <ul style="list-style-type: none"> - Cellular imaging - Laboratory Automation in the Pharmaceutical Industry - Advanced Cell Culture Systems - Advanced Mass Spectrometry - Genomics - Proteomics and Protein Analysis - Pharmaceutical Production Facilities - Process Development and Technology <p>Three of:</p> <ul style="list-style-type: none"> - Design of Biopharmaceutical Production Facilities - Regulatory Affairs - Bioanalytics in a regulated Environment - Physiology and Immunotherapies - Tissue Engineering for Drug Discovery <p>Specialisation <i>Bioanalytics</i>:</p> <p>Five of:</p> <ul style="list-style-type: none"> - Genomics - Proteomics and Protein Analysis - Chromatography and Mass-Spectrometry - Biomarker - Cellular Imaging - Bioassays: Engineered Cells, Tissues and Organisms - Bioanalytics in a regulated Environment | | |
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| | <p>Four of:</p> <ul style="list-style-type: none"> - Biostructures and Solid State Sciences - Molecular & Translational Imaging - Bio-interfaces and Bio-conjugate Chemistry - Advanced Mass Spectrometry - Formulation of Biologics and Routes of Drug Delivery - Environmental Risk Assessment - Compound Profiling in Pharmaceutical Drug Discovery - Physiology and Immunotherapy - Gene- and Cell Therapeutics - Process Analytical Technology <p>All Specialisation:</p> <p>Five of:</p> <ul style="list-style-type: none"> - Handling and Visualizing data (3) - Design and Analysis of Experiments (3) - Modelling and Exploration of Multivariate Data (3) - Business Administration for Life Sciences (3) - Management and Leadership of Life Sciences (3) - Innovation and Project Management (3) - Politics and Society (3) <p>Optional elective courses</p> | | |
| 3 | <ul style="list-style-type: none"> - Bioengineering I (4) - Trends in Biotechnologies (5) - Isolation and Separation Methods (4) - Biotechnology and Food Science: Laboratory Project II (7) <p>Three of:</p> <ul style="list-style-type: none"> - Molecular Biology (3) - Risks in Biotechnologies (5) - Enzymology (4) - Genetic Engineering (3) - Food and Biochemical Process Engineering (3) | 30 | Prague |
| 4 | According to the rules of the UCT Prague: Diploma Thesis (assessed by supervisors of both partner institutions) | 30 | |
| or | According to the rules of the School of Life Sciences, FHNW: Diploma Thesis (assessed by supervisors of both partner institutions) | 40 | |

Students from UCT Prague → FHNW School of Life Sciences (MuttENZ)

| Semester | Module offer (ECTS) | Total ECTS | Location |
|----------|--|------------|----------|
| 1 | Pharmacology (5) Molecular Biology (3) Bioengineering I (4) Separation Methods in Biotechnology (4) Pharmaceutical Biotechnology: Specialization Laboratory I (7) Two of: - Chemistry of Natural Compounds (3) - Isolation and Separation of Molecules (4) - Scientific Communication (4) Optional elective courses | 30 | Prague |
| 2 | Pharmacochimistry (5) Biochemistry of Secondary Metabolites (4) Bioengineering II (4) Biotechnological Applications of Microorganisms (4) Pharmaceutical Biotechnology: Specialization Laboratory II (7) Specialized Practice (3) One of: - New trends in clinical research and development (3) - Biologically Active Natural Compounds (4) Optional elective courses | 30 | Prague |
| 3 | Specialisation <i>Pharmatechnology</i>: Three of: - Continuous Pharmaceutical Production - Pharmaceutical Production Facilities - Physicochemical Principles of Pharmaceutics - Materials Science Two of: - Compound Profiling in Pharmaceutical Drug Discovery - Bioanalytics in a regulated Environment - Chromatography and Mass-Spectrometry - Biostructures and Solid State Sciences Two of: - Sustainable Process Development | 20-30 | MuttENZ |

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| | <ul style="list-style-type: none"> - Process Transfer and Scale-up - Process Technology for Industrial Pollution control <p>Specialisation <i>Biotechnology</i>:</p> <p>Three of:</p> <ul style="list-style-type: none"> - Gene- and Cell- Therapeutics - Continuous Biomanufacturing - Chromatography and Mass-Spectrometry for Bioanalytics <p>Two of:</p> <ul style="list-style-type: none"> - Cellular imaging - Advanced Cell Culture Systems - Genomics - Pharmaceutical Production Facilities <p>One of:</p> <ul style="list-style-type: none"> - Design of Biopharmaceutical Production Facilities - Bioanalytics in a regulated Environment <p>Specialisation <i>Bioanalytics</i>:</p> <p>Three of:</p> <ul style="list-style-type: none"> - Genomics - Chromatography and Mass-Spectrometry - Cellular Imaging - Bioanalytics in a regulated Environment <p>Three of:</p> <ul style="list-style-type: none"> - Biostructures and Solid State Sciences - Bio-interfaces and Bio-conjugate Chemistry - Formulation of Biologics and Routes of Drug Delivery - Compound Profiling in Pharmaceutical Drug Discovery - Gene- and Cell Therapeutics <p>All Specialisation:</p> <p>Further recommended modules</p> <ul style="list-style-type: none"> - Handling and Visualizing data - Design and Analysis of Experiments - Modelling and Exploration of Multivariate Data <p>Optional elective courses</p> | | |
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