



26.11.24

Presentation of the Master in Life Sciences



EUR-ACE®



For people who are attending online

Please...

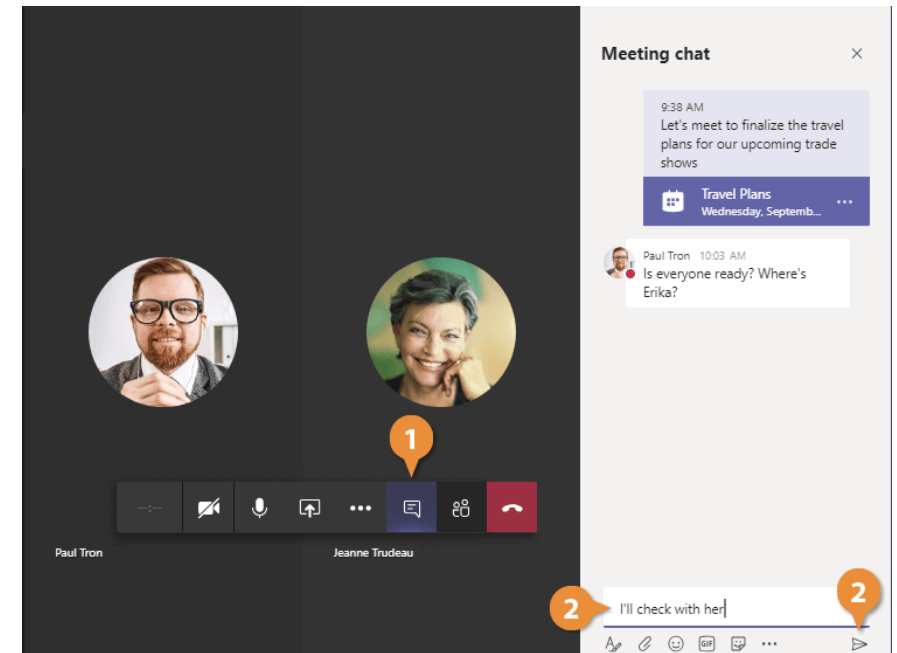
Mute your microphone



switch off your camera



For your questions, use the chat on the right:

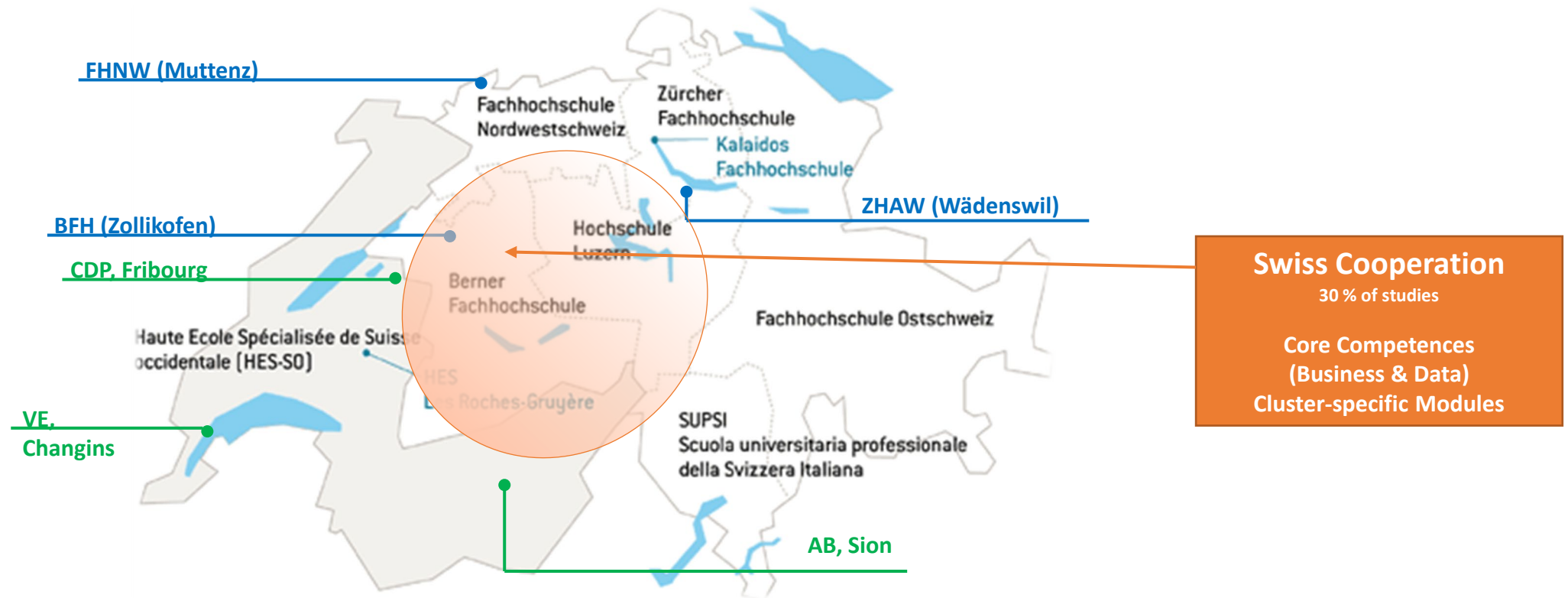


MASTER MLS



Cooperation Master of Science in Life Sciences MSLS

Cooperation MSLS of BFH, FHNW, HES-SO, and ZHAW



MLS HES-SO: three majors

Applied Biosciences

AB, Sion



Chemical Development & Production

CDP, Fribourg



Viticulture & Enology

VE, Changins



Structure of the Master Study Programme

Overview of the curriculum

Core Competences Business B-Modules 4 x 3 ECTS	Core Competences Data D-Modules 4 x 3 ECTS	Cluster-specific Modules CS-Modules 6 x 3 ECTS
Choice: minimum 4 CC modules, minimum 3 CS modules 30 ECTS in total		
Specialization modules (20 ECTS) 5x 4 ECTS		
Projects (10 ECTS) 4 ECTS / 6 ECTS		
Master Thesis (30 ECTS)		



Project Manager

- Achieve the state of the art
- Defend an idea
- Analyze the feasibility
- Schedule work-packages
- Use the resources available
- Write a scientific report
- Present results

Business & Data Modules (B & D)

Core Competences Business	Core Competences Data	Cluster-specific Modules
B-Modules 4x 3 ECTS	D-Modules 4x 3 ECTS	CS-Modules 5-6x 3 ECTS
Choice: minimum 4 CC modules, minimum 3 CS modules – 30 ECTS in total		

- Prepare for the challenges originating from the job market (big data, Digitalization, Industry 4.0) and addressing the need to understand the concepts of entrepreneurship, innovation and business
- Offered via the cooperation MSLS
- Distant learning and local teaching in presence (Changins, Fribourg and Sion)



Cluster-specific modules

Core Competences Business	Core Competences Data	Cluster-specific Modules
B-Modules 4x 3 ECTS	D-Modules 4x 3 ECTS	CS-Modules 5-6x 3 ECTS
Choice: minimum 4 CC modules, minimum 3 CS modules – 30 ECTS in total		

- Cluster-specific modules offer specialized, in-deep courses
Presence/online/mix
- Each specialization is partner of a cluster:
 - *AB* → *BioPharma BP*
 - *CDP* → *Chemistry C*
 - *VE* → *Food/ Environment F + E*
- Each Cluster offers 5-6 cluster-specific modules
- Additional offers from other clusters (3-5 modules)





MAJORS

Majors: specialization modules and Master thesis

Core Competences Business B-Modules 4x 3 ECTS	Core Competences Data D-Modules 4x 3 ECTS	Cluster-specific Modules CS-Modules 5-6x 3 ECTS
Choice: minimum 5 CC modules, minimum 3 CS modules – 30 ECTS in total		

Specialization modules (20 ECTS)
5x 4 ECTS

Projects (10 ECTS)
4 ECTS / 6 ECTS /

Master Thesis (30 ECTS)

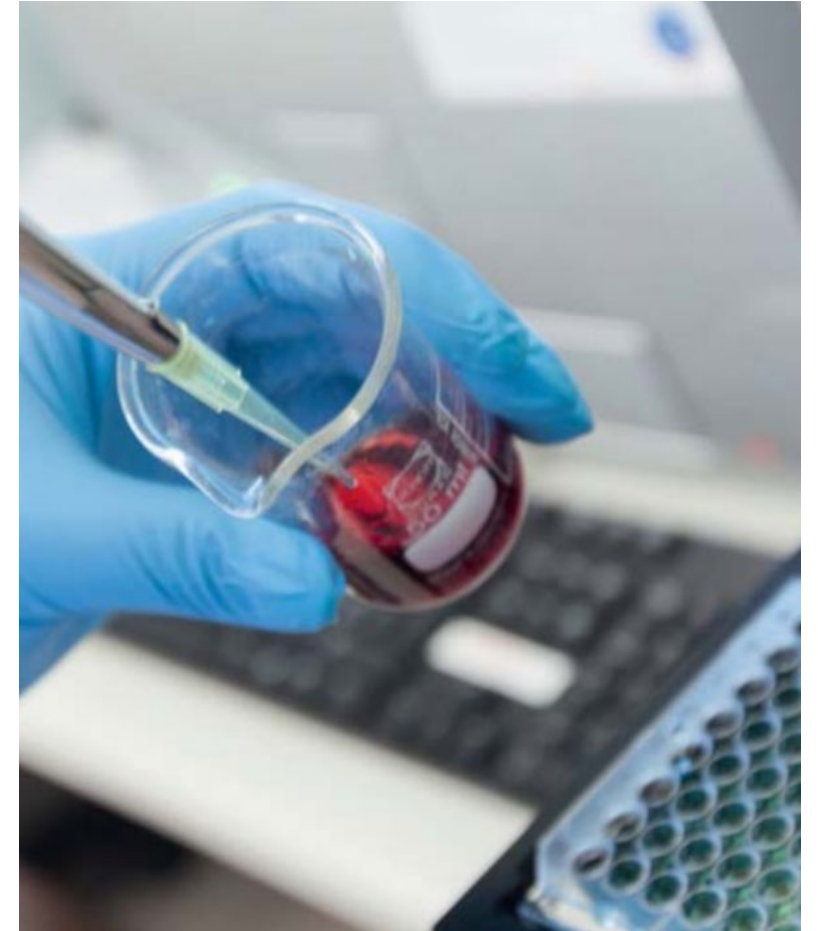
Applied Biosciences

5 specialization modules

- Sustainable Biotechnology
- Genomics + Genome analysis
- *In vitro* Diagnostics
- Pharmaceutical sciences
- Quality and Regulatory affairs

Local Information

- urban.frey@hes-so.ch



AB – Example of a Master thesis

Master of Science HES-SO in Life Sciences

Diagnostics: Paper-based diagnostic device “SafeTest”

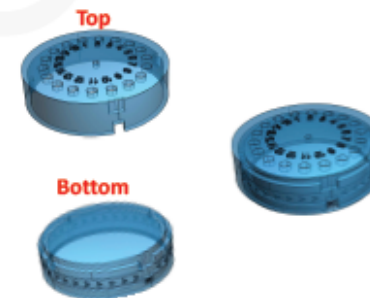


Stornetta Tom
Applied Biosciences
HES-SO Valais

Advisor: Pr. Dr. Jean-Manuel Segura



μPAD for the simultaneous detection of 6 biomarkers



Device allowing the uniform deposition of the reagents on the sample

AB – Example of a Master thesis

Master of Science HES-SO in Life Sciences

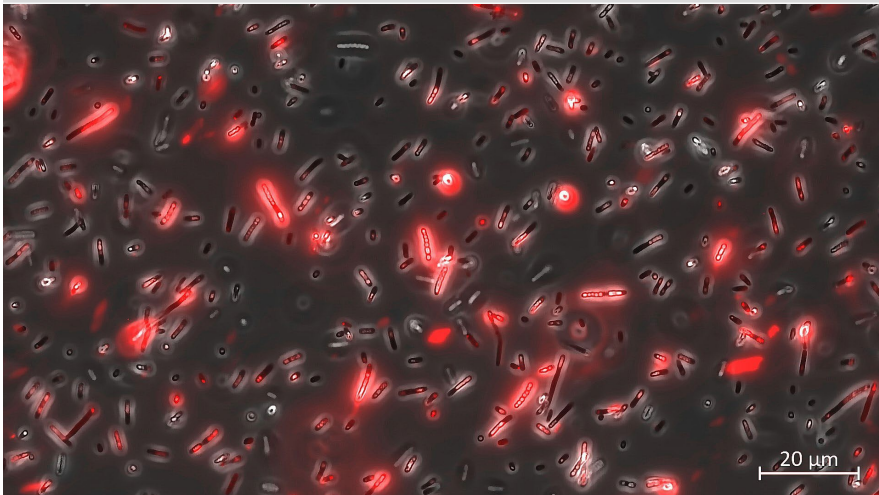
Biosynthesis of unusual polyhydroxyalkanoates in recombinant *Escherichia coli* strains

Brice Antille

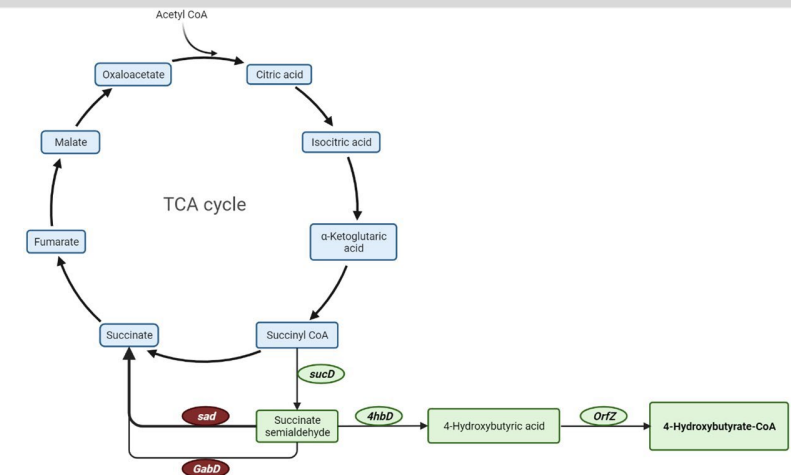
APPLIED BIOSCIENCES

HES-SO Valais

Advisor: Prof. Dr. Manfred Zinn // In collaboration with Prof. Ken'ichiro Matsumoto, Hokkaido University, Sapporo, Japan



P4HB accumulation (in red) in *E. coli* stained by Nile red



4HB production pathway

Chemical Development & Production

5 specialization modules

- Process Chemistry and Development
- Process Design and Optimization
- Chemical Engineering & Process Intensification
- Safety, Production and Quality
- Analytics and Characterization

Local Information

- michal.dabros@hefr.ch
- olivier.nicolet@hefr.ch



CDP – Example of a Master thesis

Master of Science HES-SO in Life Sciences

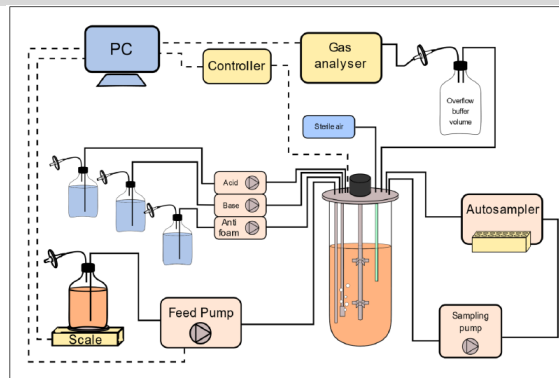
Development and optimisation of a fed-batch culture of a *S. Cerevisiae* ale strain for the brewing industry

Lucien Blanchard

CHEMICAL DEVELOPMENT & PRODUCTION

HEIA-FR

Advisor: Michal Dabros & Brian Freeland // In collaboration with **Dublin City University**



Viticulture & Enology

Master with double diploma 120 ECTS (2 years)

- Master of Sciences in Life Sciences (first year)

- ❖ Changins

AND

- EuroMaster Vinifera (second year)

- ❖ Germany, Italy, Spain, Portugal



Viticulture & Enology

5 specialization modules

- Grapevine Environment - Sustainable Viticulture
- Genetic Resources and Grapevine Production
- Winery Design
- Fermented Beverages Technology, Chemistry and Microbiology
- Wine Economics and Management

Local Information

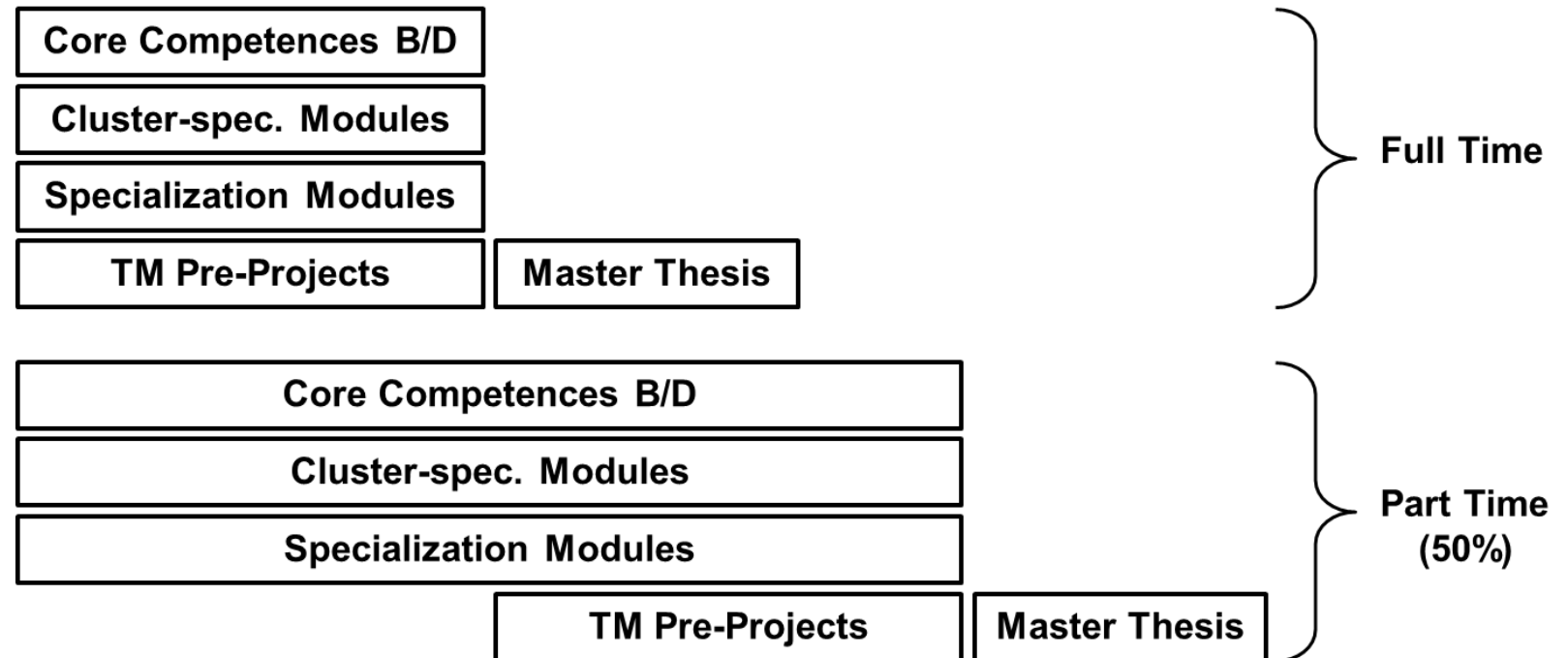
- melanie.weikert@changins.ch
- liming.zeng@changins.ch





ORGANISATION

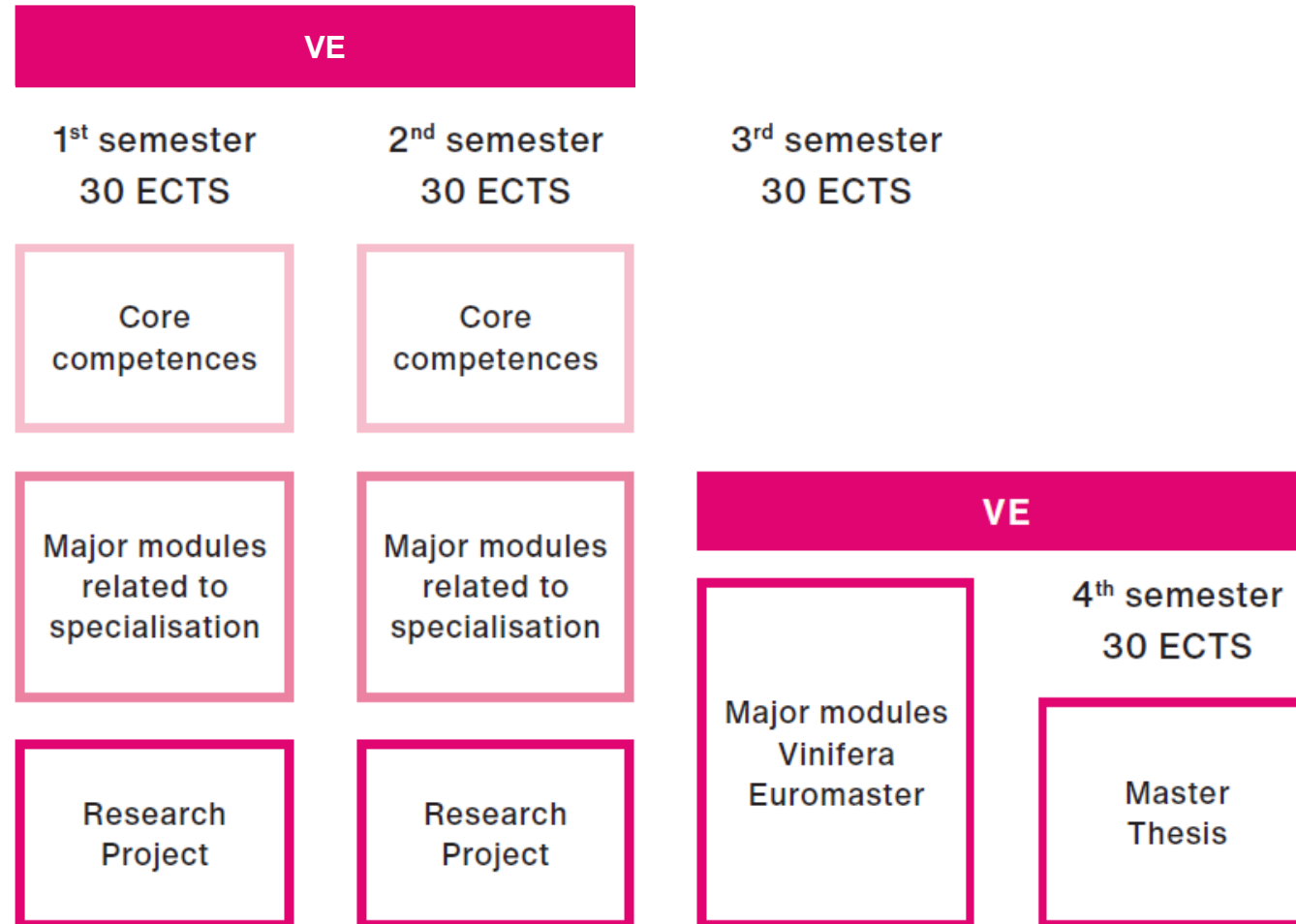
Full Time vs. Part Time Studies 90 ECTS (Applied Biosciences AB, Chemical Development & Production CDP)



Full time → 3 semesters

Part-time → 5 semesters

Full Time (Viticulture & Enology VE)



Admissions

Admission is decided on the basis of the candidate's portfolio. Requirements are as follows :

- UAS Bachelor's degree in a related field of the chosen major
- Bachelor's degree in a related field from a University or Institute of Technology, subject to completing a practical internship
- Other applications are judged on the academic curriculum and the practical experience
- Candidates must hold a B2 level in English
- People with a long industrial experience can ask a validation of this experience (email mls@hes-so.ch for more information)

More information

Study plans, module descriptions, etc., and admissions: **hes-so.ch/mls**

Admissions: open from 01.12.2024 to...

- 15.02.2025 (for students who need a visa)
- **30.04.2025**

Questions?

- mls@hes-so.ch (general questions and admissions)
- urban.frey@hes-so.ch (Major Applied Biosciences)
- olivier.nicolet@hefr.ch (Major Chemical Development and Production)
- liming.zeng@changins.ch (Major Viticulture and Enology)