### Module: Wine Chemistry and Analytical Techniques

<table>
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<tr>
<th>Code</th>
<th>MSLS_S15</th>
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<tr>
<td>Degree Program</td>
<td>Master of Science in Life Sciences (MSLS)</td>
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<td>ECTS Credits</td>
<td>4</td>
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<tr>
<td>Workload</td>
<td>Fall term 120 h: Contact 42 h; Group Exercise 16 h; Self-study 62 h</td>
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| Module Coordinator | **Name**: Dr. Benoit BACH  
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**Email**: benoit.bach@changins.ch  
**Address**: CHANGINS, Viticulture and Enology  
Route de Duillier 50, Case postale 1148, CH-1260 Nyon 1 |
| Lecturers | • Dr Roland Riesen, CHANGINS, Viticulture and Enology  
• Dr Ramon Mira de Orduña, CHANGINS, Viticulture and Enology  
• Pascale Deneulin, CHANGINS, Viticulture and Enology  
• Dr Benoit Bach, CHANGINS, Viticulture and Enology  
• Guest lecturers |
| Entry Requirements | Equivalent of a BSc in Chemistry, Biochemistry, Biology, or Enology Viticulture |
| Learning Outcomes and Competences | After completing the module students will be able to:  
• Understand chemical wine composition and its relatedness with climate, viticultural and oenological practices  
• Identify major compounds responsible for wine aroma, mouthfeel and stability and their chemical properties and interactions  
• Select suitable analytical techniques to solve specific enology problems  
• Apply common and advanced analytical and sensory techniques to enology |
| Module Content | Analytical techniques  
• Critical understanding and selection of suitable analytical techniques to solve practical and scientific enology questions  
• Application of GC, GC-MS, HPLC-DAD, LC-MS and spectroscopy (UV-VIS, NIR) instrumentation, as well as LIMS  
Wine chemistry  
• Wines, quality and quality control: quality characteristics (principal wine aroma compounds and macromolecules) critical control points in wine processing (microbiological and colloidal stability)  
• Wine contaminants (OTA, biogenic amines, NIAS…); incidence and oenological strategies to reduce the risk.  
• Valorization techniques through sensory analysis |
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<tr>
<th>Teaching / Learning Methods</th>
<th>Lectures and laboratory practice</th>
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| Assessment of Learning Outcome | Written mid-term evaluations: 80% of the final grade  
Final exam: 20% of the final grade |
| Language | English |
| Comments | The course will be supported by student self-directed study of scientific articles and laboratory work |
| Last Update | 18.05.2018 / BB |