<table>
<thead>
<tr>
<th>Module</th>
<th>In vitro Diagnostics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>MLS_S24</td>
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<tr>
<td>Degree Program</td>
<td>Master of Science in Life Sciences (MSLS)</td>
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<tr>
<td>Cluster</td>
<td>Bio/Pharma</td>
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<tr>
<td>Specialization</td>
<td>Applied Biosciences</td>
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<tr>
<td>ECTS Credits</td>
<td>4</td>
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<tr>
<td>Workload</td>
<td>120 h: Contact 56 lessons = 42 h ; Self-study 78 h</td>
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</tbody>
</table>
| Module Coordinator     | Name: Prof. Dr. Jean-Manuel Segura  
|                        | Phone: +41 27 606 86 68  
|                        | Email: jmanuel.segura@hevs.ch  
|                        | Address: HES-SO Valais / Wallis, Institute of Life Technologies, Route du Rawyl 47, CH-1950 Sion 2 |
| Lecturers              | • Prof. Dr. Jean-Manuel Segura, HES-SO Valais / Wallis  
|                        | • Prof. Dr. Marc Pfeifer, HES-SO Valais / Wallis  
|                        | • External lecturers from hospitals, laboratory medicine and IVD industry |
| Entry Requirements     | Bachelor of Science in Life Technologies (orientation Biotechnology or Analytical Chemistry) or in a related course of study (Bachelor level) |
| Learning Outcomes and Competences | The students will acquire the specialized background knowledge and know-how required to work in the field of in vitro diagnostics and biomedical analytics. After completing the module, the students shall be able to  
|                        | • Explain the in vitro diagnostics (IVD) product development process as well as the different market segments and trends.  
|                        | • Describe the various types of diagnostic tests and associated technologies with examples.  
|                        | • Identify clinical needs and their associated biomarkers.  
|                        | • Design an in-vitro diagnostic test using immunoassays or molecular diagnostics based on the requirements of its medical application.  
|                        | • Assess the applicability of a technology to meet specific requirements in in vitro diagnostics. |
### Module Content
- The IVD market
- Biomarkers and their discovery
- Requirements on IVD tests based on biomarker properties and clinical needs
- Immunoassays for *in vitro* diagnostics
- Sample collection and preparation for IVD
- Point-of-care testing
- Emerging techniques and current trends
- Molecular diagnostics
- Innovation in *in vitro* diagnostics

### Teaching / Learning Methods
- Lectures, exercises and case studies
- Active participation in the module is required

### Assessment of Learning Outcome
Reports and presentations related to case studies, which must be validated to gain access to the module examination.
- Final examination: oral exam (no documents allowed, 100 % of the final grade)
- Reassessment: written exam (no documents allowed, within four weeks after the publication of the grades.)

### Bibliography
- Literature will be provided during lectures.

### Language
English

### Comments

### Last Update
12.06.2020 / Jean-Manuel Segura