



<b>Module title</b>	<b>Data and Ethics</b>
<b>Code</b>	D4
<b>Degree Programme</b>	Master of Science in Life Sciences
<b>Workload</b>	3 ECTS (90 student working hours: 42 lessons contact = 28 lessons online, 14 lessons on-site)
<b>Module Coordinator</b>	<b>Name:</b> Dr. Pascal Moriggl <b>Phone:</b> +41 61 279 18 16 <b>Email:</b> <a href="mailto:pascal.moriggl@fhnw.ch">pascal.moriggl@fhnw.ch</a> <b>Address:</b> FHNW, HSW, Peter Merian-Strasse 86, 4052 Basel
<b>Lecturers</b>	Prof. Dr. Petra Maria Asprien (PMA) Dr. Pascal Moriggl (PM)
<b>Entry requirements</b>	Each participant has a general understanding of cybersecurity and awareness of cyber-risks, including basic terms and knowledge about risks.  A self-study must be completed no later than two weeks after the start of the course and must be evidenced by a multiple-choice test on Moodle.
<b>Learning outcomes and competences</b>	After completing the module, students will be able to ... <ul style="list-style-type: none"> <li>• understand the essentials of information and cybersecurity and its relevance to the personal, corporate, and research domain</li> <li>• understand the legal background that drives information/cybersecurity and data privacy. The latter from two perspectives as a duty to adhere to by a legal entity and as a right to be claimed by an individual</li> <li>• understand the risks to prioritize information/cybersecurity by learning about the malicious actor perspective (motivation and attack vectors)</li> <li>• secure their individual, digital footprint on a smartphone or personal computer (end user level)</li> <li>• understand and apply a data stewardship approach for research data</li> <li>• understand data ethics considerations, its implications for society design an ethics policy for a workplace in life sciences.</li> </ul>
<b>Module contents</b>	<b>Theme 1 – Personal Security (PMA/PM, 2 lessons)</b> <ul style="list-style-type: none"> <li>• Securing a personal computer</li> <li>• Securing a smartphone</li> </ul> <b>Theme 2 –Information Security &amp; Cybersecurity (PM/PMA, 4 lessons)</b> <ul style="list-style-type: none"> <li>• Life science perspective</li> <li>• Data storage, use, transfer</li> <li>• Data encryption, decryption</li> <li>• Best practices, policies</li> </ul> <b>Theme 3 – Data Stewardship (PM/PMA, 4 lessons)</b> <ul style="list-style-type: none"> <li>• Data governance</li> <li>• Roles and responsibilities</li> <li>• Implementation, Documentation, Standardisation</li> <li>• FAIR guiding principles</li> </ul>

	<p><b>Theme 4 –Data Ethics (PM, 2 lessons))</b></p> <ul style="list-style-type: none"> <li>• Data ethics in clinical research and drug development</li> <li>• Research Requirements</li> <li>• Data Ethics Canvas</li> </ul> <p><b>Theme 5 –Privacy (PM, 2 lessons))</b></p> <ul style="list-style-type: none"> <li>• Regulatory considerations</li> <li>• Anonymization vs. pseudonymization</li> </ul> <p>Licencing: Open Source, Creative Commons, etc.</p>
<b>Teaching / learning methods</b>	lecture, literature seminar and practical exercises
<b>Assessment of learning outcome</b>	<ul style="list-style-type: none"> <li>• Entry exam to be done within the first two module weeks (20%)</li> <li>• Learning journal, to be submitted two weeks after module end (80%), containing the following applied elements: <ul style="list-style-type: none"> <li>○ Information Security Policy</li> <li>○ Data Management Plan</li> <li>○ FAIR Guiding Principles Template</li> <li>○ Data Ethics Canvas</li> <li>○ Reflection</li> </ul> </li> </ul>
<b>Format</b>	7-weeks
<b>Timing of the module</b>	For ZHAW and FHNW: Autumn semester, CW 38-44 For BFH and HES-SO: Spring semester, CW 8-14
<b>Venue</b>	online / decentralized teaching at respective school
<b>Bibliography</b>	<p><u>Entry Level Preparation</u> Before the module starts, a script will be provided in the company with the technical environment setup required for the personal security theme.</p> <p><u>Course Materials</u> Data Ethics Canvas <a href="https://theodi.org/wp-content/uploads/2021/07/Data-Ethics-Canvas-English-Colour.pdf">https://theodi.org/wp-content/uploads/2021/07/Data-Ethics-Canvas-English-Colour.pdf</a></p> <p>Data Stewardship <a href="https://www.elsevier.com/books/data-stewardship/plotkin/978-0-12-822132-7">https://www.elsevier.com/books/data-stewardship/plotkin/978-0-12-822132-7</a></p> <p>Information Security Policy <a href="https://www.routledge.com/Information-Security-Policies-Procedures-and-Standards-A-Practitioners/Landoll/p/book/9780367669966#">https://www.routledge.com/Information-Security-Policies-Procedures-and-Standards-A-Practitioners/Landoll/p/book/9780367669966#</a></p>
<b>Language</b>	English
<b>Links to other modules</b>	This module is indirectly linked to the other data modules.
<b>Comments</b>	A virtual environment will be provided for personal security that facilitates testing software independent of the current operating system. If a student fails the entry test, the preconditions for handing in the learning journal will not be met, and the journal will not be graded. There is no limit to how often the test is being taken.
<b>Last Update</b>	21.04.2022



# Master in Life Sciences

A cooperation between  
BFH, FHNW, HES-SO, ZFH