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| <b>Title of module</b>                 | Advanced Practical in the Focal Point Programme:<br>Molecular Biology and Biotechnology of Plants and<br>Microorganisms VZ: 185871<br><b>"Synthetic Biology of Metagenomic Proteins"</b>   |                                 |                          |
| <b>Credit points</b>                   | 10-15  | <b>Available in semester(s)</b> | 1,2,3                    |
| <b>Hours per week</b>                  | ~40  | <b>Compact course</b>           | <input type="checkbox"/> |
| <b>Lecturer(s)</b>                     | L.I. Leichert <lars.leichert@ruhr-uni-bochum.de>   |                                 |                          |
| <b>Teaching methods</b>                | A four (10 CP) to six-week (15 CP) all-day practical lab course with a compulsory seminar presentation.  |                                 |                          |
| <b>Evaluation of learning progress</b> | Active participation, independent research, oral presentation of own research, written research protocol   |                                 |                          |
| <b>Mode of examination</b>             | Presentation and protocol.   |                                 |                          |
| <b>Learning objectives</b>             | Experimental design, independent lab research, choice and establishment of a variety of advanced methods.  |                                 |                          |
| <b>Soft skills</b>                     | Team-work and collaboration, presentation skills, comprehension of original research papers, writing skills.   |                                 |                          |
| <b>Contents of module</b>              | <p>During this 4-6 week course the student will be supervised by a graduate student or postdoc and will work on a small independent research project. These projects will include some or all of the following:</p> <p>Bioinformatic analysis of proteins.</p> <p>Screening of metagenomic proteins for industrially important enzyme activities.</p> <p>Characterization of metagenomic proteins with UV-VIS, CD, mass spectrometry, SDS PAGE, Western blot, HPLC.</p> <p>Molecular biology, rational mutagenesis of proteins.</p> <p>Protein purification.</p> |                                 |                          |