LSI Modules valid as of Winter Semester 2019/2020

Winter Semester, First 30 credits

MANDATORY COURSES
All courses, i.e. lectures, seminars and lab courses are graded.

Module: M-LSI-P-001*(see below)
L+E  Computer Science for Life Scientists  Schultz  WiSe 1st Sem.  6 hrs.  9 credits

Module: M-LSI-P-002*(see below)
L+E  Mathematics for Life Scientists  Vogt  WiSe 1st Sem.  2 hrs.  3 credits

Module: M-LSI-P-003*(see below)
L+E  Chemistry and Biology for LSI  Reitelmann  WiSe 1st Sem.  5 hrs.  7 credits

Module: M-LSI-P-004

L+E  Biological Databases  Hofmann-Apitius  WiSe 1st Sem.  4 hrs.  6 credits

Module: M-LSI-P-005

L+E  Bioinformatics I  Berlage  WiSe 1st Sem.  2 hrs.  3 credits

**
To ensure that students with different backgrounds in computer science or the life sciences have comparable interdisciplinary knowledge and skills, mandatory bridging courses in computer Science/mathematics (CSMA) and biology/chemistry (BIOCHEM) are offered during the first term. For students with a degree in computer science, BIOCHEM is mandatory and CSMA is optional. For students with a degree in the life sciences, CSMA is mandatory and BIOCHEM is optional. Within the first month of the semester, the head of the programme and the committee will assign each new student to and inform each student about the mandatory and optional introductory courses.

Summer Semester, Second 30 credits

Module: M-LSI-P-006

L+E  Molecular Modeling and Drug Design  Bajorath  SuSe 2nd Sem.  5 hrs.  6 credits

Module: M-LSI-P-007

L+E  Visual Computing in the Life Sciences  Schultz  SuSe 2nd Sem.  4 hrs.  6 credits

Module: M-LSI-P-008

LC  Programming Lab I  Vogt, Bajorath  SuSe 2nd Sem.  4 hrs.  8 credits
Module: M-LSI-P-009
L+E Knowledge Discovery Hofmann-Apitius SuSe 2nd Sem. 4 hrs. 6 credits

Module: M-LSI-P-010
S Scientific Presentation I Reitelmann SuSe 2nd Sem. 2 hrs. 4 credits

Module: M-LSI-P-014
L+E Biomedical Data Science & AI Fröhlich SuSe 2nd Sem. 4 hrs. 6 credits

Winter Semester, Third 15 credits

Module: M-LSI-P-011
L+E Chemoinformatics Vogt, Bajorath WiSe 3rd Sem. 5 hrs. 7 credits

Module: M-LSI-P-012
LC Programming Lab II Hofmann-Apitius WiSe 3rd Sem. 4 hrs. 8 credits

Winter Semester, Fourth 30 credits

Module: M-LSI-P-013
Master thesis Vogt, Bajorath WiSe 4th Sem. 30 credits

OPTIONAL COURSES 15 credits
(Courses take place in all 4 semesters.)

Module: M-LSI-W-001
LC LSI Tutorial I Reitelmann, WiSe 1st Sem. 4 hrs. 6 credits

Module: M-LSI-W-002
LC Introduction to Machine Learning Tutorial (formerly LSI Tutorial II) Reitelmann, SuSe 2nd Sem. 4 hrs. 6 credits

Module: M-LSI-W-003
S Selected Chapters of Molecular Cell Biology Reitelmann SuSe 2nd Sem. 2 hrs. 3 credits

Module: M-LSI-W-004
S Scientific Presentation II Reitelmann WiSe 3rd Sem. 2 hrs. 6 credits
Module: M-LSI-W-005

S  Computational Systems Biology  Hofmann-Apitius, Reitelmann  WiSe 3rd Sem.  2 hrs.  4 credits

Module: M-LSI-W-006

LC  Chemoinformatics  Bajorath  WiSe 3rd Sem.  4 hrs.  8 credits

Module: M-LSI-W-007

LC  Molecular Modeling and Drug Design  Bajorath  WiSe 3rd Sem.  4 hrs.  8 credits

Module: M-LSI-W-008

L+E  Data Mining and Machine Learning in the Life Sciences  Fröhlich  WiSe 3rd Sem.  4 hrs.  6 credits

Module: M-LSI-W-009

LC  Biological Databases – Design, Implementation and Organisation  Ebeling, Hofmann-Apitius  WiSe 1st Sem.  3 hrs.  6 credits

Module: M-LSI-W-010

S  Visualistics  Berlage  WiSe 3rd Sem.  2 hrs.  4 credits

Module: M-LSI-W-011

LC  High Content Screening  Berlage  WiSe 3rd Sem.  2 hrs.  4 credits

Module: M-LSI-W-012

LC  Modeling and Simulation  Weber  WiSe 3rd Sem.  4 hrs.  8 credits

Module: M-LSI-W-013

LC  Mechanism enrichment using NeuroMMSig  Hofmann-Apitius  WiSe 3rd Sem.  2 hrs.  4 credits

Module: M-LSI-W-014

L+E  Medicinal Chemistry  Imhof  WiSe 3rd Sem.  2 hrs.  3 credits

Module: M-LSI-W-015

S  Knowledge Assembly, Data Integration and Modeling in Systems and Network Biology  Hofmann-Apitius  WiSe 3rd Sem.  2 hrs.  4 credits
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<tr>
<th>Module: M-LSI-W-016</th>
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<td><strong>S</strong> Current Trends in Applied Life Science Informatics</td>
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<td><strong>LC</strong> Longitudinal modeling of disease progression</td>
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