

## FAME<sup>AIS</sup> M1 TUDa HOME UNIVERSITY (first year students):

AUTUMN SEMESTER				
Course Name	ECTS	Workload	Module	Responsible
<b>Mandatory Courses</b>				
FAM/e-project I °	3	90	Collaborative course with partners	Joachim Brötz
Functional Materials	6	180	Functional Materials	Oliver Gutfleisch
Machine Learning for Materials Science	6	180	Machine Learning for Materials Science	Max Veit
Research Lab I	4	120	Research Lab I	Wolfgang Donner
Surfaces and interfaces	5	150	Surfaces and interfaces	Jan Philipp Hofmann
<b>Elective courses</b>				
Micromechanics for Materials Science *	6	180	Micromechanics for Materials Science	Baixiang Xu
<b>TOTAL</b>	<b>30</b>			
SPRING SEMESTER				
Course Name	ECTS	Workload	Module	Responsible teacher
Advanced Research Lab (7)	7	210	Professional training	Joachim Brötz
Advanced Characterization methods of Materials Science	6	180	Advanced Characterization methods of Materials Science	Wolfgang Donner
FAM/e-project II °	7	180	Collaborative course with partners	Joachim Brötz
Theoretical Methods in Material Science	6	180	Theoretical Methods in Material Science	Karsten Albe
Sustainable Materials**	6	180	Sustainable Materials	Oliver Gutfleisch
<b>TOTAL</b>	<b>30</b>			

\* The Course "**Micromechanics for Materials Science**" can be replaced by the course "*Quantum Mechanics for Materials Science (6 ECTS)*"

\*\* The Course "**Sustainable Materials**" can be replaced by any course of our Materials Science department with 4 ECTS which are listed in "*elective courses M. Sc. Materials Science*" in the TUCaN system (see elective courses for FAME<sup>AIS</sup> M2 on the next page). Students without a bachelor degree in Materials Science or Physics can also use the course "Concepts in Materials Physics (6 ECTS)" on request.

° The module "**FAM/e-project I+II**" is one large unit with 10 ECTS in total.

# FAME<sup>AIS</sup> M2 TUDa HOME UNIVERSITY (second year students)

AUTUMN SEMESTER			
Course Name	ECTS	Workload	Module
<b>Mandatory Courses</b>			
Micromechanics for Materials Science *	6	180	11-01-4109
Research Lab I	4	120	11-01-4101
Sustainable Materials	6	180	11-01-4110
<b>Elective courses **</b>			
Advanced Research Lab (8)	8	240	11-01-4197
Ceramic Materials: Syntheses and Properties. Part II	4	120	11-01-7342
Concepts in Materials Physics	6	180	11-01-2009
Computational Material science	5	150	11-01-7562
Electrochemistry in Energy Applications II:	4	120	11-01-7301
Engineering Microstructures - Processing, Char. and Application	4	120	11-01-8131
Finite Element Simulation in Material Science	4	120	11-01-2027
Focused Ion Beam Microscopy: Basics and Applications	4	120	11-01-9063
Fundamentals and Techniques of Modern Surface Science	4	120	11-01-8202
Interfaces - From wetting to friction	4	120	11-01-2016
Introduction to Scanning Electron Microscopy	1	30	11-01-7892
Life cycle assessment of products and systems	3	90	13-K3-M020
<b>Machine Learning for Materials Science</b>	6	180	11-01-2031
Magnetism and Magnetic Materials	4	120	11-01-2001
Materials Chemistry	4	120	11-01-7292
Mathematical Methods in Materials Science	4	120	11-01-3018
Mechanical Properties of Ceramic Materials	4	120	11-01-9332
Mechanical Properties of Metals	4	120	11-01-2006
Organic Functional Materials: From LCD to Molecular Circuits	4	120	11-01-2026
Polymer Materials	6	180	11-01-3031
Porous Ceramics for Energy-Related Applications	4	120	11-01-2023
Quantum Mechanics for Materials Science	6	180	11-01-4004
Semiconductor Interfaces	4	120	11-01-8162
Smart design and adv. processing of next-generation materials	4	120	11-01-2035
<b>TOTAL</b>	<b>30</b>		
<b>SPRING SEMESTER</b>			
<b>Master thesis</b>	<b>30</b>	<b>900</b>	
<b>TOTAL</b>	<b>30</b>		

\* The Course "**Micromechanics for Materials Science**" can be replaced by the course "*Quantum Mechanics for Materials Science (6 ECTS)*"

\*\* All eligible "**Elective courses**" are listed in "*elective courses M. Sc. Materials Science*" in the TUCaN system. Only the following courses cannot be chosen: "Surfaces and Interfaces", "Functional Materials", "Materials Science for Renewable Energy Systems" or "Advanced Research Lab". Students without a bachelor degree in Materials Science or Physics can also use the course "Concepts in Materials Physics (6 ECTS)" on request.

° The module "**Discussion with Mentor**" is voluntary but recommended