

Courses for the HRSMC Class of Excellence UvA/VU

Version June 2023



**HOLLAND
RESEARCH
SCHOOL
OF MOLECULAR
CHEMISTRY**

Master Course (6 ECTS)	HRSMC member involved	Master Track	HRSMC Theme		
			1	2	3
Physical Organic Chemistry	F.M. Bickelhaupt J.C. Slootweg T.A. Hamlin	MS	X		
Homogeneous Catalysis	B. de Bruin J.N.H. Reek	MS	X		
Synthetic Organic Chemistry	M.Á. Fernández- Ibáñez E. Ruijter J.H. van Maarseveen	MS	X		
Synthetic Strategies	E. Ruijter	MS	X		
Quantum Theory of Molecules and Matter	W.J. Buma H. Zhang P. Gori-Giorgi	MS	*	X	X
Statistical Theory of Complex Molecular Systems	P.G. Bolhuis B. Ensing	MS			X
Advanced Computational Chemistry	C. Fonseca Guerra F.M. Bickelhaupt T.A. Hamlin	MS	*		X
Organometallic Chemistry and Reactivity	B. de Bruin	MS	X		
Heterogeneous Catalysis	G. Rothenberg	MS	X		
Bio-organic Chemistry	F. Mutti I. Drienovska	MS	X		
Enzymes in Organic Chemistry	F. Mutti	MS	X		
Supramolecular Chemistry and Nanomaterials	J.N.H. Reek R.M. Williams	MS	X		
Nuclear Magnetic Resonance	A. W. Ehlers	MS	*	X	
Advanced Spectroscopic Techniques	W.J. Buma	MS	*	X	
Advanced Mass Spectrometry	G. L. Corthals	AS	*	X	
Molecular Photochemistry	R.M. Williams	MS		X	
Advanced Molecular Orbital Theory	F.M. Bickelhaupt C. Fonseca Guerra	MS	*		X
Understanding Quantum Chemistry	L. Visscher	MS	*		X

Relativistic Quantum Chemistry	L. Visscher	MS			X
Scientific Computing and Programming	L. Visscher	MS			X
Second Quantization Techniques in Quantum Chemistry	L. Visscher	MS			X
Molecular Modeling	T.A. Hamlin	SfES	*		X
Analytical NMR Spectroscopy	T.A. Hamlin	AS	*	X	
Concepts in Chemical Biology	T. Grossmann S. Hennig	MS	X		
Understanding Molecular Simulation	B. Ensing. E.J. Meijer D. Dubbeldam	MS			X
Machine Learning in Chemistry	B. Ensing	MS			X
Ab Initio Molecular Dynamics	E.J. Meijer	MS			X
Catalysis for Sustainable Energy	S. Pullen	SfES	X		
Green and Circular Chemistry	J.C. Slootweg	SfES	X		
Materials Design in Circular Economy	S. Grecea	SfES	X		
Project Sustainable Future	J.C. Slootweg	SfES	X		
Reactor Concepts and Flow Chemistry	T. Noël	SfES	X		
Electrochemical Processes and Batteries	A.C. Garcia	SfES	X		
Biomolecular Simulations	P.G. Bolhuis J. Vreede	MS			X

MS: Molecular Sciences (UvA/VU); AS: Analytical Sciences (UvA/VU); SfES: Science for Energy and Sustainability (UvA/VU); * = Can be very helpful for research related to catalysis/synthesis within theme 1.