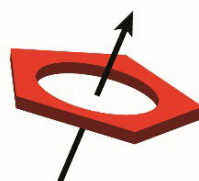


## Courses for the HRSMC Class of Excellence UvA/VU

Version September 2025



**HOLLAND  
RESEARCH  
SCHOOL  
OF MOLECULAR  
CHEMISTRY**

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

Advanced Molecular Orbital Theory	F.M. Bickelhaupt P. Vermeeren	MS	*		X
Understanding Quantum Chemistry	L. Visscher K. Giesbertz	MS	*		X
Relativistic Quantum Chemistry	L. Visscher	MS			X
Scientific Computing and Programming	L. Visscher D. Dubbeldam	MS			X
Second Quantization Techniques in Quantum Chemistry	L. Visscher	MS			X
Molecular Modeling	C. Fonseca Guerra F. M. Bickelhaupt T.A. Hamlin	SfES	*		X
Analytical NMR Spectroscopy	T.A. Hamlin E. Janssen S. Moco	AS	*	X	
Protein Analysis	J.M. Bärenfänger	MS		X	
Concepts in Chemical Biology	I. Drienovska	MS	X		
Understanding Molecular Simulation	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 S. Raveendran R. Williams A. Garcia	SfES	X		
Green and Circular Chemistry	J.C. Slotweg	SfES	X		
Materials Design in Circular Economy	S. Grecea D. Dubbeldam G.-J. Gruter	SfES	X		
Project Sustainable Future	J.C. Slotweg	SfES	X		
Reactor Concepts and Flow Chemistry	T. Noël F. Mutti	SfES	X		
Electrochemical Processes and Batteries	A.C. Garcia S. Pullen	SfES	X		
Biomolecular Simulations	P.G. Bolhuis J. Vreede A. Perez de Alba Ortiz	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.