

## Annex 1 to the Addendum for Dual Master's Degrees between Queen's and Universität Stuttgart

### Dual Master's Degree Scheme

The attached MACROPLAN depicts the 2-year MSc dual degree structure in **Chemistry at Queen's University** and in **Chemistry at University of Stuttgart**. It shows the compulsory and elective courses in each semester as well as the prerequisites for students wishing to spend their 2<sup>nd</sup> year at the partner institution.

Version 2021-10-19

### BSc Chemistry—SSP (Queen's University)

1st Year	<b>CHEM 112</b> General Chemistry 6 units (48 L, 36 Lb, 36 T, 72 online)	<b>PHYS 106</b> General Physics 6 units (72 L, 36 Lb, 36 T)	<b>MATH 123</b> Differential and Integral Calculus I 3 units (36 L, 12 T)	<b>MATH 110</b> Introduction to Linear Algebra 6 units (72, 24 T)	Elective Course 3 units
			<b>MATH 124</b> Differential and Integral Calculus II 3 units (36 L, 12 T)		Elective Course 3 units
2nd year	<b>CHEM 211</b> Main Group Chemistry 3 units (36 L, 36 Lb)	<b>CHEM 212</b> Principles of Chemical Reactivity 3 units (36 L, 18 Lb)	<b>CHEM 213</b> Introduction to Chemical Analysis 3 units (36 L, 36 Lb)	Elective Course 3 units	Elective Course 3 units
	<b>CHEM 221</b> Materials, Solutions and Interfaces 3 units (36 L, 36 Lb)	<b>CHEM 222</b> Methods of Structure Determination 3 units (36 L, 18 T)	<b>CHEM 223</b> Organic Reactions 3 units (36 L, 36 Lb)	Elective Course 3 units	Elective Course 3 units
3rd year	<b>CHEM 311</b> Mechanistic Organic Chemistry 3 units (36 L, 12 T)	<b>CHEM 312</b> Transition Metal Chemistry 3 units (36 L, 12 T)	<b>CHEM 313</b> Quantum Mechanics 3 units (36 L, 12 T)	<b>CHEM 397</b> Experimental Chemistry 6 units (144 Lb, 12 T)	Elective Course 3 units
	<b>CHEM 321</b> Instrumental Chemical Analysis 3 units (36 L)	<b>CHEM 322</b> The Chemical Bond: Computation and Spectroscopy 3 units (36 L, 12 T)	<b>CHEM 323</b> Biological Chemistry 3 units (36 L)		Elective Course 3 units
4th year	<b>CHEM 412</b> Statistical Mechanics 3 units (36 L)	<b>CHEM 422</b> Synthetic Organic Chemistry 3 units (36 L, 12 T)	<b>CHEM 424</b> Polymer Chemistry 3 units (36 L)	<b>CHEM 3XX or 4XX</b> <b>Elective Chemistry</b> 3 units	<b>CHEM 497</b> Research Project 6 units (216 Lb)
	<b>CHEM 413</b> Computational Chemistry 3 units (36 L)	<b>CHEM 423</b> Topics in Inorganic and Organometallic Chemistry 3 units (36 L)	<b>CHEM 3XX or 4XX</b> <b>Elective Chemistry</b> 3 units	Elective Course 3 units	

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### Double MSc Chemistry (Stuttgart-Queen's), Queen's students

5th year	<b>CHEM 803</b> Principles of Scientific Communication 3 units	Elective Chemistry Module I 1.5 units	Elective Chemistry Module II 1.5 units	Elective Chemistry Module III 1.5 units
		Elective Chemistry Module IV 1.5 units	Elective Chemistry Module V 1.5 units	Elective Chemistry Module VI 1.5 units
6th year at Stuttgart	Research Lab I	Elective Chemistry Course 3 units	Master Thesis 15 units (max. 900 Lb)	
	Research Lab I			

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### BSc Chemistry (Univ. of Stuttgart)

<b>1st Year</b>	Introduction to Chemistry with experimental exercises 15 CP (90 L, 30 T, 180 Lb)		Mathematics 12 CP (75L, 60 T)		Introduct. Physics 6 CP (60 L)	Physics Lab 3 CP(60 Lb)
	Inorganic and Analytical Chemistry 12 CP (60 L, 30 T, 120 Lb)	Physical Chemistry I 12 CP (60 L, 30 T, 90 Lb)				
<b>2nd year</b>	Organic Chemistry I 12 CP (60 L, 30 T, 150 Lb)	Instrumental Analytics 6 CP (15 L, 30 T, 50 Lb)	Biochemistry 6 CP (60 L)	Toxicology 3 CP (30 L)	Theoretical Chemistry 6 CP (45 L, 15 T)	Elective Courses ("Soft Skills") 3 CP
	Organic Chemistry II 12 CP (60 L, 30 T, 130 Lb)			Macromolecular Chemistry 6 CP (45 L, 15 T)		
<b>3rd year</b>	Advanced Inorganic Chemistry 12 CP (70 L, 30 T, 80 Lb)		Physical Chemistry II 12 CP (60L, 45 T, 60 Lb)		Elective experimental courses* 6 CP (180 Lb)	
	Structure Determin. 3 CP (15 L, 15 T)	Elective Course (from Bio, IT, Physics, or Engineering) 6 CP	Elective Courses ("Soft Skills") 3 CP	Methods of Chemistry 3 CP	Bachelor Thesis 12 CP (max. 360 Lb)	

\*choose between biochemistry, polymer chemistry, chemical technology or theoretical chemistry lab

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### Double MSc Chemistry (Stuttgart-Queen's), Stuttgart students

4th year	Advanced Inorganic Synthesis 9 CP (45 L, 120 Lb)		Advanced Organic Synthesis 9 CP (45 L, 120 Lb)		Chemical and Biochemical Technology 6 CP (60 L)	Elective experimental courses* 6 CP
	Physical Chemistry III (Statistical Thermodynamics, Scattering and Diffraction) 12 CP (60 L, 30 T, 90 Lb)			Elective lecture courses** 6 CP		Elective Chemistry Course I 12 CP
5 th year At Queen's	CHEM 803 Principles of Scientific Communication 6 CP	Elective Chemistry Module I 3 CP	Elective Chemistry Module II 3 CP	Research Lab I 6 CP (180 Lb)	Master Thesis 30 CP (max. 900 Lb)	
		Elective Chemistry Module III 3 CP	Elective Chemistry Module IV 3 CP	Research Lab II 6 CP (180 Lb)		

\*choose between biochemistry, polymer chemistry, chemical technology or theoretical chemistry lab

\*\*choose between the lectures biochemistry, polymer chemistry, chemical technology or theoretical chemistry