



SOFIA UNIVERSITY "ST. KLIMENT OHRIDSKI"

FACULTY OF CHEMISTRY AND PHARMACY

CURRICULUM

Signed by:

Approved by the Academic Council,
Record of Proceedings №

Professional Field: 4.2 Chemistry

Educational and Qualification Degree: Master of Science

Subject Area: Computer chemistry

Master programme: Computational chemistry

C	H	C	2	5	2	4	2	2
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Form of Study: full-time

Length of Study: 3 semesters

Professional Qualification: Master in Computer chemistry – Computational chemistry

C	2	5	2	4
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CHC252422

Major "Computer Chemistry" / M. Sc. Program "Computational Chemistry"

for the academic year beginning in 2022

№	Course code	Course Title	Type – C, E, O	Semester	ECTS credits	Number of hours- total				Number of hours per week	Type of grading* - e, ca, m, a
						Total	Lectures	Seminars	Practical classes		
1	2	3	4	5	6	7	8	9	10	11	12

Core courses

1	C 0 1 8	Quantum chemistry for molecular systems	C	1	8	240	60	-	45	7	e
2	C 0 2 5	Quantitative structure-activity relationships of bioactive compounds	C	1	5	150	30	-	30	4	e
3	C 0 3 6	Programming	C	1	6	180	30	-	45	5	e
4	C 0 4 4	Molecular mechanics	C	1	4	120	30	-	30	4	e
5	C 0 5 6	Term project	C	1	6	180	15	-	45	4	ca
6	C 0 6 4	Modelling of periodic systems and nanostructures	C	2	4	120	30	-	30	4	e
7	C 0 7 4	Hybrid (QM/MM) methods	C	2	4	120	30	-	30	4	e
8	C 0 8 4	Computational methods in spectroscopy	C	2	4	120	30	30	0	4	e
9	C 0 9 6	Molecular dynamics and Monte Carlo simulations	C	2	6	180	45	-	30	5	e
10	C 1 0 9	Applied computational chemistry	C	2	9	270	30	-	105	9	ca
11	C 1 1 5	Analysis, reference and presentation of theoretical studies	C	3	5	150	30	-	30	4	ca

Elective courses – courses with minimum of 4 ECTS (total) must be elected

1	E 0 1 4	Introduction to Linux shell programming and data processing	E	2	4	120	30	-	30	4	e
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Type of grading:
 e-exam, ca-current assesment,
 m-matriculation,
 a-advances to the next semester

The Faculty Council has decided that min. 50% of the total education load is independent study of the students

2	E	0	2	4	Molecular kinetics and thermodynamics by ab initio MO calculations	E	2	4	120	30	-	30	4	e
3	E	0	3	4	Molecular modeling of excited states	E	2	4	120	30	-	30	4	e

Students are allowed to elect also other courses from all M.Sc. programs at the Faculty of Chemistry and Pharmacy.

Study Internships											
No	code				Internship	Type - C, E, O	Semester	ECTS credits	Weeks	Hours	Type of grading* - e, ca, m
1	I	0	1	0	Research practicum	C	3	10	15	300	ca

Degree completion			
Form of degree completion	ECTS credits	First session for thesis defence	Second session for thesis defence
Master thesis	15	February-March	July-September

The curriculum has been approved by the Faculty Council, Record of Proceedings № 32 from 08. 2022

DEAN:.....

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Type of grading:
 e-exam, ca-current assesment,
 m-matriculation,
 a-advances to the next semester

Sofia University "St. Kliment Ohridski"

Curriculum Reference Statement

M. Sc. Program "Computational chemistry"

Form of study: full-time; Length of study: three semesters

In-class course load, ECTS credits and courses completed per semester

Type of courses	I semester			II semester			III semester			Total		
	Course Load - number of hours	ECTS credits	Number of grades	Course Load - number of hours	ECTS credits	Number of grades	Course Load - number of hours	ECTS credits	Number of grades	Course Load - number of hours	ECTS credits	Number of grades
Core courses	360	29	5	390	27	5	60	5	1	810	61	11
Min. of elective courses				60	4	1				60	4	1
Study internships							150	10	1	150	10	1
Total:	360	29	5	450	31	6	210	15	2	1020	75	13

Degree completion	ECTS credits	Number of hours for preparation	First thesis defence session	Second thesis defence session
Master thesis	15	450	February-March	July-September

Professional Qualification: Master of Computer Chemistry - Computational Chemistry

Record of Proceedings of the Faculty Council № 32 from 08. 2022

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