



APPLICATION FORM - 1
MASTER OF SCIENCE PROGRAM
MOLECULAR SCIENCES - SPECTROSCOPY AND SIMULATION

**The application deadline for this Winter Semester 2026 program entrance at Ruhr-Universität Bochum is:
15th of June 2026**

Please complete the required portions (*) of this form for Application Step 1, including the self-evaluation survey.
Do NOT attach supplementary information at this time, and remember to sign your application.

- Please upload your application as instructed OR email as one PDF to: imos@rub.de
- Post-mailed applications are also accepted (not required); see address on page 4.
- For FAQ and Program Regulations, please visit rub.de/imos
- Note this MSc. program begins ONLY in the Winter Semester, October 2026, and applications are NOT shared with other programs.

1. PERSONAL DETAILS:

Family name:*

First name:*

Sex:*

female

male

diverse

Date of birth:*(
(day/month/year)

Place of birth:*(
(city/country)

Contact address:
(street/ town/
country)*

Telephone:

E-mail address:*

Home address:
(if different from
contact address)

Telephone:

E-mail address:



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2. EDUCATION

2.1 Qualification for university entrance *

Note: Please fill in the date and place of your university entrance qualification (e.g. your high school diploma or school leaving certificate). **This does not mean the date on which you obtained your Bachelor degree.**

Date:* (day/month/year)

Place:* (city/country)

2.2 Higher education

List the colleges and universities where you have studied and describe applicable coursework for the iMOS program.

a) Undergraduate education

☐ I have a Bachelor degree, Diplom or similar in the field of chemistry, physics, biochemistry or related fields

☐ I will receive a Bachelor degree, Diplom or similar in the field of chemistry, physics, biochemistry or related fields

Name of University/College:*

Country:*

Language
of instruction:*

Duration from - to:*\br/>(month/year)

Date or planned date
of completion
of this degree:*

Main study field:*

Final degree type:*\br/>(B.Sc., B.E., B.Tech.,
Dipl.-Ing., etc.)

Minor or Sub
study field:

Final grade or
current GPA:*\br/>(numerical, e.g. 8.5, 1.7, 3.7 etc.)

Grading system *\br/>range: (best - worst
e.g. 10-4, 4-1, 1-4 etc.)

Diploma Honors:
(or grading honors,
cum laude, etc.)

Relevant coursework*: Please convert credit points (CP) to the ECTS system: Expected workload for 1 year of full time studies = 1800 hours = 60 CP, therefore 1 CP = approximately 30 hours of work.

Credit Points* in Mathematics (minimum CP required = 10)

Credit Points* in Theoretical Chemistry, Physics,
Spectroscopy, Quantum Mechanics
or equivalent (minimum CP required = 8)

Please list the courses you have completed in Theoretical Chemistry, Physics, Spectroscopy, Quantum Mechanics or equivalent *:

*) fields required



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b) Additional degree

- ☐ I already have a **second** Bachelor's degree, Master's degree or any other university degree in addition to the one mentioned above.
- ☐ I have previously started another degree program, but have not completed it

Name of University/College:

Country:

Language
of instruction:

Duration from - to:
(month/year)

Date or planned date
of completion
of this degree:

Main study field:

Final degree:
(B.Sc., B.E., B.Tech.,
Dipl.-Ing., etc.)

Minor or Sub
study field:

Final grade or
current GPA:
(numerical)

Grading system
range (best - worst):

Diploma Honors:
(or grading honors,
cum laude, etc.)

3. WORK AND RESEARCH EXPERIENCE (not required for admission)

Duration from - to: (month/year)

Employer:

Short description:

Duration from - to: (month/year)

Employer:

Short description:

Duration from - to:(month/year)

Employer:

Short description:

Please list any of your authored, peer reviewed journal articles here:



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4. LANGUAGE SKILLS *

4.1 English language skills

To be accepted to our programme we need to have a proof that you have a sufficient knowledge of the English language. We accept the **TOEFL** or **IELTS** or an equivalent English test as a proof of your English skills.

- ☐ My previous study program was completed in English.
- ☐ I completed an English language Abitur exam.
- ☐ English is my native language.
- ☐ I took/will take the **TOEFL** as a proof of my English skills (minimum score paperbased: 600, computerbased: 250, internetbased : 100). ETS Code 7657.

Examination date:

Received points:

- ☐ I took/will take the **IELTS** as a proof of my English skills (minimum average score: 6.0).

Examination date:

Received points:

4.2 German language skills (not required for admission)

- ☐ German is my native language.
- ☐ My knowledge of German is: None Basic Intermediate Advanced

5. MOTIVATION *

Please specify briefly why you want to enroll in the iMOS programme:

6. DECLARATION *

I certify that I have answered all questions voluntarily, correctly and completely to the best of my knowledge. I realize that any intentionally false information given on my part is against the law and could lead to my exclusion from the application process or, if discovered at a later date, to my expulsion from the programme.

Date, Place (City)

Signature

Further information: www.rub.de/imos
imos@rub.de

For Post-Mailed Applications (not required):
Ruhr-University Bochum
Faculty for Chemistry and Biochemistry, iMOS
Montana Petersen, ZEMOS 0.99
44801 Bochum
Germany

Self Evaluation * / Required

Please specify your knowledge in the following subjects (5 pages):

Chemistry / Biochemistry

Physical Chemistry	Excellent	Good	Fair	n/a
Theoretical Chemistry	Excellent	Good	Fair	n/a
Analytical Chemistry	Excellent	Good	Fair	n/a
Inorganic Chemistry	Excellent	Good	Fair	n/a
Organic Chemistry	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a

Physics / Engineering

Classical Mechanics	Excellent	Good	Fair	n/a
Quantum Mechanics	Excellent	Good	Fair	n/a
Electrodynamics	Excellent	Good	Fair	n/a
Laser Physics	Excellent	Good	Fair	n/a
Solid State Physics	Excellent	Good	Fair	n/a
Atomic Physics	Excellent	Good	Fair	n/a
Condensed Matter Physics	Excellent	Good	Fair	n/a
Optics	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a

Mathematics, Programming and Modelling

Analysis	Excellent	Good	Fair	n/a
Algebra	Excellent	Good	Fair	n/a
Stochastics	Excellent	Good	Fair	n/a
Numerical Methods	Excellent	Good	Fair	n/a
Programming in C	Excellent	Good	Fair	n/a
Programming in Fortran	Excellent	Good	Fair	n/a
Programming in	Excellent	Good	Fair	n/a
Molecular Dynamics Simulation	Excellent	Good	Fair	n/a
Ab Initio Modelling	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a
Other:	Excellent	Good	Fair	n/a

Selected Specific Topics 1 / 3

Laser spectroscopy	Excellent	Good	Fair	n/a
NMR spectroscopy	Excellent	Good	Fair	n/a
Mass spectrometry	Excellent	Good	Fair	n/a
Molecular clusters	Excellent	Good	Fair	n/a
Chemistry of nano-materials	Excellent	Good	Fair	n/a
Coordination chemistry	Excellent	Good	Fair	n/a
Spectroscopy	Excellent	Good	Fair	n/a
Physical organic chemistry	Excellent	Good	Fair	n/a
Theoretical organic chemistry	Excellent	Good	Fair	n/a
EPR Spectroscopy	Excellent	Good	Fair	n/a
X-ray Spectroscopy	Excellent	Good	Fair	n/a

Selected Specific Topics 2 / 3

Surface chemistry	Excellent	Good	Fair	n/a
Molecular interactions	Excellent	Good	Fair	n/a
Chemical kinetics	Excellent	Good	Fair	n/a
Ab-initio calculations	Excellent	Good	Fair	n/a
Computational chemistry	Excellent	Good	Fair	n/a
Quantum chemistry	Excellent	Good	Fair	n/a
Protein-protein interactions	Excellent	Good	Fair	n/a
Microscopic techniques	Excellent	Good	Fair	n/a
RNA structure, function and modification	Excellent	Good	Fair	n/a
Theoretical biochemistry	Excellent	Good	Fair	n/a
Biomolecular simulation	Excellent	Good	Fair	n/a
Matrices, operators and vector spaces	Excellent	Good	Fair	n/a

Selected Specific Topics 3 / 3

Basis set transformations	Excellent	Good	Fair	n/a
Eigenvalue problems and their solutions	Excellent	Good	Fair	n/a
Partial differentiation	Excellent	Good	Fair	n/a
Integration over arbitrary dimensional spaces	Excellent	Good	Fair	n/a
Differential equations and their solutions	Excellent	Good	Fair	n/a
Statistical distributions	Excellent	Good	Fair	n/a
Regression, data analysis and hypothesis testing	Excellent	Good	Fair	n/a
Schroedinger equations and solutions for simple systems (Particle in the box, Harmonic oscillator, H-Atom)	Excellent	Good	Fair	n/a
Quantum mechanics of many particle systems (Pauli principle, spin, Slater determinants, Box- Oppenheimer approximation)	Excellent	Good	Fair	n/a
Approximate solutions to Schroedinger equation (Variational principle, perturbation theory, Hartree Fock, DFT)	Excellent	Good	Fair	n/a
Thermodynamics (Microcanonical, canonical ensemble)	Excellent	Good	Fair	n/a
Many body interactions (Internal coordinates, harmonic analysis, normal modes, anharmonicities)	Excellent	Good	Fair	n/a
Condensed matter and periodic boundary conditions	Excellent	Good	Fair	n/a
Discretized trajectories	Excellent	Good	Fair	n/a