International Internship

- Start your first international research project
- Visit one of the world’s top institutes in the fields of molecular sciences, spectroscopy, and simulation
- Publish your first scientific paper together with internationally recognized top researchers
- Gain international experience at a very early stage in your career
- Earn leadership qualities in multicultural, interdisciplinary, high profile research teams
- Your internship will be organized and co-financed by the university

Our excellent Research Network:

Molecular Sciences International Master's Program with a Focus on Spectroscopy and Simulation

RUHR-UNIVERSITÄT BOCHUM

Facility of Chemistry and Biochemistry

Solvation Science @ RUB

Main Destinations close by

- Düsseldorf 0.5 hours
- Cologne 1 hour
- Berlin 4 hours
- Amsterdam 3 hours
- Brussels 3 hours
- Luxemburg 3 hours
- Paris 6 hours
- Prague 7 hours
- North Sea 3 hours

Solvation Science @ RUB

Solvation Science @ RUB provides a unifying framework for understanding and predicting solvent processes at Ruhr-Universität Bochum:

www.rub.de/solvation
iMOS
International Master Molecular Sciences

iMOS offers you the unique chance to acquire and to apply in practice cutting-edge skills in theoretical and spectroscopic techniques in the fields of molecular chemistry, bio-chemistry, and physics.

Get ready:
- The Master’s Program takes two years
- The teaching language is English
- Study within a very active, interdisciplinary research environment
- Work together with top researchers in their field
- Early hands-on experience in high profile research
- Spend three month international internship
- Qualify for your funded doctoral thesis in Germany
- Fast Track Option for outstanding students: Start your doctoral work after only one year

Apply now:
- Online application: www.ruhr-uni-bochum.de/imos
- Submit your academic certificates
- If you are not a native speaker, file your English language certificate
- Talk to us in a skype introductory conversation
- Get your visa
- Course start: October

Who should apply?
Bachelor students in
- Chemistry
- Physics
- Mathematics
- Bio-Chemistry
- related Engineering fields

We are looking for students who have a passion for science and want to work in an international environment.

What skills should you have?
This is a highly competitive program demanding your skills in quantum mechanics, mathematics, physics, and chemistry. You should have already learned:
- Schrödinger’s equation and wave functions
- Hamilton operator
- real and complex valued vector spaces, matrices
- basis set transformations, partial differentiation
- integration over arbitrary dimensional space
- basic statistical entities like distributions, averages, data regression and hypothesis tests.

Basic knowledge about concepts of classical mechanics and thermodynamics/statistical mechanics is mandatory.

What we offer:
- Partial scholarships and grants
- Opportunity to apply for paid scientific student jobs
- Comprehensive student support
- Guaranteed housing
- Full-time student benefits
- German and English language courses
- Three month international internship
- Possibility to start a paid Ph.D. study after Master
- Active research environment with internationally renowned scientists
- Full assistance in study and research

iMOS Scope
- Earn cutting-edge skills in theoretical and spectroscopic techniques
- Gain deep insights into molecular physics, chemistry, and bio-chemistry
- Acquire the ability to apply the tools to a wide range of interdisciplinary scientific challenges
- Learn how to develop and solve scientific questions by employing suitable theoretical and experimental methods
- Work in international, multicultural, and interdisciplinary teams

iMOS Curriculum (120 CPs*)
1st Semester (28 or 33 CPs)
- ** Concepts of Quantum Mechanics
- ** Statistical Physics and Thermodynamics
- Dynamics and Simulation (Practical)
- Concepts of Spectroscopy I (Practical)
- Concepts of Molecular Chemistry I

2nd Semester (28 or 33 CPs)
- Electronic and Molecular Structure (Practical)
- Concepts of Spectroscopy II (Practical)
- Theoretical Spectroscopy
- ** Numerical Methods and Scientific Computing

3rd Semester (29 CPs)
- Hands-on training in a work group of your choice
- International Course (three month internship)

4th Semester (30 CPs)
- Master’s Thesis

*: CPs means credit points
**: Two of these three elective courses are required for graduation.

Work Perspectives
Germany is one of the world’s leaders in applied optical technologies, chemistry and pharmacy. There exist excellent opportunities for alumni with a top-level education and training in spectroscopy and microscopy, as well as simulation techniques.