



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Master's degree



Advanced Quantum Physics (MSc)

University of Tübingen • Tübingen



Overview

Degree	Master of Science in Advanced Quantum Physics
Teaching language	<ul style="list-style-type: none">English
Languages	<p>The course language is English.</p> <p>German courses specially designed for international Master's and PhD students are available at the university's House of Languages. The full German course programme is available at: www.uni-tuebingen.de/en/1056.</p>
Full-time / part-time	<ul style="list-style-type: none">full-time
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	15 July (for non-EU students)
Tuition fees per semester in EUR	Varied
Additional information on tuition fees	Approx. 1,500 EUR per semester for students from non-EU countries
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<p>The Master's programme includes experimental and theoretical courses in the following fields:</p> <ul style="list-style-type: none">quantum optics and quantum matterlaser cooling and quantum gaseslaser physicssuperconductors, Josephson junctions and their applications

- open and many-body quantum systems
- mathematical quantum theory
- quantum information theory

Practical contents are contained in the **quantum labs** on the following:

- lasers and elements of quantum optics
- superconductors
- photons and photon statistics

In addition, students choose **modules from a neighbouring field** with a minimum of 6 credit points. This can be fulfilled also by completing an industrial internship.

Course Details

Course organisation

Details can be found on the [Advanced Quantum Physics website](#).

The Master's programme is a two-year consecutive study with a modular structure. Students may join the programme once a year in the winter semester.

In the first year, students attend lectures, seminars and practical courses consisting of 60 ECTS credit points. Students take both experimental and theoretical quantum optics, which lays the foundations for all students. These are augmented by a lab course.

In the second semester, students can choose modules from a variety of different topics. Moreover, students will learn to discuss problems of quantum science in a comprehensive way both within a journal club in which they will present a current topic of quantum science, and within a peer-learning seminar in which they will discuss topics of quantum science in small groups of their peers. For this seminar, they will choose three of the modules that they have passed.

In the second year, students will begin with research on a topic of their choice in the areas of the Center for Quantum Science and finally write the Master's thesis. In total, students will earn 60 credit points for this (30 for acquiring research oriented skills and 30 for the thesis). The thesis is concluded with an oral scientific presentation of the results.

» [PDF Download](#)

A Diploma supplement will be issued

Yes

International elements

- International guest lecturers
- Specialist literature in other languages

Integrated internships

The Master's programme actively supports industrial internships by establishing contacts to high-tech companies in Germany and by granting credit points for the internship.

Course-specific, integrated German language courses

No

Course-specific, integrated English language courses

No

Costs / Funding

Tuition fees per semester in EUR	1,500 EUR
Additional information on tuition fees	Approx. 1,500 EUR per semester for students from non-EU countries
Semester contribution	Enrolment fees at the University of Tübingen are currently about 160 EUR per semester. This includes use of local public transport free of charge from Mondays to Fridays in the evenings, on weekends and public holidays. In addition, students may purchase a semester ticket for unlimited use of public transport in the city of Tübingen and the surrounding area (currently about 130 EUR).
Costs of living	Estimated basic student expenses are about 950 EUR per month according to the Tübingen Student Services organisation ("Studierendenwerk"), including rent for student accommodation. Rent for private accommodation will be more expensive.
Funding opportunities within the university	No

Requirements / Registration

Academic admission requirements	Academic admission requirements include a Bachelor's degree in physics with a grade of at least 2.5 (German grading system) and a solid background in quantum mechanics, atom physics and physics of condensed matter.
Language requirements	Applicants must provide proof of their English skills: TOEFL 95, IELTS 6.0, native speaker or English-language Bachelor's degree, or English B2 (or English as a first language at the German "Abitur" level).
Application deadline	15 July (for non-EU students)
Submit application to	Online application: https://uni-tuebingen.de/en/4204 For questions regarding the application process, please contact the International Students' Admissions Office via e-mail: study@uni-tuebingen.de .

Services

Possibility of finding part-time employment	Students may find jobs as graduate research assistants for projects of the Department of Physics.
Accommodation	Accommodation is available through the Student Services organisation ("Studierendenwerk") or on the private market. Rooms in student accommodation cost approx. 200 to 400 EUR per month. As Tübingen is a very attractive place to live, private accommodation is more expensive and can take some effort to find. To make sure you find a suitable place to live, you should start looking as early as possible. We recommend you apply for student accommodation through the "Studierendenwerk" at the same time that you apply for admission to the Master's programme (https://www.my-

[stuwe.de/en/housing/halls-of-residence-tuebingen/](https://www.my-stuwe.de/en/housing/halls-of-residence-tuebingen/) and <https://www.my-stuwe.de/en/housing/faqs/>) and send in a copy of your notification of admission as soon as you have received it. (Your application won't be processed before the "Studierendenwerk" has received proof of your admission.) For further information, check out the "Studierendenwerk" pages on housing in Tübingen (<https://www.my-stuwe.de/en/housing/housing-infos/>).

Support for international students and doctoral candidates

- Welcome event
- Tutors

General services and support for international students and doctoral candidates

The university offers a number of "onboarding" services for newly arriving international students. These include:

- a help desk
- a buddy programme
- an advisory programme: "How to Study at the University of Tübingen"
- a wide range of social activities offered by student groups

For further information, please refer to: <https://uni-tuebingen.de/en/182071> (onboarding for degree-seeking students).

A student initiative offers a buddy programme and a wide range of social activities during the orientation week and throughout the semester (www.studit-tuebingen.de/en/).

Furthermore, there is the Office for Advising and Admission of International Students (<http://www.uni-tuebingen.de/en/90787>).



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Riccardo Bellese MA

To study the wonders of the world and deeply understand them – that's what drives me. I find that physics is a means to discover and describe – as precisely as possible – everything nature presents to us. There is still so much to learn, especially with regard to quantum physics, which is one of the most exciting academic fields of our time! The programme dives deeply into topics like atom-light interactions, quantum sensors, optical and microwave resonators, and many-body quantum systems.

University of Tübingen



Campus of the Faculty of Science

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Innovative, interdisciplinary, international: These three words summarise what makes the University of Tübingen special. Excellent research and teaching are Tübingen's answer to the challenges of the future in a globalised world. We maintain exchanges with partners around the globe. Networks and cooperation across faculty and subject boundaries are the pillars of our successful strategy. This is reflected in our good position in international rankings. In addition, we are one of the eleven German universities distinguished with the title of "excellent."

The University of Tübingen has been a place of top-level research and excellent teaching for more than 500 years. Some 28,000 students from Germany and around the world are enrolled here in our more than 200 study programmes, including numerous international programmes taught entirely in English.

The University of Tübingen is a member of the European University Alliance "CIVIS – A European Civic University" (<https://civis.eu/en>), offering a wide range of special exchange opportunities for students.



University location

Tübingen...

- is located in south-western Germany, about 40 kilometres south of Stuttgart.
- has some 90,000 inhabitants. The town's many students and its numerous young families make Tübingen Germany's youngest city by average age.
- is one of the most coveted places to study in Germany – both because of the excellent conditions for students and researchers, and the unique charm of the town.
- boasts a renowned historic centre with many cafés, restaurants, and shops, and outstanding cultural activities.
- is a very safe place to be, with excellent public transport.
- is well known for its eco-friendly attitudes.
- is surrounded by beautiful countryside. The Black Forest and the Swabian Jura hills are not far away and provide excellent opportunities for climbing, canoeing, hiking, biking – and skiing in winter.

Contact

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🌐 Course website: <https://uni-tuebingen.de/en/197609>

Last update 22.07.2024 15:26:58

International Programmes in Germany - Database

www.daad.de/international-programmes
www.daad.de/sommerkurse

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Disclaimer

The data used for this database was collected and analysed in good faith and with due diligence. The DAAD and the Content5 AG accept no liability for the correctness of the data contained in the "International Programmes in Germany" and "Language and Short Courses in Germany".

The publication is funded by the German Federal Ministry of Education and Research and by contributions of the participating German institutions of higher education.



Federal Ministry
of Education
and Research