

THE OIST GRADUATE UNIVERSITY

A student-centred approach to education

OIST is forging a new path of graduate education — one that its students help to create

The Okinawa Institute of Science and Technology Graduate University (OIST) recognizes that many great discoveries lie at the intersections of the major sciences, where researchers make novel connections between disparate disciplines. Accordingly, it has developed a graduate programme for students to become highly proficient in their core discipline while also learning to communicate scientifically with people in completely different disciplines, such as quantum physics and cell biology.

“We want our students to achieve first-class research outcomes, to creatively address important scientific questions and to grow to their full potential as independent scientists playing leading roles in research,” says Jeff Wickens, dean of the OIST Graduate School. “We encourage an international perspective and growth that is unrestricted by the traditional boundaries between disciplines.”

Freedom is a vital condition of an environment that fosters creativity. At OIST, students are not admitted to specific laboratories, but are given a year to decide in which research unit they will do their thesis work. Students may start the programme with only a bachelor’s degree. If they come with a master’s degree, they can get credit for their additional background, but they still have a year to choose their thesis lab.

The PhD programme is individualized with a flexible curriculum that can be tailored for each student. Every student is treated as a unique individual and can select courses without the constraints of

traditional departments. To help students make the most of the opportunities and develop a coherent programme of studies, they are assigned an experienced faculty member as an academic mentor to guide their course of study and assist them choose a thesis lab. Small classes, a low student-to-faculty ratio of just two to one and collaborative principles let the students shape how classes are taught. If OIST does not offer a recommended course, the student can work with a tutor in guided independent study or with visiting professors in special topics.

Instead of having traditional departmental structures, OIST has concentrations in several fields, which, while distinct, permit cross-disciplinary interactions. OIST has faculty in chemistry; physics; mathematical and computational sciences; systems biology and bioinformatics; molecular, cellular and developmental biology; neuroscience; and environmental and ecological sciences; and marine sciences. Students can take courses and conduct PhD projects in these fields and are encouraged to stretch beyond their core discipline and take some courses and laboratory rotations that are well out of their field.

From the first week, students participate in research, even before choosing a thesis lab. In each of the three terms of the first year, they conduct a research project in a new lab. Usually two rotations fall within the chosen field (theoretical and experimental physics, for example) and one far outside it (like ecology).

“Rotations are designed for the student to learn, as an insider, how to speak the language and apply the techniques used in a research unit. We challenge them to go beyond their comfort zones, to learn

research by doing research and to gain first-hand experience working alongside leading scientists and faculty members,” says Wickens. “This opens up future possibilities for meaningful interactions with researchers in different fields, leading to new possibilities from the cross-fertilization of ideas and collaborative projects.”

In the second year, students define their PhD thesis topics and labs, preparing a proposal that will form the basis of their end-of-year qualifying examination. Prominent international experts in the field of the student’s research topic are brought to OIST to conduct an oral examination, setting a high international standard for the OIST PhD degree.

Throughout the programme, the OIST philosophy of research is promoted by offering equal access to research equipment. This encourages interaction and collaboration within and between disciplines as a way to find novel solutions and new discoveries.

The OIST PhD programme is fully funded, allowing students to progress in their studies and research without worrying about finances. They all receive an internationally competitive financial support package, comparable to those offered by other leading research universities. Most students initially live in the campus village, further strengthening the OIST community with plenty of opportunities for socializing.

OIST is truly international. Education and research are conducted in English,

and the academic year starts in September. Students are encouraged to travel internationally to keep abreast of new developments, disseminate their research findings and tap into the extensive networks of OIST faculty members. This will develop future career opportunities in leading research institutes and universities worldwide.

The diversity of the student population is astounding, both in terms of scientific interests and national origins. The student community is vibrant with members supported by active programmes to promote well-being and to help them support each other. To cover any gaps in academic background, self-help programmes have sprung up both spontaneously and by design, as ‘skill pills’ organized by the graduate school to address additional study needs as they arise. These, along with an ongoing programme of international workshops and courses, enable students to gain teaching experience.

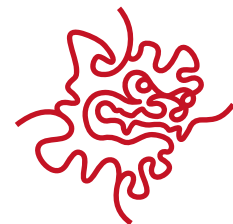
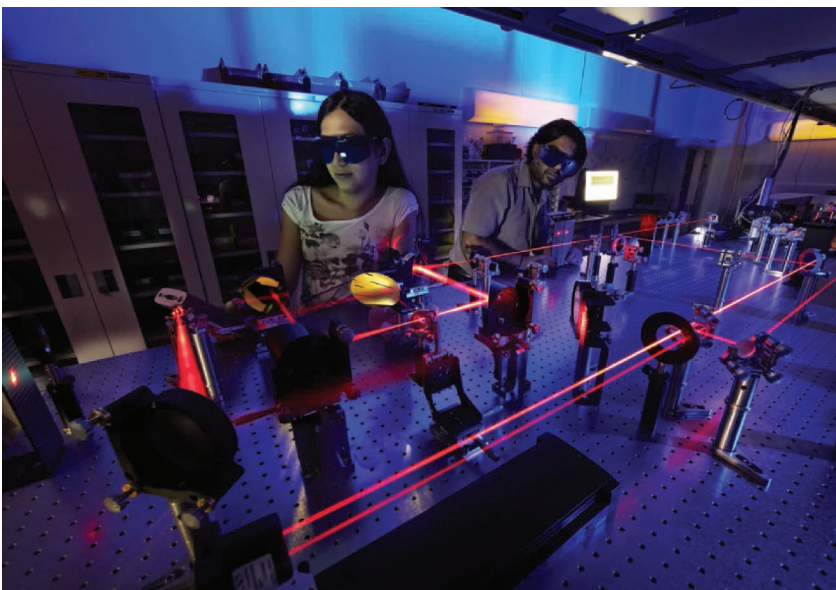
Since competition for jobs within and outside academia is fierce, professional development opportunities are provided throughout the programme. Training is given in presenting science, research conduct and ethics, with a view to maximizing future career opportunities. Career development is seriously promoted, and a programme of seminars by student-invited speakers provides perspectives on management, leadership and entrepreneurship to help students develop into

Fast facts:

- **Ratio of students to faculty members 2:1**
- **Average class size: 4.5**
- **Percentage of OIST students who are non-Japanese: 80%**
- **Percentage of OIST professors from overseas: 70%**
- **Percentage of OIST professors awarded PhDs abroad: 73%**
- **Proportion of students in physical sciences/life sciences/other: 45/45/10**
- **Percentage of female students: 33%**

leaders who not only have outstanding research skills but also a global mindset. A constant stream of visiting speakers covers diverse topics ranging from the economics of development to how to publish in high-impact journals.

Commitment to students is one of the core values of the university. “What makes our PhD programme so exceptional is the student-centred approach,” explains Wickens. “We recognize that students are individuals and design their programmes of study with them, according to their unique needs and scientific aims. We provide the resources, guidance and support they need for each step they take towards achieving their goals in research and scholarship.”



OIST

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