

Guidelines for Building a New Course

OIST Graduate School

Curriculum and Programs Section

September 2023

Basic and Advanced Courses

OIST courses are predominantly designed to prepare students for their future research needs, and as a result, many courses are taught at an advanced level, suitable for graduate education. However, an important feature of the OIST educational ethos is a broad range of learning experiences across disciplines, and so we offer several courses at a fundamental or basic level. These differences are described below.

Reference: [OIST Curriculum Policy](#): The first two years will comprise a combination of laboratory rotations and courses, designed to prepare the students for their doctoral thesis work in a flexible way.

Basic Courses (prefix B, no field implications in the numbering) are offered to introduce cross-field students to a new area, and/or to refamiliarize students in the same field with material they may have covered many years prior in an undergraduate setting. These courses generally have no prerequisite courses but may have suggestions about recommended pre-knowledge. This is given in broad strokes such as “Familiarity with differential equations is assumed.” Students without this pre-knowledge will find the course more challenging, but it is not necessarily a barrier to enrolment.

OIST should be offering a basic course in each of our main areas of research. This facilitates students who enter without such knowledge to cross over into new fields. In situations where such a course is lacking, students may prepare using independent Studies under the supervision of an OIST faculty member using textbooks or online material. New faculty are encouraged to offer a basic course for several years as their first contribution to teaching, and later add an advanced course as replacement faculty are recruited.

Basic courses are usually non-confrontational in content and delivery, using standard textbooks as source material. While they may contain difficult concepts and cover a lot of material, and even extend to considerations of limitations and challenges in the current state of a discipline, they are not intended to prepare students for research.

Basic courses are usually given as lectures plus exercises, and should not rely on presentation or analysis of original papers as students in these courses lack the context and background knowledge to make best use of such challenging resources.

Advanced Courses prepare students for research work by teaching up-to-date material in a specialist area. Advanced courses may work with primary sources, should endeavor to prepare students to begin asking research-level questions, should teach about gaps and issues in the current state of knowledge,

and may be more student-driven than basic courses (presentations of seminal papers, critical readings of modern papers, etc.).

These courses may have significant pre-requisites in the form of other OIST courses or demonstrated proficiency in certain skills such as programming, math methods, etc. Such prerequisites must be clearly identified in the course description. Students should discuss their background and preparation with faculty (both mentors and course teachers) before taking such courses to check that they meet these prerequisites if required courses have not been taken at OIST.

Advanced courses that do have prerequisite courses at OIST should be taught in a term that offers most benefit to students in terms of course sequence (e.g., PDE1 taught in the term before PDE2). Faculty developing courses should work with faculty teaching in related areas to ensure that these progressions are available, and to avoid significant overlap in course material.

Course codes are assigned to Advanced courses in 1 of 4 series: A100 series are mathematics and computer science courses, A200 are physical sciences (including materials and chemistry), A300 are life sciences including cell, neuro, and eco/evo courses. A400 is reserved for multidisciplinary or hard-to-classify courses. Basic course codes are not grouped by discipline, but are numbered in order of their approval. Once issued a course code is not reused. Retired and cancelled courses are therefore always unique in the database. If a new course is given by new or same faculty, it is given a new number to distinguish from previous iterations with different content.

Other Considerations

Faculty are required to teach a minimum of 2 credits per year (<https://groups.oist.jp/grad/program-overview-0>) This may be as 1x2-credit course, or as 2x1-credit courses. They may teach more than one 2-credit course per year on a regular basis. They may also teach two different courses on an alternating basis, thus allowing greater spread of learning opportunities for students.

Teaching of Independent Studies or Special Topics (1 credit for about 20 hours teaching) is encouraged. Students will approach faculty to act as supervisors (tutors) for Independent Studies, which must be overseen weekly and an assessment task completed. Where possible, these should be accepted. Where no enrollments are taken for their regular course in one year, these Independent Studies can fulfil their 2 credit teaching requirement.

Co-taught courses are not encouraged. Faculty may teach as guest lecturers in each other's courses, but previous poor experiences with multiple faculty teaching a course preclude this from being offered as an option for electives. Students benefit from a single approach and consistent teaching and assessment during a course.

A system of ongoing curriculum reviews administered by the C&P section will enable coherent delivery and curriculum planning, especially regarding the terms in which courses are delivered, coverage of core concept areas, overlap of material in related courses, and ensuring reasonable consistency in level and workload across the spectrum of courses. The frequency of these reviews is approximately 5 years, or as needed following a significant influx of new faculty.

All courses are strongly encouraged to use the OIST teaching lab facilities to extend and enhance the theoretical teachings through hands-on experience, and Grad School will support as resources and finances permit.

Typically, a course is given 2 slots of 2 hours each per week, allowing teaching of the minimum of 3 hours per week for 13 weeks to achieve 39 hours for a 2-credit course). Additional time is required for laboratory or exercise classes, which are regarded as only 50% as 'dense'. Timetables are now (from AY2023) set in advance, and cannot be easily modified to accommodate student requests or faculty requests for short-term changes to times or terms. New courses must be accommodated within the confines of the existing timetable framework. Additionally, timetables may be substantially overhauled every few years following curriculum review.