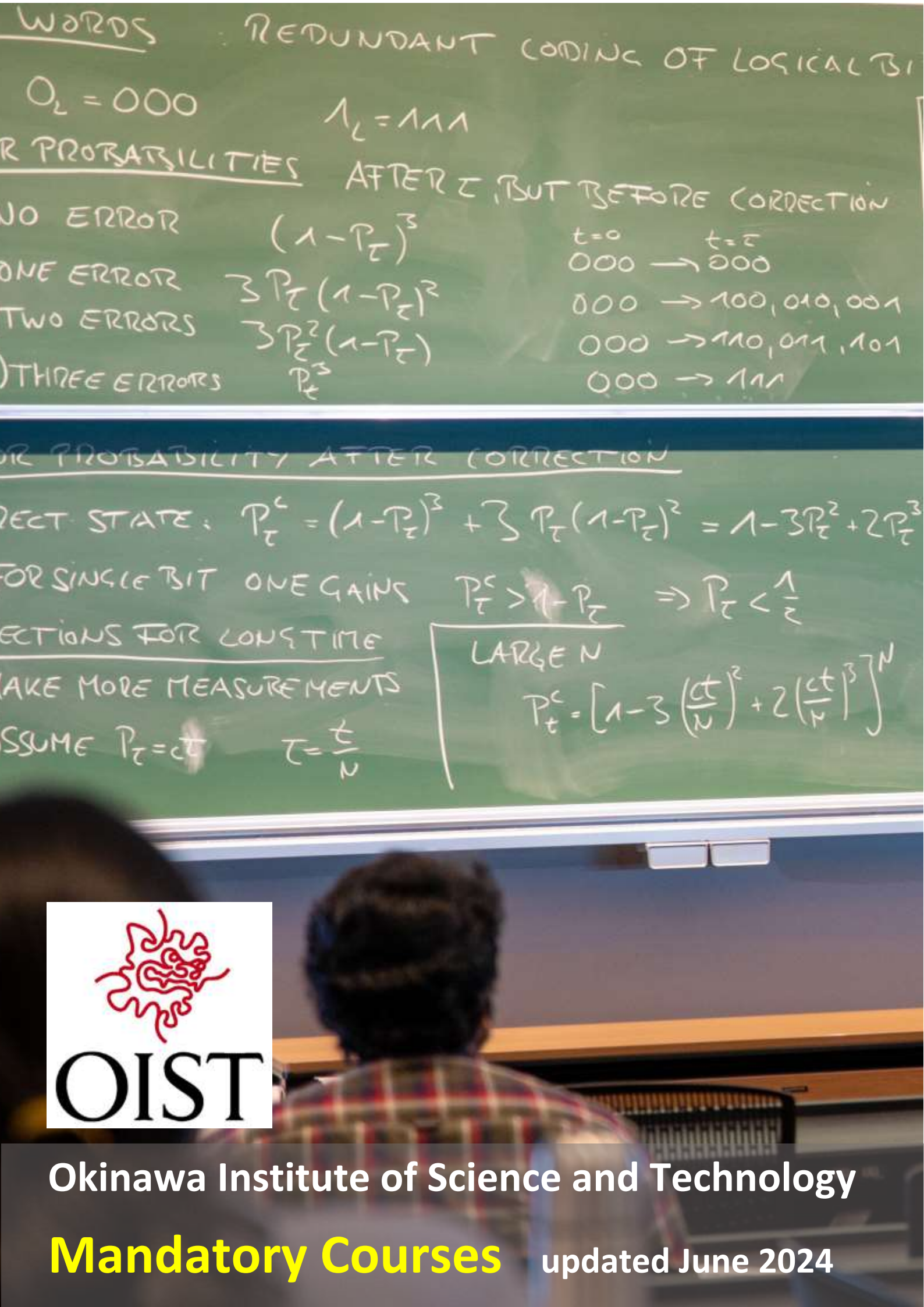

Okinawa Institute of Science and Technology

Mandatory Courses

updated June 2024

Syllabus

Course Code: ROT
Laboratory Rotations

Faculty

All full-time faculty at OIST are able to host Laboratory Rotations. Some adjunct faculty may from time to time be able to host, depending on availability.

Course Description

Rotations form a major part of the student's work in the first year of the graduate program. In each rotation, the student will spend one term undertaking a specific project and will then move on to a different research unit. The Rotations provide a variety of experience in different laboratories that will broaden the student's understanding of different disciplines, techniques, and ways of scientific thinking. Rotations may include theoretical work or modeling, as well as laboratory benchwork.

Importantly, lab rotations are intended to help the student select the most appropriate research unit and research question for their thesis research.

Three Lab Rotations are mandated (including one out-of-field), with a total value of 3 credits for completion of all three. Credits for Lab Rotations are awarded following successful evaluation.

With approval of the Dean of Graduate School, prior research experience may be considered as one in-field lab rotation on equivalent completion of assignments required for this course.

Students nominate lab rotations following discussion with their Mentor. As units may only accept 2 students for lab rotations at any time, student nominations should be in order of preference. Placement cannot be guaranteed, but the Graduate School will always try to accommodate these preferences.

Aim

To gain research experience and knowledge of the scientific questions addressed in the research unit. At the end of the rotation, students will be able to discuss these questions using the appropriate terminology of the field, and be familiar with, and able to explain, methods used in the research unit.

Course Requirements

1. Productive engagement in research and participation in other activities in the unit
    - Minimum attendance of 20 hours per week
    - Pursue productive research that the student and supervisor agreed on
    - Active participation in lab activities, including meetings, online communications and discussions, seminars, etc., as defined by the lab rotation supervisor.
2. Lab rotation proposal (due by the end of the first calendar month of the rotation)
    - In discussion with the lab rotation supervisor, prepare a 1-2 page written summary of the aims of the rotation. Must be referenced against recent research publications in the field. May include illustrations.
3. Oral presentation (due by the end date of the rotation)
    - Present the results of the lab rotation in a 10-15 minute presentation to the unit members.
4. Lab rotation report (due by the end date of the rotation)
    - Submit for assessment a written report on the rotation including a concise literature review, methods used, and activity carried out in the research unit, using the scientific language of the field. When possible and applicable, research results should also be included.
    - Selection of rotations is part of the program approval process, involving the student and the Mentor. Final assignment of rotations will be made by the Graduate School, taking into account the availability of supervision and the overall program of the student.

At least one of the rotations shall be outside the specific field of the student's studies at OIST. This develops interdisciplinary communication and understanding. Where possible, students will undertake out-of-field research that complements their core research skills.

Assessment

Assessment for individual rotations is Pass or Fail basis or a letter grade (A, B, C, F, I) at the discretion of the rotation supervisor, taking into account the nature of the project, on satisfactory completion of all 4 mandatory elements, as below. As projects are developed relative to the student's background (in-field or out-of-field), all grades to be absolute.

- Productive engagement in research and participation in other activities in the unit (minimum 20 hours/week)
- Written lab rotation proposal
- Oral presentation
- Submission of written lab rotation report

Each individual rotation is assessed separately by the Professor of that research unit, based on the criteria above.

Grade for the course as a whole is Pass if all individual rotations receive a passing grade.

Statement on Academic Integrity

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- Cheating.
- Falsifying academic materials.
- Misrepresenting documents.
- Plagiarizing.
- Gaining unfair advantage.
- Submitting previously submitted work (be it your own or from another person).
- Aiding others in academic dishonesty.

Students found to have engaged in or assisted any action that is contrary to acceptable academic standards will face disciplinary action, with penalties ranging from achieving a zero grade for an assessment item, to failing a course, to dismissal from the program. Sophisticated plagiarism detection software is employed as needed.

Note: Acknowledge any use of Generative AI tools, and preserve the basis of such interactions (prompts, etc.).

Syllabus

Course Code: PRO
Thesis Proposal

Faculty

Only full-time faculty at OIST are able to host a student for Thesis Proposal. Some adjunct faculty can host but only as a co-supervisor. Faculty who are able to accept students for Thesis proposal are listed at https://groups.oist.jp/grad/unit-availability-phd-students

Aim

Students prepare a proposal for the research they wish to pursue toward the submission of an independent, novel doctoral thesis.

Course Description

Students work in the laboratory of the Professor under whom they wish to conduct their thesis research. They undertake and write up preliminary research work, complete an in-depth literature review and prepare a research plan. The preliminary research work should include methods the students will use in their thesis research. The literature review should be in the area of their thesis topic and be of publishable quality. The research plan should comprise a projected plan of experiments to answer a specific question(s) and place the expected outcomes against the current state of knowledge, and should take into account the resources and techniques available at OIST. The research data generated in this proposal may be included in the subsequent doctoral thesis, if appropriate.

Prerequisite

Successful completion of course ROT laboratory rotations

Assessment

Thesis Proposal Examination by internal and external examiners. Oral closed-room examination.

This course is graded as Pass/fail.

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Syllabus

Course Code: PCD 1
Professional and Career Development 1

Course Faculty
Grad School Dean

Email
gscareer@oist.jp

Office Location
Lab3 Level B 716

Office Hours

By appointment only

Course delivery mode
A series of workshops, classroom sessions and a group project

Term
Multi-year course (Year 1 and 2)

Timetable
Friday 15:00-17:00

Course Description

Develop knowledge and skills needed for leadership in scientific research and education. Through seminars, workshops, and a group project, hone fundamental professional skills, gain computing and data analysis tools, work collaboratively on interdisciplinary teams, and discuss aspects of responsible conduct of research and science ethics. Practice and refine communicating about science to a range of audience and create an individual development plan for future career growth.

Student Learning Outcomes

Students successfully completing this course will be able to:

- Communicate about science to different audiences in both written and verbal styles
- Collaboratively plan and execute team projects
- Utilize programming skills to analyze data
- Contribute to the local Okinawan community through science-related activities
- Recognize principles of Responsible Conduct in Research and put them into practice
- Identify possible career choices in science

Course Introduction

PCD 1 offers students the chance to explore possible career paths and cultivate professional skills required in a career in science, whether pursuing careers in academia, industry, or

entrepreneurship. The course is a mandatory requirement for all OIST PhD students and consists of a set of required workshops, seminars, talks and a months-long group project.

Friday afternoons 15:00-17:00 are reserved for PCD activities, but the class meets only on select Fridays; some PCD activities may also be scheduled at different times. In addition to the required activities, optional professional development events are held throughout the year and students are encouraged to attend as many of these as possible. All events are announced monthly through gscareer@oist.jp. Other event opportunities will be announced as they are received.

Target students

This course is for all OIST PhD students in their Year 1 and Year 2 and is a mandatory requirement.

Course Prerequisites

None

Course Materials

Requirement materials will be provided at each session.

Assessments

Continuous assessment including attendance, participation, and submission of PCD1 completion webform. There are five areas of required activities, each with several subcomponents:

1. Responsible Conduct in Research (RCR)
   a) Complete online self-study modules
   b) Attend interactive workshop on Responsible Conduct in Research (scheduled twice per academic year)
2. Attend Responsible Conduct in Research Open Forum (scheduled twice per academic year)
3. Scientific Writing
   a) Attend the first Scientific Writing In-Person session (scheduled twice per term)
   b) Take at least one online course (Nature Online Masterclasses or Coursera) and submit a completion certificate to gscareer@oist.jp by the end of the second term of your 1st year.
4. Group Project: Required activities include:
   a) Attend Group Project Orientation
   b) Submit group project proposal
   c) Attend teamwork communication workshop
   d) Attend Science Communication workshop
   e) Conduct one group project activity within 12 months group project period

f) Create and present final presentation of group project (presentation format may vary)

5. Scientific Computing
   a) Take at least one course from DataCamp and submit a completion certificate to gscareer@oist.jp by the end of the second term of your first year.

6. Individual Development Planning
   a) Attend "Introduction to PCD/IDP session" and create your own IDP plan on skill development in the session. (scheduled three times per academic year)
   b) Meet with PCD coordinator to discuss your plan for career trajectories and professional skill development plans.

In addition to these required components, the PCD program offers frequent seminars, workshops, opportunities to meet with industry leaders, and the like. Students are encouraged to attend these as they have time and interest.

The course will be graded as P (pass) or F (fail).

Schedule

Friday afternoons 15:00-17:00 are reserved for PCD activities, but the class does not meet every Friday, and some PCD activities may also be scheduled at different times. See the PCD website for updates, schedules, and detailed information:

https://groups.oist.jp/grad/career-development

Schedule for mandatory components (subject to change)

Timeframe	Topic	Notes
Month of Enrollment	Responsible Conduct in Research: Self-learning	
Varies	Responsible Conduct in Research: Workshop	Offered twice a year
Varies	Responsible Conduct in Research: Open Forum	Offered twice a year
Throughout the year	Scientific Writing Online Modules	
Each term	Scientific Writing in-person session	Supplemental session to Nature Online course

Throughout the year	Scientific computing online courses	
February to March of the following year (12 months)	Group Project	
Each term	Introduction to Professional and Career Development/ Individual Development Planning	

Policy Statements

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Statement on access, disability, illness, special consideration request

If you have or experience any disability or condition that may require reasonable accommodation to allow you to participate equally in this course, please contact the OIST Health Center (health@oist.jp) before the course starts, or as soon as the concern arises. The OIST Health Center will review and consider reasonable measures that may be taken to mitigate the difficulty, including provision of alternative teaching materials and assistance.

Syllabus

Course Code: PCD2

Professional and Career Development 2

Course Faculty

Grad School Dean

Email

gscareer@oist.jp

Office Location

Lab3 Level B 716

Office Hours

Appointment only

Course delivery mode

Combination of seminars, workshops, career related events, and multi-session training sessions

Term

Multi-year course (Year 3, 4 and 5)

Timetable

Varies by events

Course Description

Explore science career paths both within and beyond academia, including industry and entrepreneurism and develop professional and science skills incorporating leadership training components through a variety of seminars, workshops, and online courses chosen to align with career goals. Opportunities to learn teaching skills and present scientific content to diverse audiences, meet with entrepreneurs and company representatives, and develop professional networks are included.

Student Learning Outcomes

Students successfully completing this course will be able to:

- Identify possible career path choices in science
- Hone professional scientific skills (e.g. science communication, computing, teaching, entrepreneurship, grant writing)
- Build professional networks

Course Introduction

This course is a continuation of PCD1 and offers PhD students the opportunity to explore various career paths and further develop skills and knowledge needed for a chosen path. There is no set class or meeting time. Students are required to accrue 15 PCD units (30 hours) over the 3 years (Year 3, 4, and 5) by participating in seminars, workshops, career-related events and/or taking career path targeted training courses. See the PCD website for a list of opportunities and ways to accrue units.

In addition to individual elective sessions, OIST offers three in-depth career targeted training programs: Industry Internship Program, Teaching Certificate Program (offered by C-Hub), and an Entrepreneurship Program (offered by OIST Innovation). Students can select one or more of the career-targeted training programs during the PCD2 course (Year 3, 4, 5).

Students must track their participation in individual elective sessions or targeted training programs using the PCD-program provided form.

Students must record all approved professional and career developments events they participate in on the PCD Requirement Tracking Sheet/webform over their 3rd, 4th and 5th years, then submit PCD2 Completion webform to PCD coordinator before the end of the second term of their 5th year (prior to thesis examination) to receive PCD2 credit (2 credits). Completion is required for graduation.

Students are encouraged to confirm in advance with the PCD program if a particular seminar, course, or professional development opportunity offered externally to the PCD program qualifies toward the required 15 units and to confirm the number of units for each activity, as units vary.

Target students

This course is mandatory for all 3rd, 4th, and 5th year OIST PhD students.

Course Prerequisites

Professional and Career Development 1 (PCD1)

Course Materials

None (materials for specific events will be provided at the event).

Assessments

This course follows a continuous assessment approach including attendance, participation, and submission of PCD2 completion webform. Students must accrue a minimum of 15 professional and career development units (30 hours) based on attending activities or events and record those in the PCD requirement record form. In addition, students will provide a brief self-reflection for each event attended.

The course will be graded as P (pass) or F (fail). Completion is required for graduation.

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