

Course Category	TBA	Credits	2
Subject Code	TBA	Taking Year	1 st Grade, 2 nd Grade
Course Title (Japanese)	ホモロジー代数	Course Period	1 st Semester
Course Title	Homological Algebra	Day of the week / Hour	Tuesday / The second period
Registration Code	TBA	Compulsory / Elective	Elective
Instructor(s)	Akira Ueda	Course Qualification	Students of Postgraduate Mathematics Course

Course Style	Lecture
Course Aim	This class has aimed to understand the homological algebra.
Goals and Objectives (Level of Achievement)	Understand categories, functors and homology, etc., and apply homological theory to modules.
Course Plan	<p>The following is a schedule.</p> <ol style="list-style-type: none"> 1. Categories and functors 2. Modules 3. Exact sequences 4. Tensor products 5. Products and coproducts 6. Pushout and pullback 7. Direct limits and inverse limits 8. Free modules 9. Projective modules 10. Injective modules 11. Flat modules 12. Complexes 13. Derived functors 14. Ext and Tor 15. Homological dimensions 16. Evaluation
Teaching Methods	Resume is handed out. Student will work problems after each lecture.
Key Words	Categories, Functors, Hom, Tensor products, Homology, Projective, Injective, Flat modules
Texts	None
Reference Books	To be introduced in the class
Other Teaching Materials	To be given in the class when necessary
Performance Evaluation	Homework 20%; Evaluation 80%
Notes on the Course	Please note that students are expected to do homework every week and come to class prepared.
Office Hour	Building No.3, Room 533, Interdisciplinary Faculty of Science and Engineering, Wednesday 16:15 - 17:50
Other Notes	None