Course Category	TBA	Credits	2
Subject Code	TBA	Taking Year	1st Grade, 2nd Grade
Course Title (Japanese)	リーマン幾何学	Course Period	2nd Semester
Course Title	Riemannian Geometry	Day of the week / Hour	Friday / The fifth period
Registration Code	TBA	Compulsory / Elective	Elective
Instructor(s)	Takumi Yamada Eiichi Matsuhashi Tadayuki Watanabe Shun Maeta	Course Qualification	Students of Postgraduate Mathematics Course

Course Style	Lecture
Course Aim	Riemannian manifolds, Levi-Civita connection and curvatures (and so on…) are basic notions of differential geometry. We give an introduction to Riemannian geometry.
Goals and Objectives (Level of Achievement)	To introduce basic terminology and facts about Riemannian geometry
Course Plan	1. Manifolds 2. Tangent space 3. Vector field 4. Riemannian metric and Riemannian manifolds 5. Groups and Riemannian manifolds 6. Local representations of metrics 7. Doubly warped products 8. Connections 9. The connections in local coordinates 10. Curvature 11. Sectional curvature 12. Ricci and Scalar curvature 13. The Equations of Riemannian geometry 14. Hyperbolic Space 15. Hypersurfaces
Teaching Methods	Homework assigned in class. You should review for the next class.
Key Words	Riemannian metric, Levi-Civita connection, Sectional curvature, Ricci curvature, Scalar curvature
Texts	None
Reference Books	[1] Do Carmo, Riemannian Geometry. [2] John M. Lee, Riemannian Manifolds. [3] P. Petersen, Riemannian Geometry.
Other Teaching Materials	None
Performance Evaluation	Grades will be based on some homework.
Notes on the Course	To be announced during the first class
Office Hour	Tuesday 14:30 - 16:00
Other Notes	None