

基本情報/Course Schedule Information	
開講区分(開講学期)/Semester	Fall and Winter Term
曜日・時間/Day and Period	Tue, 4
開講科目名/Course Name (Japanese)	二次元の幾何学
開講科目名(英)/Course Name	2-Dimensional Geometry
授業形態/Type of Class	講義科目/Lecture
単位数/Credits	2
担当教員/Instructor	Shinpei Baba

※メディア授業科目について

授業回数半数以上を、多様なメディアを高度に利用して教室等以外の場所で行う授業を「メディア授業科目」としています。

学部学生が「メディア授業科目」を卒業要件に算入できるのは60単位が上限です。

なお、非該当の場合であっても、メディアを利用した授業を実施する場合があります。

授業担当教員一覧

詳細情報/Detailed Syllabus Information	
授業サブタイトル/Course Subtitle	
開講言語/Language of the Course	English
学習方法/Learning Method	聴講・視聴/Listening and watching face-to-face/online class ☒ Listening and watching face-to-face/online class: Listening and watching a lecture, video, or demonstration, face-to-face or via online (e.g., attending a face-to-face lecture, watching an on-demand video) ☐ Reading: Reading books and academic papers (e.g., summarizing an academic paper, reading information on a website) ☐ Discussion: Learning through question-and-answer interactions and exchanges of opinions among students and between students and the instructor (e.g., pair/group discussion, online chat, one-on-one guidance for writing an academic paper) ☐ Collaborative work: Working as a pair or a group (e.g., producing a poster through group work) ☐ Research: Collecting information from books and academic papers; gathering and analyzing data by fieldwork (e.g., review of previous research, fieldwork) ☐ Experience/practice: Learning from experience- and practice-based activities, and feedback on such activities (e.g., solving problems; laboratory work using instruments; on-campus and off-campus practical training; skills practice including sporting skills; project-based learning; internship) ☐ Presentation: Writing papers, making presentations, and creating works (e.g., report writing, oral/poster presentation, creation of works, portfolio development) ☐ Others(free description)
授業の目的と概要/Course Objective	We study geometric objects in the plane and surfaces sitting in the three- dimensional space.
履修条件・受講条件/Requirement / Prerequisite	Some basic knowedge on: linear algebra (such as determinant, orthogonal basis, linear transformations), trigonometric functions, and Euclidean Geometry (such as length of curves).
出欠席及び受講に関するルール/Attendance and Student Conduct Policy	Expected to attend all lectures
教科書・指定教材/Textbooks	
参考図書・参考教材/Reference	Geometry I, by Alexander I. Bobenko. Geometry: fom Isometries to Special Relativity, by Nam-Hoon Lee
成績評価に関する補足情報/Additional Information on Grading	To be announced at the first lecture.
特記事項/Special Note	
オフィスアワー/Office Hour	To be announced at the first lecture
実務経験のある教員による授業科目/Course conducted by instructors with practical experience	

※ 合理的配慮は定型文につき除外。

学習目標・成績評価詳細情報/Learning Goals &Grading Policy Information	
学習目標(1)/Learning Goal(1)	Understand some basic ideas and concepts of geometry. Be able to varity them by rigorous arguments and calculations.
学習目標(2)/Learning Goal(2)	Be able to explain ideas and proofs to others.
学習目標(3)/Learning Goal(3)	
学習目標(4)/Learning Goal(4)	
学習目標(5)/Learning Goal(5)	

↑ 5行以上必要な場合は、行を挿入してください。

	評価方法/Evaluation Method（プルダウンで選択してください。「その他（自由記述）」を選択した場合は、カッコ内に具体的な内容を入力してください。）				
学習目標/Learning Goals	小テスト/Quiz	レポート・論文/Report/paper			
学習目標(1)/Learning Goal(1)	○	○			
学習目標(2)/Learning Goal(2)	○	○			
学習目標(3)/Learning Goal(3)					
学習目標(4)/Learning Goal(4)					
学習目標(5)/Learning Goal(5)					
評価割合(%)/Grade Breakdown	50%	50%	%	%	%

↑ 5行以上必要な場合は、行を挿入してください。評価割合/Allocation of Marks（％）：100%

授業計画/Class Plan Detailed Information

回/Time	題目/Title	内容/Content	授業時間外学習/ Independent Study Outside of Class
1	Introduction	Overview	review the lecture, and read the reference material
2	Preparation	Review of linear algebra	review the lecture, and read the reference materials
3	Projective geometry	Cross ratio	review the lecture, and read the reference materials
4	Projective geometry	Pappus' Theorem	review the lecture, and read the reference materials
5	Projective geometry	Desargues' Theorem	review the lecture, and read the reference materials
6	Projective geometry	Projective space	review the lecture, and read the reference materials
7	Projective geometry	Fundamental theorem	review the lecture, and read the reference materials
8	Conic sections	Ellipses	review the lecture, and read the reference materials
9	Conic sections	Parabolas	review the lecture, and read the reference materials
10	Conic sections	Hyperbolas	review the lecture, and read the reference materials
11	Conic sections	Summary	review the lecture, and read the reference materials
12	Symmetries	Euclidean isometries	review the lecture, and read the reference materials
13	Symmetries	Rotations	review the lecture, and read the reference materials
14	Symmetries	Translations	review the lecture, and read the reference materials
15	Symmetries	Glide reflections	review the lecture, and read the reference materials
16	Symmetries	Classifications of Euclidean isometries	review the lecture, and read the reference materials

↑ 16行以上必要な場合は、行を挿入してください。

授業担当教員/Instructor(s)					
教員氏名/Instructor Name	ふりがな/Name (hiragana)	所属・職名・講座名/Affiliation, Title, Course	居室/Office	内線/Extension	e-mail/E-mail
Shinpei Baba	ばばしんぺい	理学研究科	b418		sb_sci@osaka-u.ac.jp

↑ 5行以上必要な場合は、行を挿入してください。