

2025 年度シラバス

科目分類/Subject Categories			
学部等/Faculty	/大学院工学科学研究科（博士前期課程）： /Graduate School of Science and Technology (Master's Programs)	今年度開講/Availability	/有：/Available
学域等/Field	/独立専攻：/Fibro/BBM	年次/Year	/1～2年次：/1st through 2nd Year
課程等/Program	/バイオベースマテリアル学専攻： /Master's Program of Biobased Materials Science	学期/Semester	/春学期：/Spring term
分類/Category	/授業科目：/Courses	曜日時限/Day & Period	/集中：/Intensive

科目情報/Course Information				
時間割番号 /Timetable Number	66109901			
科目番号 /Course Number	66160025			
単位数/Credits	1			
授業形態 /Course Type	演習：Practicum			
クラス/Class				
授業科目名 /Course Title	バイオベースマテリアル学国際セミナー：International Seminar on Bio-based Materials Science			
担当教員名 / Instructor(s)	/XU HUAIZHONG：XU HUAIZHONG			
その他/Other	インターンシップ実施科目 Internship	国際科学技術コース提供科目 IGP	PBL 実施科目 Project Based Learning	DX 活用科目 ICT Usage in Learning
		○		
	実務経験のある教員による科目 Practical Teacher			
科目ナンバリング /Numbering Code	M_BM6121			

授業の目的・概要 Objectives and Outline of the Course	
日	海外における先進研究例、それぞれの国・地域における社会的・政策的要請などを聞き、今後グローバルレベルで自らが研究し、活躍して行くにはどのような課題や克服すべき問題があるかを考え、さらにそれを英語で発信する訓練を目的とする。
英	The purpose of this course is to give students opportunities to hear about advanced researches in foreign countries and social and policy requirements on a national or regional level, consider what challenges and problems should be overcome or resolved by the students if they engage in global researches or play global roles in the future, and practice giving presentations in English.

学習の到達目標 Learning Objectives	
日	バイオベースマテリアルに関する英語の文献調査や英語での講義を聴講し、世界最先端の研究開発状況を知る。 自身の研究内容を英語で口頭発表する訓練を行う
英	To understand the state-of-art research and developments on biobased materials through reading literatures and English lecture To practice English communication through conducting the English oral presentation on their own research works

学習目標の達成度の評価基準 / Fulfillment of Course Goals (JABEE 関連科目のみ)	
日	
英	

授業計画項目 Course Plan			
No.		項目 Topics	内容 Content
1	日	Introduction to New Polymer Materials 1	Overview of polymer materials Blends, copolymers and composites Nanostructured polymers, resins and nanocomposites
	英	Introduction to New Polymer Materials 1	Overview of polymer materials Blends, copolymers and composites Nanostructured polymers, resins and nanocomposites
2	日	Introduction to New Polymer Materials 2	Principles of synthesis, processing and applications of nanocomposites Introduction to bionanocomposites, biobased resins and composites
	英	Introduction to New Polymer Materials 2	Principles of synthesis, processing and applications of nanocomposites Introduction to bionanocomposites, biobased resins and composites
3	日	Characterization of Biomaterials and Composites 1	Fundamentals techniques of materials characterization Scanning and transmission electron microscopy Scanning probe microscopy of polymers
	英	Characterization of Biomaterials and Composites 1	Fundamentals techniques of materials characterization Scanning and transmission electron microscopy Scanning probe microscopy of polymers
4	日	Characterization of Biomaterials and Composites 2	Sample preparation for microscopic techniques Infrared spectroscopy of polymers Thermal analysis of polymers
	英	Characterization of Biomaterials and Composites 2	Sample preparation for microscopic techniques Infrared spectroscopy of polymers Thermal analysis of polymers
5	日	Synthesis, Structure and Properties of Bio-Based Materials 1	Introduction to biopolymers and their derivatives Overview of proteins, polysaccharides and polyhydroxy alkanoates Smart systems based on polysaccharides (chitin, chitosan, alginates, carrageenans etc.) and their applications
	英	Synthesis, Structure and Properties of Bio-Based Materials 1	Synthesis, Structure and Properties of Bio-Based Materials 1
6	日	Synthesis, Structure and Properties of Bio-Based Materials 2	Synthetic biomedical materials Polymers for drug delivery systems and tissue engineering
	英	Synthesis, Structure and Properties of Bio-Based Materials 2	Synthetic biomedical materials Polymers for drug delivery systems and tissue engineering
7	日	Natural Fibers Reinforcement of Polymers 1	Introduction to biomimetic materials design Multilayered polymer composites
	英	Natural Fibers Reinforcement of Polymers 1	Introduction to biomimetic materials design Multilayered polymer composites
8	日	Natural Fibers Reinforcement of Polymers 2	Structure and properties of natural fibers: micro- and nanofibrillated cellulose Reinforcement of plastics with different natural fibers
	英	Natural Fibers Reinforcement of Polymers 2	Structure and properties of natural fibers: micro- and nanofibrillated cellulose Reinforcement of plastics with different natural fibers
9	日	Natural Fibers Reinforcement of Polymers 1	Polymer-fiber compatibility issues and solution
	英	Natural Fibers Reinforcement of Polymers 1	Polymer-fiber compatibility issues and solution
10	日	Natural Fibers Reinforcement of Polymers 2	Hybrid materials and composites; and their properties Completely green polymer composites
	英	Natural Fibers Reinforcement of Polymers 2	Hybrid materials and composites; and their properties Completely green polymer composites

11	日	Natural Fibers Reinforcement of Polymers 1	Techniques for the study of mechanical and micromechanical behavior
	英	Natural Fibers Reinforcement of Polymers 1	Techniques for the study of mechanical and micromechanical behavior
12	日	Natural Fibers Reinforcement of Polymers 2	Structure-properties correlations in polymers, blends, and composites
	英	Natural Fibers Reinforcement of Polymers 2	Structure-properties correlations in polymers, blends, and composites
13	日	Structure-Property Correlations in Polymer Materials 1	Structure-property correlation of nanostructured polymers
	英	Structure-Property Correlations in Polymer Materials 1	Structure-property correlation of nanostructured polymers
14	日	Structure-Property Correlations in Polymer Materials 2	Deformation and fracture behavior of different classes of polymer materials
	英	Structure-Property Correlations in Polymer Materials 2	Deformation and fracture behavior of different classes of polymer materials
15	日	Conclusion	Summary of biobased materials
	英	Conclusion	Summary of biobased materials

履修条件 Prerequisite(s)	
日	
英	

授業時間外学習（予習・復習等） Required study time, Preparation and review	
日	集中講義で行う。
英	To be implemented as intensive lectures

教科書／参考書 Textbooks/Reference Books	
日	
英	

成績評価の方法及び基準 Grading Policy	
日	授業中に各自の修論研究に関するプレゼンテーション（英語）を課し、学習目標に沿ってその内容を評価する(60%)。出席率や授業に対する取り組み状況も評価対象とする場合がある(40%)。その合計点が 60 点以上を合格とする。
英	The students' scores will be evaluated by the grade of English presentation regarding individual researches (60%) provided in each class. The degree of the attendance and learning attitude would be eligible for the evaluation (40%). The students who get a

留意事項等 Point to consider	
日	
英	