

5. 物質・生命化学系 Materials Science and Biotechnology Field			MSB-S1
授業科目名 Course Title	Organic & Polymer Science 有機・高分子科学	単位数 Credit	2
担当教員 Instructor	MAEDA Yasushi, YOSHIMI Yasuharu, SUGIHARA Shinji, MATSUMOTO Atsushi 前田 寧, 吉見 泰治, 杉原 伸治, 松本 篤	開講学期 Semester	春学期 Spring
キーワード Keywords	有機化学, 高分子科学, 精密重合, 赤外分光法, ラマン分光法, 粘弾性 Organic chemistry, Polymer science, Precision polymerization, IR spectroscopy, Raman spectroscopy, Viscoelasticity	曜日/時限 Day & Time	

授業概要 Course summary	<p>有機化学・高分子合成・物性・構造の基礎知識を学び, 有機・高分子科学に関する知識を深める。特に, 有機化学は, 吉見が担当し, 高分子の精密合成と構造を杉原が担当し, 赤外・ラマン分光法による生体・合成高分子の解析を前田が担当し, 高分子の構造と物性について松本が担当する。</p> <p>The purpose of this class is to deepen understanding of the organic and polymer science including organic and polymer synthesis, polymer characteristics, and polymer structures. In particular, this class provides the knowledge in synthetic organic chemistry (I Takahashi), organic photochemistry (Y. Yoshimi), precision polymerization and their product structures (S. Sugihara), the spectroscopic analysis of biological and synthetic polymers by means of IR and Raman spectroscopy (Y. Maeda), and the relationship between structure and physical properties of polymers (A. Matsumoto).</p>
到達目標 Course goal	<p>有機反応, 高分子の精密合成法, 赤外・ラマン分光法, および高分子の構造と物性の関係についての理解</p> <p>To comprehend the organic synthesis, precision polymerization, both IR and Raman spectroscopy analyses, and the relationship between the structure and physical properties of polymers.</p>
授業内容 Course description	<ol style="list-style-type: none"> <li>1. Advanced organic chemistry involving synthetic designs, reactions, and mechanisms.</li> <li>2. Photochemical reactions including light absorption and emission of organic molecules</li> <li>3. Introduction of various precision polymerizations: cationic, anionic, and radical polymerization.</li> <li>4. Comparison of IR and Raman spectroscopy: principle, method, and application.</li> <li>5. Introduction of polymer physics.</li> </ol>
準備学習 (予習・復習) 等 Preparation / Review	<p>In advance, carry out a review of the basic organic and polymer chemistry. We require all the review what you learned at the class. (We sometimes assign an examination or paper on the course).</p>
授業形式 Class style	<p>講義と演習</p> <p>Lectures and exercises</p>
成績評価の方法・基準 Method of evaluation	

小テストおよび演習レポート Examination (short test) and exercise reports
教科書・参考書等 Textbook and material
関連資料を配布する。 Prints are supplied as necessary.
受講要件・予備知識 Prerequisite
初歩的な化学の基礎知識が必要。 We require knowledge of the basic chemistry.
その他の注意事項 Note
授業形態：対面