

科目名 Course Title	Surface Nano Science(表面ナノ科学E) [Surface Nano Science]		
講義題目 Subtitle			
責任教員 Instructor	朝倉 清高 [Kiyotaka ASAKURA] (触媒化学研究センター)		
担当教員 Other Instructors	高草木 達(触媒化学研究センター)		
開講年度 Year	2014	時間割番号 Course Number	092190
開講学期 Semester	1学期	単位数 Number of Credits	2
授業形態 Type of Class	講義	対象年次 Year of Eligible Students	～
言語コード・言語 Language Code, Language Type	2 日本語及び英語のバイリンガル授業、受講者決定後に使用言語(日本語又は英語)を決定する授業		
補足事項 Other Information			
キーワード Key Words	Surface, Catalyst, Nanomaterial, Synchrotron radiation, Electron microscopy, STM, AFM,Lithography		
授業の目標 Course Objectives	To understand the importance of nanomaterials. To understand what are particular features in nanomaterials. To understand how to see nanoworld.		
到達目標 Course Goals	You learn the concept of nanoworld. You learn the characterization technique. You learn the catalysis and electronics as well as mechanics in the nanoworld.		
授業計画 Course Schedule	<ol style="list-style-type: none"> 1. What is nanoscience? 2. What is special in nanoworld? 3. How do we see nanoworld? 4. How do we make nanomaterials and what are the applications? 		
準備学習(予習・復習)等の内容と分量 Homework	You have to know quantum physics and solid state physics completely. You should do homeworks I give you in the lecture.		
成績評価の基準と方法 Grading System	Reports and homeworks.		
テキスト・教科書 Textbooks			
講義指定図書 Reading List	Introduction to Solid State Physics/CKittel:Wiley Introduction to Surface Chemistry/G.Somorjai:Wiley		
参照ホームページ Websites			
研究室のホームページ Website of Laboratory	http://www.hucc.hokudai.ac.jp/~q16691/index.html		
備考 Additional Information			