

# Syllabus

## Surface Chemistry

Course Name	Course type (credit/hours)	전선(3/3)			Course code	
	Target students Division/major/grade	/			Opening semester	2017년 1학기
	Class time and classroom	월9(전109) 월10(전109) 월11(전109)(전109)				
Reference to this course	Related basic courses					
	Recommended concurrent courses					
	Related advanced courses					
Instructor	Name (title/division)		김유권 (조교수/ 대학원에너지시스템 학부)			
	Office Room Number		Office phone Number	2896	e-mail	yukwonkim@ajou.ac.kr
	Office hours		Homepage address			
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

### 1. Introduction

This lecture deals with various surface chemical issues including molecular adsorption and desorption as well as surface modification/reconstruction induced by adsorbates. Eventually, the theme converges into heterogeneous catalytic processes on solid surfaces. The fundamental laws of surface chemistry are deliberately used to explain complex heterogeneous catalytic processes. At this point, students are driven to the issue of how fundamental science meets chemical engineering at solid surfaces.

### 2. Course Objectives

### 3. Class types and activities

#### 4. Teaching Method

The lecture notes are prepared based on reference books and are provided. The class is organized into lecture and discussion. Based on the lecture note, the fundamental knowledges on surface chemistry are discussed and the advanced issues are discussed in a group discussion or in a presentation form. Active involvement in the discussion is required. At the same time, one quiz and one final exam are taken in this class.

#### 5. Knowledge and ability required for taking this course

#### 6. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance			
midterm exam			
final exam			
quiz			
presentation			
discussion			
homework			
etc			

Mid-term quiz	40%
Final exam	40%
Attendance	20%

## 7. Textbooks

Main/Sub	Title	Writer	Publisher	Publication year
주교재	Surface Science (Foundations of Catalysis and Nanoscience) 3rd ed.	Kurt W. Kolasinski	Wiley	2012
참고자료	Surface Chemistry	Elaine M. McCash	Oxford	2001

## 8. Lecture Schedule

Week	Lecture contents	Lesson type	Remark
1	Introduction Surface structure and Adsorbate Structure	Lecture/Seminar	
2	Experimental Probes and Techniques	Lecture/Seminar	
3	Experimental Probes and Techniques	Lecture/Seminar	
4	Chemisorption Physisorption and Dynamics	Lecture/Seminar	
5	Chemisorption Physisorption and Dynamics	Lecture/Seminar	
6	Thermodynamics and Kinetics of Adsorption and Desorption	Lecture/Seminar	
7	Thermodynamics and Kinetics of Adsorption and Desorption	Lecture/Seminar	
8	Midterm exam	Exam	
9	Liquid Interfaces	Lecture/Seminar	
10	Heterogeneous Catalysis	Lecture/Seminar	
11	Heterogeneous Catalysis	Lecture/Seminar	
12	Growth and Epitaxy	Lecture/Seminar	
13	Growth and Epitaxy	Lecture/Seminar	
14	Laser and Non-thermal chemistry	Lecture/Seminar	
15	Laser and Non-thermal chemistry	Seminar	
16	Final exam	Exam	

9. Others

All participants are given a chance to present in English and are encouraged to discuss and communicate in english.