

**2022 Fall**  
**458-622**  
**Advanced Surface Chemistry**  
**표면화학특론**

**LECTURER:** Professor Yung-Eun Sung (성영은)  
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Lecture homepage: New eTL in SNU, (<http://peel.snu.ac.kr/>)

**OUTLINE**

This class deals with basic principles of surface and interface at solid and liquid. Those include structures and adsorbates, experimental techniques, thermodynamics & kinetics on surface, liquid interfaces, and applications to catalysis and nanoscience.

**TEXTBOOKS**

Kurt W. Kolasinski, Surface Science – Foundations of Catalysis and Nanoscience (4th edition), Wiley. 2020. (3rd edition(2012) and old Versions are all right.) (e-book (3<sup>rd</sup> edition) available in SNU Library)

**REFERENCES**

G. A. Somorjai, Introduction to Surface Chemistry and Catalysis, John Wiley, 2010.  
(e-Book available in SNU Library)

Duncan J. Shaw, Introduction to Colloid and Surface Chemistry, John Wiley.  
(Korean reference: 임재석, 임굉, 콜로이드과학 및 표면화학, 내하출판사, 2015)

R.M. Pashley, Applied Colloid and Surface Chemistry, 2nd ed., Wiley, 2021.

R.J.D. Tilley, Crystals and Crystal Structures, 2nd ed., Wiley, 2020.

R.J.D. Tilley, Understanding Solids – The Science of Materials, 3rd ed., Wiley, 2021.

**SCHEDULES (may be modified)**

1. Introduction to Surfaces (Introduction) (1 week)
2. Surface and Adsorbate Structure (ch.1) (2-3 weeks)
3. Experimental Probes and Techniques (ch.2) (4-5 weeks)
4. Chemisorption, Physisorption and Dynamics (ch.3) (6-7 weeks)
5. Thermodynamics and Kinetics of Adsorption and Desorption (ch.4) (8-9 weeks)
- 6A-D. Liquid Interfaces (ch.5 and others) (10-13 weeks including Midterm Exam)
7. Application to Catalysis (ch.6) (14 weeks)
8. Application to Nanoscience (ch.7) (15 weeks), Final Exam

**GRADING ( $\geq B^+$  <80%, or Department guide)**

Midterm Exam 40%, Final Exam 40%, Homeworks & Attendance 20 %

**LECTURE ROOM & TIME:** Rm #302-409, 09:30-10:45 Mon. & Wed.

- \*Lectures on National Holidays (in classroom, or online zoom and zoom file available)
- \*Lectures will be provided by online zoom and/or zoom file for official business trips
- \*No make-up (all lectures & exams will be in scheduled class hours)

**OFFICE HOUR:** Rm #302-721, 11:00-12:00 or afternoon Mon. & Wed.

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