

College of Natural Sciences  
School of Chemistry and  
Energy  
at Sungshin Women's University







## School Introduction

School of Chemistry and Energy, founded to nurture talents in the closely linked fields of chemistry and energy, is based on the comprehensive study of substances in chemistry. It integrates diverse applications, aiming to cultivate skilled individuals for the chemistry and energy sectors. The department operates with majors in chemistry and energy, envisioning them as promising future growth drivers capable of creating sustained high added value. It offers a structured curriculum through the interconnected and integrated micro and macro approaches of the two majors.

## Chemistry Major

This track focuses on education in chemistry and applied chemistry, covering various chemical reactions from a microscopic perspective. It aims to cultivate experts who research, develop, and produce in fields such as chemistry, petroleum chemistry, material chemistry, pharmaceuticals, and cosmetics. The chemistry major in this department provides theoretical education based on common curricula found in renowned chemistry programs worldwide, along with hands-on, small-scale laboratory experiments using state-of-the-art facilities and equipment.

## Smart Energy Major

This track focuses on energy chemistry education, covering the fundamentals of chemistry and energy generation, conversion/transformation, and storage. It aims to cultivate experts who research, develop, and produce materials chemistry, batteries, and related areas. The Energy major in this department specializes in the energy field corresponding to specific research areas within chemistry. Students receive foundational chemistry education in the first two years, followed by specialized energy education in the latter years, integrating theory and laboratory experiments.

# Professors



**Park Seongsoon, PhD**

Field	Biocatalysis and Biomimetics
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**Koo Bonjae, PhD**

Field	Heterogeneous catalysis for high-valued chemicals
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**Chae Junghyun, PhD**

Field	Organic chemistry
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**Cho Junsang, PhD**

Field	Halide Perovskite Optoelectronics
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**Yi Cheolwoo, PhD**

Field	Physical Chemistry (Surface Chemistry)
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**Park Sohyun, PhD**

Field	chemistry (organic, material)
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**Shin Minjeong, PhD**

Field	Next Generation Batteries
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**Ma Sunihl, PhD**

Field	Chiral Materials for Next-Generation Energy Conversion Process
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# Curriculum

## Freshman



Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Chemistry and Energy	Primary	General Chemistry Experiment 1 (CI000300)	Annual	First	2	
School of Chemistry and Energy	Primary	General Chemistry Experiment 2 (CI000600)	Annual	Second	2	



# Curriculum

## Sophomore >>>

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Chemistry and Energy	Primary	Physical Chemistry 1(CI000700)	Annual	First	3	
School of Chemistry and Energy	Primary	Organic Chemistry 1(CI000800)	Annual	First	3	
School of Chemistry and Energy	Primary	Analytical Chemistry 1 (CI000900)	Annual	First	3	
School of Chemistry and Energy	Primary	Analytical Chemistry Experiment (CI001000)	Annual	First, Second	2	
School of Chemistry and Energy	Primary	Biochemistry 1(CI001100)	Annual	First	3	
School of Chemistry and Energy	Primary	Physical chemistry 2(CI001200)	Annual	Second	3	
School of Chemistry and Energy	Primary	Organic chemistry 2(CI001300)	Annual	Second	3	
School of Chemistry and Energy	Primary	Organic Chemistry Experiment (CI001400)	Annual	First, Second	2	
School of Chemistry and Energy	Primary	Analytical Chemistry 2 (CI001500)	Annual	Second	3	
School of Chemistry and Energy	Primary	Biochemistry 2(CI001600)	Annual	Second	3	
School of Chemistry and Energy	Primary	Introduction to Energy Engineering(CI003500)	Annual	First	3	
School of Chemistry and Energy	Primary	Chemistry and Energy (CI003700)	Annual	Second	3	

# Curriculum

## Junior >>>

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Chemistry and Energy	Advanced	Inorganic Chemistry 1(CI001700)	Annual	First	3	
School of Chemistry and Energy	Advanced	Inorganic Chemistry Experiment (CI001800)	Annual	First	2	
School of Chemistry and Energy	Advanced	Organic Spectroscopy(CI001900)	Annual	First	3	
School of Chemistry and Energy	Advanced	Physical Chemistry 3(CI002000)	Annual	First	3	
School of Chemistry and Energy	Advanced	Biochemistry Lab(CI002100)	Annual	First	2	
School of Chemistry and Energy	Advanced	Inorganic chemistry 2 (CI002400)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Organic chemistry 3(CI002500)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Physical chemistry experiment(CI002600)	Annual	Second	2	
School of Chemistry and Energy	Advanced	Instrumental Analysis(CI002700)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Enzyme Chemistry(CI002900)	Annual	Second	3	



# Curriculum



Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Chemistry and Energy	Advanced	Chemical Reaction Engineering (CI003400)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Electrochemistry(CI003800)	Annual	First	3	
School of Chemistry and Energy	Advanced	Energy Conversion and Storage (CI003900)	Annual	First	3	
School of Chemistry and Energy	Advanced	Experiments in Chemistry and Energy(CI004000)	Annual	Second	2	



# Curriculum

## Senior >>>

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Chemistry and Energy	Advanced	Organic Chemistry Special lecture (CI003000)	Annual	First	3	
School of Chemistry and Energy	Advanced	Physical Chemistry special lecture (CI003100)	Annual	First	3	
School of Chemistry and Energy	Advanced	Inorganic Chemistry special Lecture(CI003200)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Synthetic Organic Chemistry (CI003300)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Heat and Mass Transfer (CI003600)	Annual	First	3	
School of Chemistry and Energy	Advanced	Catalysis for Energy(CI004100)	Annual	First	3	
School of Chemistry and Energy	Advanced	Research Project 1(CI004200)	Annual	First	3	
School of Chemistry and Energy	Advanced	Nanomaterials Chemistry (CI004300)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Surface Chemistry(CI004400)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Energy Chemistry Special Lecture (CI004500)	Annual	Second	3	
School of Chemistry and Energy	Advanced	Research Project 2(CI004600)	Annual	Second	3	





## Required General Education

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
School of Creativity and Convergence Studies	Core	Critical Thinking and Discussion (SA011100)	Annual	First	3	
School of Creativity and Convergence Studies	Core	Creative thinking and writing (SA011200)	Annual	Second	3	
College of Knowledge-Based Services Engineering	Core	Python Programming for Scientists(SA046600)	Annual	Second	3	
School of Mathematics, Statistics and Data Science	Core	Introduction to Calculus and Vector Analysis(SA045900)	Annual	First	3	
School of Mathematics, Statistics and Data Science	Core	Advanced Mathematics for Natural Sciences(SA046000)	Annual	Second	3	
School of Chemistry and Energy	Distribution	General Chemistry I (SB030300)	Annual	First	3	
School of Chemistry and Energy	Distribution	General Chemistry II (SB030400)	Annual	Second	3	

## Required General Education >>>

Department	Completion Type	Course Title (Course Code)	Schedule	Semester	Credit	Remarks
Department of Biotechnology	Distribution	General Biology I (SB030500)	Annual	First	3	General Biology I or General Physics I
Department of Biotechnology	Distribution	General Biology II (SB030600)	Annual	Second	3	General Biology II or General Physics II
School of Chemistry and Energy	Distribution	General Physics I (SB030700)	Annual	First	3	General Biology I or General Physics I
School of Chemistry and Energy	Distribution	General Physics II (SB030800)	Annual	Second	3	General Biology II or General Physics II
Career Development Team	Career	Career Exploration by Major (SS010000)	Annual	First	1	



**SUNGSHIN**  
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