

# Department of Next Generation Applied Sciences

Graduate School  
Sungshin Univ.



성신여자대학교 | 대학원  
SUNGSHIN WOMEN'S UNIVERSITY | GRADUATE SCHOOL

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The purpose of the Department of Future Applied Sciences is to cultivate professional talents necessary to promote the development of engineering such as biotechnology, medical engineering, chemical engineering, medicine, food science, veterinary and livestock science, and the development of the industrial economy by utilizing the synergy from the convergence research of basic and applied sciences. Related majors include biology and medicine, food science, and chemistry and engineering.

In line with the purpose of the department, the Department of Future Applied Science aims to cultivate talented people who lead the scientific and industrial development of the present and future society, and to cultivate professional talents who build the foundation for the scientific and industrial development of the present and future society.

1. Cultivating talent to lead the scientific and industrial development of the future society
2. Training professionals who build the foundation for future social scientific and industrial development

## **Introduction to the department (and its history)**

## **Education and characterization objectives of the department**

course number	Course title	credit
1000007	Advanced Materials Science	3
1000008	Advanced Renewable Energy	3
1000009	Advanced Analytical Tools	3
1000136	Industrial Microbiology	3
1000137	Microbial Fermentology	3
263605	Bioengineering I	3
263606	Bioengineering II	3
263637	Social responsibility	3
263639	Advanced Applied Microbiology	3
1000363	Research in Current Topics6	3
1000364	Quantitative and qualitative analysis for volatile compounds in foods	3
1000365	Research in Current Topics5	3
1000366	Microbial Engineering	3
1000367	Microbial Enzymology	3
1000368	Nanomaterials Engineering	3
1000534	Development of Analytical Methods in the Field of Food Analysis	3
1000535	Advanced Nanofabrication Technology	3
1000536	Photoelectrochemistry for Environmental and Energy Applications	3
1000537	Advanced Energy Materials Engineering	3
1000674	Fundmetal Engineering Writing	3
1000675	Solid State Devices:Chemical Sensor	3
1000676	Advanced Energy Nanochemistry	3
1000677	Fuel cells and hydrogen society	3
1000678	Advanced catalytic reaction engineering	3
263400	Introduction to Convergence Science	3
263401	Environments and Energy	3
263402	Introduction to Material Science	3
263403	Environmental Ecology	3
263601	Next Generation Applied Sciences Seminar I	3
263602	Next Generation Applied Sciences Seminar II	3
263603	Advanced Experimental Methodology I	3
263604	Advanced Experimental Methodology II	3
263607	Biomedical Engineering I	3
263608	Biomedical Engineering II	3

course number	Course title	credit
263609	Advanced Tissue Engineering	3
263610	Advanced Biophysics	3
263611	Nithch & Medical Life Sciences	3
263612	Computational Neurobiology	3
263613	Molecular Virology	3
263614	Moleclar Pharmacology	3
263615	Pathological Physiology	3
263616	Pathological Genetics	3
263617	Chemical Biology	3
263618	Evolution and Food	3
263619	Biomedical Genomics	3
263620	Convergent Biosciences for Obesity	3
263621	Development of Functional food materials	3
263622	Food Bioengineering	3
263623	Molecular Nutritional Approach for the Study of Human Diseases	3
263624	Environmental and Molecular Toxicology	3
263625	Chemical Engineering I	3
263626	Chemical Engineerng II	3
263627	Special Topics in Physical Chemistry	3
263628	Special Topics in Inorganic Chemistry	3
263629	Special Topics in Analytical Chemistry	3
263630	Special Topics in Biochemistry	3
263631	Special Topics in Organic Chemistry	3
263632	Environmental Management	3
263633	Ecodesign	3
263634	Life Cycle Assessment	3
263635	Advanced Biostatistics	3
263636	Carbon Management	3
263638	Convergence of Science and Technology	3
263640	International Convention and Regulation of Environment	3
263641	Convergence of science and technology II	3
263642	Research in Current Topics 1	3
263643	Research in Current Topics 2	3
263644	Research in Current Topics 3	3

## Curriculum

course number	Course title	credit
263645	Research in Current Topics 4	3
263646	Advanced Chemical Biology I	3
263647	Advanced Chemical Biology II	3
263648	Applied Reproductive Physiology	3
263649	Advanced Bioorganic Chemistry I	3
263650	Advanced Bioorganic Chemistry II	3
263651	Advanced materials recycling	3
263652	Advanced Biochemistry	3
263653	Advanced Chemistry	3
263654	Advanced Organic Chemistry	3
263655	Advanced Microbiology	3