



# Integrated Chemistry

Faculty of Science, Kasetsart University



# Bachelor of Science Program in Integrated Chemistry (International Program)

## Course structure

<b>(1) General education courses</b>	<b>at least</b>	<b>30</b>	<b>credits</b>
- Wellness courses	at least	6	credits
01175xxx Physical Education Activity			1(0-2-1)
- Entrepreneurship courses	at least	3	credits
- Language and communication courses	at least	13	credits
- Foreign language 1 language			9( - - )
- Thai language			3( - - )
- Information technology and computer			1( - - )
- Thai citizen and global citizen courses	at least	5	credits
01999111 Knowledge of the Land			2(2-0-4)
- Aesthetics courses	at least	3	credits

<b>(2) Specific requirement courses</b>	<b>at least</b>	<b>90</b>	<b>credits</b>
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<b>Core courses</b>		<b>24</b>	<b>credits</b>
01403113 Basic Chemistry I			3(3-0-6)
01403115 General Chemistry II			3(3-0-6)
01403118 Basic Chemistry Laboratory			1(0-3-2)
01417111 Calculus I			3(3-0-6)
01417112 Calculus II			3(3-0-6)
01420115 Laboratory in Abridged Physics			1(0-3-2)

01420119	Abridged Physics	3(3-0-6)
01422111	Principles of Statistics	3(3-0-6)
01424111	Principles of Biology	3(3-0-6)
01424112	Laboratory in Biology	1(0-3-2)

**Compulsory courses**

**45**

**credits**

01402301	General Biochemistry	3(3-0-6)
01402312	Laboratory in Biochemistry I	1(0-3-2)
01403181	Chemical Safety and Management	1(1-0-2)
01403211	Inorganic Chemistry I	3(3-0-6)
01403223	Organic Chemistry I	3(3-0-6)
01403224	Organic Chemistry II	3(3-0-6)
01403225	Organic Chemistry Laboratory I	1(0-3-2)
01403226	Organic Chemistry Laboratory II	1(0-3-2)
01403231	Chemical Quantitative Analysis	2(2-0-4)
01403232	Laboratory in Chemical Quantitative Analysis	2(0-6-3)
01403242	Physical Chemistry I	4(3-3-8)
01403243	Physical Chemistry II	4(3-3-8)
01403291	Chemical Literature	1(1-0-2)
01403313	Inorganic Chemistry II	3(3-0-6)
01403331	Instrumental Analysis I	3(3-0-6)
01403332	Instrumental Analysis II	2(2-0-4)
01445311	Laboratory of Instrumental Inorganic Analysis	2(0-6-3)
01445461**	Quality Assurance System in Chemistry	3(3-0-6)

01445497	Seminar		1
01445499	Research Project in Integrated Chemistry		2(0-6-3)
<b>Major elective courses</b>		<b>21</b>	<b>credits</b>
<b>- Biological Chemistry</b>			
		<b>18</b>	<b>credits</b>
01403321	Organic Reaction Mechanisms		3(3-0-6)
01403322	Reactions and Synthesis of Organic Compounds		3(3-0-6)
01403325	Fundamentals of Natural Products		3(3-0-6)
01403381	Spectroscopy of Organic Compounds		3(3-0-6)
01403422	Introduction to Theoretical Organic Chemistry		3(3-0-6)
01403424	Biological Chemistry		3(3-0-6)
01445321	Principals of Medicinal Chemistry		3(3-0-6)
01445322	Biomolecular Simulations		3(3-0-6)
		<b>3</b>	<b>credits</b>
01403425	Applied Organic Chemistry		3(3-0-6)
01445496	Selected Topic in Integrated Chemistry		3(3-0-6)
01445498	Special Problems		1
<b>- Industrial and Material Chemistry</b>			
		<b>18</b>	<b>credits</b>
01202211	Basic Principles and Calculations in Chemical Engineering		4(4-0-8)
01403413	Spectroscopic Applications to Inorganic Materials		3(3-0-6)
01445312**	Fundamentals of Materials Chemistry		2(2-0-4)

01445313	Materials Foundation for Energy Application	3(3-0-6)
01445314**	Physical Chemistry for Materials Science	2(2-0-4)
01445315	Computer Simulation for Materials Science	3(2-3-6)
01446211	Introduction to Industrial Chemistry	3(3-0-6)
01446221	Basic Principles in Chemical Technology	2(2-0-4)
01446311	Industrial Chemistry Processes	3(3-0-6)
	<b>3</b>	<b>credits</b>
01403414	Applied Inorganic Chemistry	3(3-0-6)
01445351	Introduction to Unit Operations	4(4-0-8)
01445352	Environmental Chemistry for Industry	3(3-0-6)
01445496	Selected Topic in Integrated Chemistry	3(3-0-6)
01445498	Special Problems	1
01446331	Hydrocarbon Processing	3(3-0-6)
01446341	Polymer Chemistry I	3(3-0-6)
01446431	Petrochemistry	3(3-0-6)
01446441	Rubber and Latex	2(2-0-4)
01446451	Chemistry of Gemstones	3(3-0-6)

**(3) Free elective courses**

**at least**

**6 credits**