

## Bachelor of Science Program in Environmental Science (International Program)

### 1. Code and Program Title

In Thai	หลักสูตรวิทยาศาสตรบัณฑิต สาขาวิชาวิทยาศาสตร์สิ่งแวดล้อม (หลักสูตรนานาชาติ)
In English	Bachelor of Science Program in Environmental Science (International Program)

### 2. Title of Degree and Field of Study

In Thai	Full Title	วิทยาศาสตรบัณฑิต (วิทยาศาสตร์สิ่งแวดล้อม)
	Abbreviation	วท.บ. (วิทยาศาสตร์สิ่งแวดล้อม)
In English	Full Title	Bachelor of Science (Environmental Science)
	Abbreviation	B.Sc. (Environmental Science)

### 3. Major Subject (If Applicable) -

### 4. Career Opportunities after Graduation

- 1) Graduates can work as teachers or teaching assistants in the field of Environmental Science at any academic institute.
- 2) Graduates can work as teachers in the field of Environmental Science at any international schools.
- 3) Graduates can work in Research and Development departments of any company or manufacturer dealing in Environmental products.
- 4) Graduates can work in quality control or quality assurance positions.
- 5) Graduates can work as research assistants in research institutes or on research programs/projects either in Thailand or abroad.
- 6) Graduates can work in scientific instruments trading and services in both private and governmental sectors.
- 7) Graduates can continue their studies for a higher degree in any field of Environmental Science.
- 8) Graduates can continue their studies for a professional degree in the related fields such as Environmental Science, Environmental Biology, Ecology and Conservation, Ecotourism, etc.
- 9) Graduates can become the owner of companies that sell products and/or services in the field of Environmental Science, Environmental Biology, Ecology and Conservation, Ecotourism, etc.

### 5. Total Credits Required

**No less than 186 credits**

Note: If students are placed into the 'Advanced Track' for their General Education requirement in English Communication, 4 credits of General Education in English Communication will be waived.

### 6. Program Structure

1) Foundation Courses	<b>Non-credit</b>
2) General Education Courses	<b>44 credits</b>
- English Communication	16 credits

- Natural Sciences	8 credits
- Humanities and Foreign Languages	8 credits
- Social Sciences	8 credits
- Physical Education	4 credits
<b>3) Major Courses</b>	<b>134 credits</b>
- Core Science Courses	38 credits
- Required Major Courses	60 credits
- Elective Major Courses	36 credits
<b>4) Free Electives</b>	<b>8 credits</b>

### Foundation Courses

ICID 100	Freshman Seminar	0
ICME 100	English Resource Skills	0
ICMA 100	Foundation Mathematics	0

**Note I:** All students must take ICID 100 Freshman Seminar, a non-credit course.

**Note II:** Students whose English placement is below ICGC 101 Academic Writing and Research I are required to take ICME 100 English Resource Skills and pass the course with the grade of "S" before moving to ICGC 101 Academic Writing and Research I

**Note III:** Students whose Mathematics placement is below ICMA 151 Statistics for Science I are required to take ICMA 100 Foundation Mathematics and pass the course with the grade of "S" before moving to ICMA 151 Statistics for Science I.

**General Education** **44 credits**

**English Communication** **16 credits**

ICGC 101	Academic Writing and Research I	4
ICGC 102	Academic Writing and Research II	4
ICGC 103	Public Speaking	4
ICGC 111	Academic Writing and Research I (Advanced)	4
ICGC 112	Academic Writing and Research II (Advanced)	4
ICGC 201	Global Realities	4
ICGC 202	Literary Analysis	4
ICGC 203	Creative Writing	4
ICGC 204	Advanced Oral Communication	4
ICGC 205	Linguistics	4
ICGC 206	Literature Into Film	4
ICGC 207	Diverse English Speaking Cultures	4
ICGC 208	Language and Culture	4

ICGC 209	The Story of English	4
ICGC 210	First and Second Language Acquisition	4
ICGC 211	Topics in Comparative Literature A: Poetry	4
ICGC 212	Topics in Comparative Literature B: The Short Story and the Novel	4
ICGC 213	Topics in Comparative Literature C: Drama	4

Note I: Students who are qualified to take ICGC 111 and 112 (Academic Writing and Research I and II (Advanced)) may choose additional English Communication course to meet the minimum requirement of 12 credits.

Note II: Students who are required to take ICGC 101, 102, and 103 (Academic Writing and Research I and II, and Public speaking) will have to choose a fourth course in English Communication. Thus, total credits for English Communication will be 16.

## Natural Sciences

8 credits

- **Scientific and Environmental Literacy**

ICGN 101	Decision Mathematics	4
ICGN 102	Essential Mathematics	4
ICGN 103	Essential Statistics	4
ICGN 104	Mathematics and Its Contemporary Applications	4
ICGN 105	Ecology, Ecosystems and Socio-Economics in Southeast Asia	4
ICGN 106	Climate Change and Human Society	4
ICGN 107	The Chemistry of Everyday Life	4
ICGN 108	Essentials of Culinary Science for Food Business	4
ICGN 109	Food for Health	4
ICGN 110	Maker Workshop	4
ICGN 111	Physics for CEO	4
ICGN 112	Stargazer	4
ICGN 113	Plants, People and Poisons	4
ICGN 114	The Scientific Approach and Society	4
ICGN 115	Human Evolution, Diversity and Health	4

- **ICT and Digital Literacy**

ICGN 116	Understanding and Visualizing Data	4
ICGN 117*	Technology behind E-Business and Digital Strategies	4
ICGN 118	Everyday Connectivity	4
ICGN 119	Computer Essentials	4

\* All students must take ICGN 117

## Humanities and Foreign Languages

8 credits

### Humanities

- **Logical and Ethical Literacy**

ICGH 101	Biotechnology: from Science to Business	4
ICGH 102	Famous Arguments and Thought Experiments in Philosophy	4
ICGH 103	Logic, Analysis and Critical Thinking: Good and Bad Arguments	4
ICGH 104	Moral Reasoning: How can we know what is good?	4
ICGH 105	Technology, Philosophy and Human Kind: Where Are We Now?!	4
ICGH 106	The Greeks: Crucible of Civilization	4

- **Arts and Media Literacy**

ICGH 107	Contemporary Art and Visual Culture	4
ICGH 108	Creative Drawing Expression	4
ICGH 109	Creative Thinking Through Art and Design	4
ICGH 110	Drawing as Visual Analysis	4
ICGH 111	Media Literacy: Skills for 21st Century Learning	4
ICGH 112	Photography	4
ICGH 113	Moving Pictures: A History of Film	4
ICGH 114	The Sound of Music: Form, Emotion, and Meaning	4

### Foreign Languages

- **German**

ICGL 101	Elementary German I	4
ICGL 102	Elementary German II	4
ICGL 103	Elementary German III	4

- **Japanese**

ICGL 111	Elementary Japanese I	4
ICGL 112	Elementary Japanese II	4
ICGL 113	Elementary Japanese III	4

- **French**

ICGL 121	Elementary French I	4
ICGL 122	Elementary French II	4
ICGL 123	Elementary French III	4

- **Chinese**

ICGL 131	Elementary Chinese I	4
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ICGL 132	Elementary Chinese II	4
ICGL 133	Elementary Chinese III	4

- **Spanish**

ICGL 141	Elementary Spanish I	4
ICGL 142	Elementary Spanish II	4
ICGL 143	Elementary Spanish III	4

- **Thai**

ICGL 160	Introduction to Thai Language and Culture	4
ICGL 161	Elementary Thai I	4
ICGL 162	Elementary Thai II	4
ICGL 163	Elementary Thai III	4

**Social Sciences**

**8 credits**

- **Financial, Economic Scientific and Environmental Literacy**

ICGS 103*	Economics in Modern Business	4
ICGS 104*	Essentials of Entrepreneurship	4

\* All students must take ICGS 103 and ICGS 104

**Physical Education**

**4 credits**

ICGP 101	American Flag Football	1
ICGP 102	Badminton	1
ICGP 103	Basketball	1
ICGP 104	Body Fitness	1
ICGP 105	Cycling	1
ICGP 106	Discover Dance	1
ICGP 107	Golf	1
ICGP 108	Mind and Body	1
ICGP 109	Selected Topics in Sports	1
ICGP 110	Self Defense (Striking)	1
ICGP 111	Self Defense (Grappling)	1
ICGP 112	Soccer	1
ICGP 113	Social Dance	1
ICGP 114	Swimming	1
ICGP 115	Tennis	1
ICGP 116	Volleyball	1

**Major Courses**

**134 credits**

**Core Science Courses****38 credits**

ICBI 101	Biology	4
ICBI 102	Integrated laboratory in Biological Sciences I	2
ICCH 210	General Chemistry I	4
ICCH 224	Integrated Laboratory Techniques in Chemistry I	2
ICEN 331	Soil, Land Use and Degradation	4
ICEN 403	Principle of Environmental Informatics	4
ICEN 464	Water Resources Management	4
ICMA 151	Statistics for Science I	4
ICMA 252	Biological Statistics Laboratory	2
ICPY 101	Physics I	4
ICSC 302	Scientific Research and Presentations	4

**Required in Environmental Science Courses****60 credits**

ICCH 211	General Chemistry II	4
ICCH 221	Organic chemistry I	4
ICEN 211	Fundamentals and Applications of Environmental Microbiology	4
ICEN 212	Ecological Systems Analysis	4
ICEN 241	Environmental Pollution I	4
ICEN 312	Environmental Toxicology	4
ICEN 341	Environmental Quality Analysis I	4
ICEN 342	Environmental Pollution II	4
ICEN 343	Environmental Quality Analysis II	4
ICEN 351	Population and the Environment	4
ICEN 361	Principles of Environmental Impact Assessment	4
ICEN 393	Practical Training in Environment	2
ICEN 402	Geoinformatics	4
ICEN 491	Seminar in Environmental Science	2
ICEN 492	Environmental Field Excursions	2
ICEN 496	Senior Project in Environmental Science	6

**Elective Environmental Science Courses****36 credits**

ICBI 103	Biology II	4
ICBI 215	General Biochemistry	4
ICBI 216	Cell Biology	4
ICBI 231	Plant Biology	4
ICBI 262	Practical Field Ecology and Conservation	4
ICBI 221	Animal Biology	4
ICBI 311	Human Physiology	4
ICBI 440	Marine Ecology and Conservation	4

ICBI 442	Practical Marine Ecology and Conservation	2
ICCH 311	Analytical Chemistry	4
ICEN 301	Basic Environmental Statistics	4
ICEN 313	Waste Minimization and Clean Technology	4
ICEN 314	Tropical Ecology	4
ICEN 317	Aquatic Ecology	4
ICEN 318	Aquatic Ecology Field Course	4
ICEN 319	Conservation Biology	4
ICEN 320	Population and Community Ecology	4
ICEN 332	Introduction to Oceanography	4
ICEN 352	Environmental and Resource Economics	4
ICEN 362	Natural Resource Conservation and Management	4
ICEN 391	Sustainable Development	4
ICEN 392	Environmental Issues: Past, Present and Future	4
ICEN 401	Applied Mathematics for Environment Studies	4
ICEN 411	Climate Change and Its Impact	4
ICEN 413	Environmental Remediation Technology	4
ICEN 414	Waste Utilization	4
ICEN 415	Biodiversity	4
ICEN 416	Ecotoxicology	4
ICEN 421	Water and Wastewater Treatment	4
ICEN 422	Solid and Hazardous Wastes Management	4
ICEN 431	Land Use and Urban Environmental Planning	4
ICEN 432	Global Geomorphology	4
ICEN 441	Occupational Health and Safety	4
ICEN 460	Ecotourism	4
ICEN 461	Energy Conservation and Development	4
ICEN 462	Coastal and Marine Resources	4
ICEN 465	Resource Inventory and Baseline Studies Methods	4
ICEN 466	Environmental Management Systems	4
ICEN 467	Environmental Risk Assessment and Management	4
ICEN 468	Environmental Management Policy นโยบายการจัดการสิ่งแวดล้อม	4
ICEN 469	Heritage Conservation	4
ICEN 483	Physical Planning and Environment	4
ICEN 484	Climate Change Mitigation and Adaptation to Changing Disasters	4

### Free Elective Courses

8 credits

Students can take any courses offered by Mahidol University as a free elective course with approval from the advisor except in Natural Science group.





# Mahidol University

## International College