

- **International Standard Program in Biology**

The International Standard Program in Biology started in 2009 with the collaboration from Tufts University (U.S.A). The total minimum required number of credits is 162.

- <b>General education knowledge</b> ( <i>not including physical education, military defense education, and soft skills</i> )	<b>38 credits</b>
- <b>Basic courses:</b>	<b>6 credits</b>
- <b>Fundamental courses:</b>	<b>28 credits</b>
- <b>Core courses:</b>	<b>41 credits</b>
+ <i>Required:</i>	<i>29 credits</i>
+ <i>Elective:</i>	<i>12/21 credits</i>
- <b>Advanced courses</b>	<b>49 credits</b>
+ <i>Required:</i>	<i>27 credits</i>
+ <i>Elective:</i>	<i>9 credits</i>
+ <i>Practice and Undergraduate thesis:</i>	<i>13 credits</i>

### Available curriculum

No	Code	Subjects	Credits	Credit hours			Prerequisite
				Lecture	Practice	Self-study	
<b>I</b>		<b>General education knowledge</b> <i>(Not including subjects 12-14)</i>	<b>38</b>				
1	PHI1004	<i>Fundamental Principles of Marxism - Leninism 1</i>	2	24	6		
2	PHI1005	<i>Fundamental Principles of Marxism - Leninism 1</i>	3	36	9		PHI1004
3	POL1001	<i>Ho Chi Minh Ideology</i>	2	20	10		PHI1005
4	HIS1002	<i>The Revolutionary Line of the Communist Party of Vietnam</i>	3	42	3		PHI1005

No	Code	Subjects	Credits	Credit hours			Prerequisite
				Lecture	Practice	Self-study	
5	INT1003	<i>Introduction to Informatics 1</i>	2	10	20		
6	INT1005	<i>Introduction to Informatics 1</i>	2	12	18		INT1003
7	FLF2101	<i>General English 1</i>	4	16	40	4	
8	FLF2102	<i>General English 2</i>	5	20	50	5	FLF2101
9	FLF2103	<i>General English 3</i>	5	20	50	5	FLF2102
10	FLF2104	<i>General English 4</i>	5	20	50	5	FLF2103
11	FLF2105	<i>General English 5</i>	5	20	50	5	FLF2104
12		<i>Physical Education</i>	4				
13		<i>National Defense Education</i>	8				
14		<i>Soft Skills</i>	3				
<b>II</b>		<b>Basic courses</b>	<b>6</b>				
15	HIS1056	<i>Fundamentals of Vietnamese Culture</i>	3	42	3		
16	GEO1050	<i>Earth and Life Sciences</i>	3	30	10	5	
<b>III</b>		<b>Fundamental courses</b>	<b>28</b>				
17	MAT109 0	<i>Linear Algebra</i>	3	30	15		
18	MAT109 1	<i>Calculus 1</i>	3	30	15		
19	MAT119 2	<i>Calculus 2</i>	2	20	10		MAT1091
20	MAT110 1	<i>Probability and Statistics</i>	3	27	18		MAT1091
21	PHY1100	<i>Mechanics - Thermodynamics</i>	3	30	15		MAT1091
22	PHY1103	<i>Electromagnetism - Optics</i>	3	30	15		MAT1091
23	CHE1080	<i>General chemistry</i>	3	42		3	
24	CHE1081	<i>Organic chemistry</i>	3	42		3	CHE1080

No	Code	Subjects	Credits	Credit hours			Prerequisite
				Lecture	Practice	Self-study	
25	CHE1057	<i>Analytical chemistry</i>	3	42		3	CHE1080
26	CHE1069	<i>General chemistry Lab</i>	2		30		CHE1080
<b>IV</b>		<b>Core courses</b>	<b>41</b>				
<b>IV.1</b>		<b>Required</b>	<b>29</b>				
27	BIO2390	<i>English in Biology</i>	3	15	10	5	FLF2105
28	BIO2401	<i>Cell Biology</i>	3	40		5	
29	BIO2400	<i>Biochemistry</i>	3	40		5	CHE1080
30	BIO2402	<i>Molecular Biology</i>	3	30	10	5	BIO2400 BIO2401
31	BIO2403	<i>Microbiology</i>	3	30	10	5	BIO3402
32	BIO2404	<i>Developmental Biology</i>	3	30	10	5	BIO2401
33	BIO2405	<i>Human and Animal Physiology</i>	3	40		5	BIO2401 BIO3401
34	BIO2412	<i>Human Biology</i>	3	30	15	5	BIO2402 BIO2405
35	BIO2406	<i>Biostatistics</i>	3	30	10	5	MAT1192 MAT1101
36	BIO2407	<i>Scientific research I</i>	2	25		5	
<b>IV.2</b>		<b>Elective</b>	<b>12/21</b>				
37	BIO2408	<i>Immunology</i>	3	40		5	BIO2400
38	BIO2409	<i>Introduction to Biotechnology</i>	3	40		5	BIO2402
39	BIO2410	<i>Biophysics</i>	3	30	10	5	BIO2401 PHY1100 PHY1103
40	BIO2413	<i>Population and Community Ecology</i>	3	40		5	BIO3401 BIO3406

No	Code	Subjects	Credits	Credit hours			Prerequisite
				Lecture	Practice	Self-study	
41	BIO2414	<i>Principles of Conservation Biology</i>	3	40		5	BIO3403 BIO3405
42	BIO2415	<i>Marine Biology</i>	3	40		5	BIO3406
43	BIO2416	<i>Introduction to Environmental Ecology</i>	3	40		5	BIO3406
<b>V</b>		<b>Advanced courses</b>	<b>49</b>				
<b>V.1</b>		<b>Required</b>	<b>27</b>				
44	BIO3400	<i>Cells and Organisms</i>	4	40	15	5	MAT1101 CHE1080
45	BIO3401	<i>Organisms and Population</i>	4	40	15	5	BIO3400
46	BIO3402	<i>General Genetics</i>	3	30	10	5	BIO2400, BIO2401
47	BIO3403	<i>Botany w/lab</i>	4	40	15	5	
48	BIO2411	<i>Plant Physiology</i>	3	40		5	BIO2401, BIO3401
49	BIO3404	<i>Invertebrate Zoology w/lab</i>	3	30	10	5	
50	BIO3405	<i>Vertebrate Zoology w/lab</i>	3	30	10	5	BIO3404
51	BIO3406	<i>Basic Ecology</i>	3	30	10	5	BIO3403, BIO3405,
<b>V.2</b>		<b>Elective</b>	<b>9</b>				
<b>V.2.1</b>		<b>Specialized courses</b> <i>(Students choose one of the available specialized groups)</i>	<b>6</b>				
		<b>Group A: Biology of cells</b>	6/33				
52	BIO3407	<i>Human Genetics</i>	3	40		5	BIO2412, BIO3402
53	BIO3408	<i>Biochemistry &amp; Cellular Metabolism</i>	3	40		5	BIO2400

No	Code	Subjects	Credits	Credit hours			Prerequisite
				Lecture	Practice	Self-study	
54	BIO3409	<i>Medical Microbiology</i>	3	40		5	BIO2403, BIO2408
55	BIO3411	<i>Histology</i>	3	40		5	BIO2404
56	BIO3412	<i>Experiments in Genetics</i>	3	10	30	5	BIO3402
57	BIO3413	<i>Experiments in Molecular Biology</i>	3	10	30	5	BIO2401
58	BIO3414	<i>Recombinant DNA Technique</i>	3	10	30	5	BIO2402
59	BIO3415	<i>Experiments in Biochemistry</i>	3	10	30	5	BIO2400
60	BIO3416	<i>Biotechnology Processing projects Laboratory</i>	3	10	30	5	BIO2402, BIO2403
61	BIO3417	<i>Experiments in Microbiology</i>	3	10	35		BIO2401 BIO2403
62	BIO3418	<i>Experiments in Cell Biology</i>	3	10	35		BIO2401
		<b>Group B: Biology of organisms</b>	6/27				
63	BIO3419	<i>Plant Development</i>	3	40		5	BIO2411
64	BIO3220	<i>Basic Endocrinology</i>	3	40		5	BIO2405
65	BIO3221	<i>Reproductive physiology</i>	3	40		5	BIO2405
66	BIO3422	<i>Neurobiology</i>	3	40		5	BIO2405
67	BIO3423	<i>Experiments in Plant Physiology</i>	3	10	30	5	BIO2411
68	BIO3424	<i>Experiments in Animal Physiology</i>	3	10	30	5	BIO2405
69	BIO3247	<i>Experiments in Human Biology</i>	3	10	30	5	BIO2412, BIO3402
70	BIO3222	<i>Human Molecular Biology</i>	3	10	30	5	BIO2402, BIO2412
71	BIO3425	<i>Scientific Research: Lab-based Research or Biological Field</i>	3	10	30	5	

No	Code	Subjects	Credits	Credit hours			Prerequisite
				Lecture	Practice	Self-study	
		<i>Studies</i>					
		<b>Group C: Biology of populations</b>	6/21				
72	BIO3426	<i>Plants and Humanity</i>	3	40		5	BIO3403
73	BIO3427	<i>Evolutionary Ecology</i>	3	40		5	BIO3401, BIO3406
74	BIO3428	<i>General Entomology</i>	3	40		5	BIO3404
75	BIO3429	<i>General Hydrobiology</i>	3	40		5	BIO3404
76	BIO3430	<i>Fisheries Biology</i>	3	40		5	BIO2415, BIO3405
77	BIO3432	<i>Experiments in Ecology</i>	3	10	35	5	BIO3406
78	BIO3433	<i>Scientific Research: Lab-based Research or Biological Field Studies</i>	3	10	35	5	
<b>V.2.2</b>		<b><i>Supplemental</i></b>	<b>3/12</b>				
79	BIO3434	<i>Bioinformatics</i>	3	40		5	BIO2402
80	BIO3435	<i>Proteomics and Structural Biology</i>	3	40		5	BIO2402
81	BIO3436	<i>Basic virology</i>	3	40		5	BIO2402, BIO2403
82	BIO3237	<i>Evolutionary Biology</i>	3	40		5	BIO2203, BIO3406
<b>V.3</b>		<b><i>Practice and Undergraduate thesis</i></b>	<b>13</b>				
83	BIO4074	<i>Tropical Ecology and Conservation</i>	3	45			BIO3406
84	BIO4075	<i>Graduation thesis or final examination</i>	10				

<b>No</b>	<b>Code</b>	<b>Subjects</b>	<b>Credits</b>	<b>Credit hours</b>			<b>Prerequisite</b>
				<i>Lecture</i>	<i>Practice</i>	<i>Self-study</i>	
		<b>Total</b>	<b>162</b>				