

# THE DOCTORAL PROGRAMME

MAJOR: **Ecology**

CODE: **9420101.20**

(Issued under the Decision No. 4555/QĐ-ĐHQGHN, on August 20, 2018 by  
the Rector of the VNU- University of Science)

## PROGRAMME STRUCTURE

### 1. Summary of programme curriculum requirements

#### 1.1. For PhD students not holding master's degree

Students must complete the courses of the master's programme and the doctoral programme

Total credits for graduation: **136 credits:**

- Part 1: Supplementary courses (of the master's programme): 39 credits
  - + *General knowledge:* 3 credits
  - + *Basic and specialised knowledge:* 36 credits
- Part 2: Courses, seminars and overview essay of the doctoral programme: 17 credits
  - + Courses: 9 credits
    - *Compulsory:* 3 credits
    - *Elective:* 6 credits
  - + Seminars: 6 credits
  - + Overview Essay: 2 credits
- Part 3: Scientific research (Being compulsory for PhD students but not account for the credits of the Doctoral programme).
- Part 4: Participating in professional activities, assisting teaching and supporting training activities (Being compulsory for PhD students but not account for the credits of the Doctoral programme).
- Part 5: PhD dissertation: 80 credits.

#### 1.2. For PhD students holding master's degree in related discipline

Total credits for graduation: **112 credits:**

- Part 1: Supplementary courses (of the master's programme): 15 credits
  - + *Compulsory:* 6 credits
  - + *Elective:* 9 credits

- Part 2: Courses, seminars and overview essay of the doctoral programme: 17 credits

+ Courses: 9 credits

• *Compulsory:* 3 credits

• *Elective:* 6 credits

+ Seminars: 6 credits

+ Overview Essay: 2 credits

- Part 3: Scientific research (Being compulsory for PhD students but not account for the credits of the Doctoral programme).

- Part 4: Participating in professional activities, assisting teaching and supporting training activities (Being compulsory for PhD students but not account for the credits of the Doctoral programme).

- Part 5: PhD dissertation: 80 credits.

### ***1.3. For PhD students holding master's degree in relevant discipline***

Total credits for graduation: ***97 credits:***

- Part 1: Courses, seminars and overview essay of the doctoral programme: 17 credits

+ Courses: 9 credits

• *Compulsory:* 3 credits

• *Elective:* 6 credits

+ Seminars: 6 credits

+ Overview Essay: 2 credits

- Part 2: Scientific research (Being compulsory for PhD students but not account for the credits of the Doctoral programme).

- Part 3: Participating in professional activities, assisting teaching and supporting training activities (Being compulsory for PhD students but not account for the credits of the Doctoral programme).

- Part 4: PhD dissertation: 80 credits.

## 2. Programme curriculum

### 2.1. For PhD students not holding master's degree

No	Course code	Course name	Credits	Credit hours			Prerequisite courses
				Lecture	Practice	Self-study	
<b>Part 1. Supplementary courses (of the master's programme)</b>							
<b>I. General knowledge</b>			<b>3</b>				
1.	PHI5001	<i>Philosophy</i>	3				
<b>II. Basic and specialised knowledge</b>			<b>36</b>				
<b>II.1. Compulsory courses</b>			<b>15</b>				
2.	BIO6001	<i>Biosystematics</i>	3	30		15	
3.	BIO6002	<i>Molecular Cell Biology</i>	3	30		15	
4.	BIO6062	<i>Biodiversity and conservation</i>	3	30		15	BIO6001, BIO6002
5.	BIO6052	<i>Terrestrial Ecology</i>	3	30		15	BIO6001, BIO6002
6.	BIO6011	<i>Aquatic Ecology</i>	3	30		15	BIO6001, BIO6002
<b>II.2. Elective courses</b>			<b>21/43</b>				
7.	BIO6009	<i>Population Ecology</i>	3	30		15	BIO6001, BIO6002
8.	BIO6007	<i>Ecosystems Ecology</i>	3	30		15	BIO6001, BIO6002
9.	BIO6008	<i>Forest Ecosystem</i>	3	30		15	BIO6001, BIO6002
10.	BIO6010	<i>Agro-ecosystem</i>	3	30		15	BIO6001, BIO6002
11.	BIO6021	<i>Restoration Ecology and Sustainable development</i>	2	20		10	BIO6001, BIO6002
12.	BIO6085	<i>Landscape ecology</i>	3	30		15	BIO6001, BIO6002
13.	BIO6024	<i>Zoogeography</i>	2	20		10	BIO6001, BIO6002
14.	BIO6054	<i>Ecotoxicology</i>	3	30		15	BIO6001, BIO6002
15.	BIO6053	<i>Mathematical Ecology</i>	3	30		15	BIO6001, BIO6002
16.	BIO6055	<i>Remote sensing and GIS applying in Ecology</i>	3	25	15	5	BIO6001, BIO6002
17.	BIO6056	<i>Eco-development</i>	3	30		15	BIO6001, BIO6002
18.	BIO6086	<i>Ecology and climate change</i>	3	30		15	BIO6001, BIO6002
19.	BIO6087	<i>Ecosystem pollution</i>	3	30		15	BIO6001, BIO6002

No	Course code	Course name	Credits	Credit hours			Prerequisite courses
				Lecture	Practice	Self-study	
20.	BIO6075	<i>Biological indicators of environmental conditions</i>	3	30		15	BIO6001, BIO6002
21.	BIO6076	<i>Wetlands</i>	3	30		15	BIO6001, BIO6002
<b>Part 2. Courses, seminars and overview essay of the doctoral programme</b>							
<b>I. Courses</b>			<b>9</b>				
<b>I.1. Compulsory</b>			<b>3</b>				
22.	BIO8100	<i>Ecological Methodology</i>	3	30		15	
<b>I.2. Elective</b>			<b>6/15</b>				
23.	BIO8102	<i>Theoretical Ecology</i>	3	30		15	
24.	BIO9024	<i>Ecological planning</i>	3	30		15	
25.	BIO8108	<i>Ecological Impact Assessment</i>	3	30		15	
26.	BIO8104	<i>Ecology and Biotreatment of Pollution</i>	3	30		15	
27.	BIO8106	<i>Bioindicators</i>	3	30		15	
<b>II. Seminars</b>			<b>6</b>				
28.	BIO9201	<i>Special Topics 1</i>	2				
29.	BIO9202	<i>Special Topics 2</i>	2				
30.	BIO9203	<i>Special Topics 3</i>	2				
<b>III. Overview Essay</b>			<b>2</b>				
31.	BIO8109	<i>Overview Essay</i>	2				
<b>Part 3. Scientific research</b>							
		PhD students establish the research plan, implementate and publish the results of their dissertations in the scientific journals under the guidance of their supervisors.					
<b>Part 4. Participating in professional activities, assisiting teaching and supporting training activities</b>							
		Department (professional unit) constructs a timetable for professional acitivities and schedules for each PhD student to present his/her professional acitivities in the seminar organised by the Department for each academic year. It is obligated to PhD students to attend all scientific seminars/conferences/symposiums organised/required by the Department					
<b>Part 5. PhD dissertation</b>							
32.	BIO9012	<i>PhD dissertation</i>	<b>80</b>				
<b>Cộng:</b>			<b>136</b>				

## 2.2. For PhD students holding master's degree in related discipline

No	Course code	Course name	Credits	Credit hours			Prerequisite courses
				Lecture	Practice	Self-study	
<b>Part 1. Supplementary courses (of the master's programme)</b>							
<b>I.1. Compulsory course</b>			<b>6</b>				
1.	BIO6052	<i>Terrestrial Ecology</i>	3	30		15	BIO6001, BIO6002
2.	BIO6011	<i>Aquatic Ecology</i> )\	3	30		15	BIO6001, BIO6002
<b>I.2. Elective courses</b>			<b>9/24</b>				
3.	BIO6009	<i>Population Ecology</i>	3	30		15	BIO6001, BIO6002
4.	BIO6007	<i>Ecosystems Ecology</i>	3	30		15	BIO6001, BIO6002
5.	BIO6085	<i>Landscape ecology</i>	3	30		15	BIO6001, BIO6002
6.	BIO6054	<i>Ecotoxicology</i>	3	30		15	BIO6001, BIO6002
7.	BIO6053	<i>Mathematical Ecology</i>	3	30		15	BIO6001, BIO6002
8.	BIO6055	<i>Remote sensing and GIS applying in Ecology</i>	3	25	15	5	BIO6001, BIO6002
9.	BIO6086	<i>Ecology and climate change</i>	3	30		15	BIO6001, BIO6002
10.	BIO6087	<i>Ecosystem pollution</i>	3	30		15	BIO6001, BIO6002
<b>Part 2. Courses, seminars and overview assay of the doctoral programme</b>							
<b>I. Courses</b>			<b>9</b>				
<b>I.1. Compulsory</b>			<b>3</b>				
11.	BIO8100	<i>Ecological Methodology</i>	3	30		15	
<b>I.2. Elective</b>			<b>6/15</b>				
12.	BIO8102	<i>Theoretical Ecology</i>	3	30		15	
13.	BIO9024	<i>Ecological planning</i>	3	30		15	
14.	BIO8108	<i>Ecological Impact Assesement</i>	3	30		15	
15.	BIO8104	<i>Ecology and Biotreatment of Pollution</i>	3	30		15	
16.	BIO8106	<i>Bioindicators</i>	3	30		15	
<b>II. Seminars</b>			<b>6</b>				
17.	BIO9201	<i>Special Topics 1</i>	2				
18.	BIO9202	<i>Special Topics 2</i>	2				
19.	BIO9203	<i>Special Topics 3</i>	2				

No	Course code	Course name	Credits	Credit hours			Prerequisite courses
				Lecture	Practice	Self-study	
<b>III. Overview Essay</b>			<b>2</b>				
20.	BIO8109	<i>Overview Essay</i>	2				
<b>Part 3. Scientific research</b>							
		PhD students establish the research plan, implementate and publish the results of their dissertations in the scientific journals under the guidance of their supervisors.					
<b>Part 4. Participating in professional activities, assisiting teaching and supporting training activities</b>							
		Department (professional unit) constructs a timetable for professional acitivities and schedules for each PhD student to present his/her professional acitivities in the seminar organised by the Department for each academic year. It is obligated to PhD students to attend all scientific seminars / conferences / symposiums organised / required by the Department					
<b>Part 5. PhD dissertation</b>							
21.	BIO9012	<i>PhD dissertation</i>	<b>80</b>				
<b>Total:</b>			<b>112</b>				

### 2.3. For PhD students holding master's degree in relevant discipline

No	Course code	Course name	Credits	Credit hours			Prerequisite courses
				Lecture	Practice	Self-study	
<b>Part 1. Courses, seminars and overview essay of the doctoral programme</b>							
<b>I. Courses</b>			<b>9</b>				
<b>I.1. Compulsory courses</b>			<b>3</b>				
1.	BIO8100	<i>Ecological Methodology</i>	3	30		15	
<b>I.2. Elective courses</b>			<b>6/15</b>				
2.	BIO8102	<i>Theoretical Ecology</i>	3	30		15	
3.	BIO9024	<i>Ecological planning</i>	3	30		15	
4.	BIO8108	<i>Ecological Impact Assessment</i>	3	30		15	
5.	BIO8104	<i>Ecology and Biotreatment of Pollution</i>	3	30		15	
6.	BIO8106	<i>Bioindicators</i>	3	30		15	
<b>II. Seminars</b>			<b>6</b>				
7.	BIO9201	<i>Special Topics 1</i>	2				
8.	BIO9202	<i>Special Topics 2</i>	2				
9.	BIO9203	<i>Special Topics 3</i>	2				
<b>III. Overview Essay</b>			<b>2</b>				
10.	BIO8109	<i>Overview Essay</i>	2				
<b>Part 2. Scientific research</b>							
		PhD students establish the research plan, implementate and publish the results of their dissertations in the scientific journals under the guidance of their supervisors.					
<b>Part 3. Participating in professional activities, assisnting teaching and supporting training activities</b>							
		Department (professional unit) constructs a timetable for professional acitivities and schedules for each PhD student to present his/her professional acitivities in the seminar organised by the Department for each academic year. It is obligated to PhD students to attend all scientific seminars/conferences/symposiums organised/required by the Department					
<b>Part 4. PhD dissertation</b>							
11.	BIO9012	<i>PhD dissertation</i>	<b>80</b>				
<b>Total:</b>			<b>97</b>				