



SUMMARY

THE CURRICULUM OF BIOLOGY EDUCATION UNDERGRADUATE PROGRAM

FACULTY OF TEACHER TRAINING
AND EDUCATION
UNIVERSITY OF LAMPUNG

2022

OBJECTIVE OF THE DEGREE PROGRAM

A. The Vision and Mission of Institution

Vision of University of Lampung (Unila) is "By 2025, the University of Lampung will become the 10 best universities in Indonesia". Vision of Unila for 2025 leads to the achievement of higher education goals set by the Directorate General of Higher Education, Ministry of Education and Culture, namely:

1. Increasing equity and expanding access for all citizens through diploma, bachelor, master, specialist, and doctoral education programs.
2. Improving the quality, relevance, and competitiveness of higher education in the context of responding to the needs of the market job, as well as the development of science and technology, in order to optimally contribute to the improvement of the welfare of the people and the competitiveness of the nation.
3. Improving the performance of higher education institutions by increasing productivity, efficiency, and accountability in service management independent higher education

B. The Vision and Mission of Faculty

Vision of Unila Faculty of Education and Teacher Training (FKIP) is: "By 2025 Be a faculty that excels in the development of science, technology, and art in the field of Education and Learning". To realize this vision, FKIP Unila carries out a mission that has been aligned with the national education mission and mission of Unila. Missions of FKIP Unila are:

1. Organizing creative and innovative education and learning to produce graduates who have new ideas to produce innovative work in the field of education and learning based on academic culture and national character values that apply: a) Critical thinking, Collaboration, Communication, Creativity, Compassion, Computational b) Human Literacy, Technology Literacy, Data Literacy.
2. Developing science, technology, and art through research to improve the quality of education, learning, and guidance and produce the latest scientific products based on local wisdom.
3. Carrying out research-based community service as an effort to overcome problems in the community.
4. Implementing partnerships between institutions at the national and international levels that are mutually beneficial and sustainable.

Based on the vision and mission that have been formulated, FKIP Unila determines the following objectives:

1. Generate qualified and highly competitive educators.
2. Generate superior science and technology outputs in the field of education.
3. Improving the knowledge, skills, and productivity of the community in the field of education through research and community service activities that are quality, innovative, and based on superior science and technology.

4. The realization of an accountable organizational management system in the fields of academics, finance, and human resources.
5. The realization of education oriented towards strengthening local wisdom with a global perspective.
6. The realization of an excellent digital service system for the academic community.
7. The realization of public information disclosure.
8. The realization of sustainable cooperation with the central, provincial, district/city governments, the business world, and other stakeholders, both domestic and foreign.

C. Program Educational Objectives (PEO)

Based on vision and mission of Unila regarding the Indonesian National Qualification Framework (IQF) curriculum, the Undergraduate Study Biology Program (UPSE) formulates PEO that focuses on producing prospective educators, educational researchers, and educational entrepreneurs in the field of biology. The PEO of UPSE are as follows:

1. Mastering knowledge/skills in the field of pedagogy and biology concepts to perform their professional or entrepreneur tasks (PEO 1);
2. Having the capability to do research, learning innovations for developing professional skills to solve education problems (PEO 2);
3. Having a strong, good personality, and the ability to compete globally (PEO 3).

The PEO is formulated in a study program meeting involving suggestions from alumni, professors of biology education, stakeholders, evaluation of tracer studies, and school-level biology curriculum. PEO is also relevant to the IQF whose relationship can be seen in Table 1.

Table 1. The relationship between PEO of Biology Education and IQF.

PEO	Capable of apply science, technology, and art within his/her expertise and adaptable to various situations faced during solving a problem	Mastering in-depth general and specific theoretical concepts of specific knowledge and capable of formulating related problem solving procedures	Capable of taking strategic decisions based on information and data analysis and provides direction in choosing several alternative solutions.	Responsible for her/his own job and can be assigned responsibility of the attainment of organization's performances.
PEO 1	S	S	S	S
PEO 2	M	M	S	S
PEO 3	M	S	M	S

S: Strong, M: Moderate

D. Program Learning Outcomes (PLO)

The PEO of UPBE becomes a reference in describing PLO adapted with competency SSC-ASIIN on Table 2.

Table 2. PLO of UPBE

Competency SSC-ASIIN	Aspect	PLO	Description
Specialist Competences	Knowledge	PLO1	Mastering the concepts of education in general and science deeply
		PLO2	Mastering the biology concept with comprehensive
		PLO3	Mastering principles of TPACK (Pedagogy, Technology, and Content Knowledge) in biology learning
		PLO4	Mastering the concept depth of work skills and laboratory management
	Special Skills	PLO5	Can design, implement, and evaluate biology learning that develops higher order thinking skills and character of students.
		PLO6	Able to observe and solve problems of science education and learning, especially biology
		PLO7	Able to publish ideas and research results
		PLO8	Have an entrepreneurial spirit based on sustainable development (sustainable resources).
Social Competences	General Skills	PLO9	Able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology that pays attention to and applies humanities values in accordance with their field of expertise;
		PLO10	Able to compile a scientific description of the results of the studies mentioned above in the form of a thesis or final project report, and upload it on the university's website;
		PLO11	Able to maintain and develop a network with supervisors and colleagues, both inside and outside the institution;
		PLO12	Able to document, store, secure, and retrieve data to ensure validity and prevent plagiarism.
	Attitude	PLO13	Fear of God Almighty and able to show a religious attitude
		PLO14	Contribute to improving the quality of life in society, nation, state, and the progress of global civilization;
		PLO15	Appreciate the diversity of cultures, views, religions, and beliefs, as well as the opinions or original findings of others;
		PLO16	Internalize the spirit of collaboration, struggle, and entrepreneurship.

The correlation between the PLOs and the PEOs regards to the aspects as follows at Table 3.

Table 3. Matrix of correlation between Programme Education Objective (PEO) and the Programme Learning Outcomes (PLO)

PLO	Mastering knowledge/skills in the field of pedagogy and biology concepts to perform their professional or entrepreneur tasks (PEO 1)	Having capability to do research, learning innovations for developing professional skills to solve education problem (PEO 2)	Having a strong, good personality, and the ability to compete globally (PEO 3)
PLO1	√	√	
PLO2	√	√	
PLO3	√	√	√
PLO4	√	√	
PLO5	√	√	√
PLO6	√	√	
PLO7	√	√	
PLO8	√	√	√
PLO9	√	√	
PLO10	√	√	√
PLO11			√
PLO12	√	√	
PLO13	√		
PLO14	√	√	√
PLO15	√	√	√
PLO16	√	√	√

E. PROGRAM STRUCTURE

The UPBE curriculum document is the result of a curriculum review process that begins with the socialization of curriculum guidelines, guidelines, and standards by university leaders to Faculty Leaders, Heads of Departments, and Heads of Study Programs. Then a tracer study was conducted to evaluate the previously applicable curriculum and gather information about the quality of graduates produced as well as the future job market demands. The results of the screening are formulated in the form of a graduate profile, vision, mission, and goals with a description that is adapted to the demands of the level 6 IQF then curriculum development is carried out to achieve this.

UPBE FKIP Unila has currently carried out curriculum development 8 times and has also periodically revised the curriculum in accordance with labor market changes and needs, as well as social and state life phenomena. The implementation of the existing curriculum since the establishment of UPBE FKIP Unila has produced more than 1000 graduates who have careers as prospective biology educators. UPBE FKIP Unila graduates also have dependable competency qualifications, and many of them hold strategic positions in their work units.

At this time, the implementation of UPBE is supported by 13 permanent lecturers consisting of 6 lecturers with S3 Education qualifications and 7 lecturers with S2 Education qualifications.

Curriculum Structure Chart

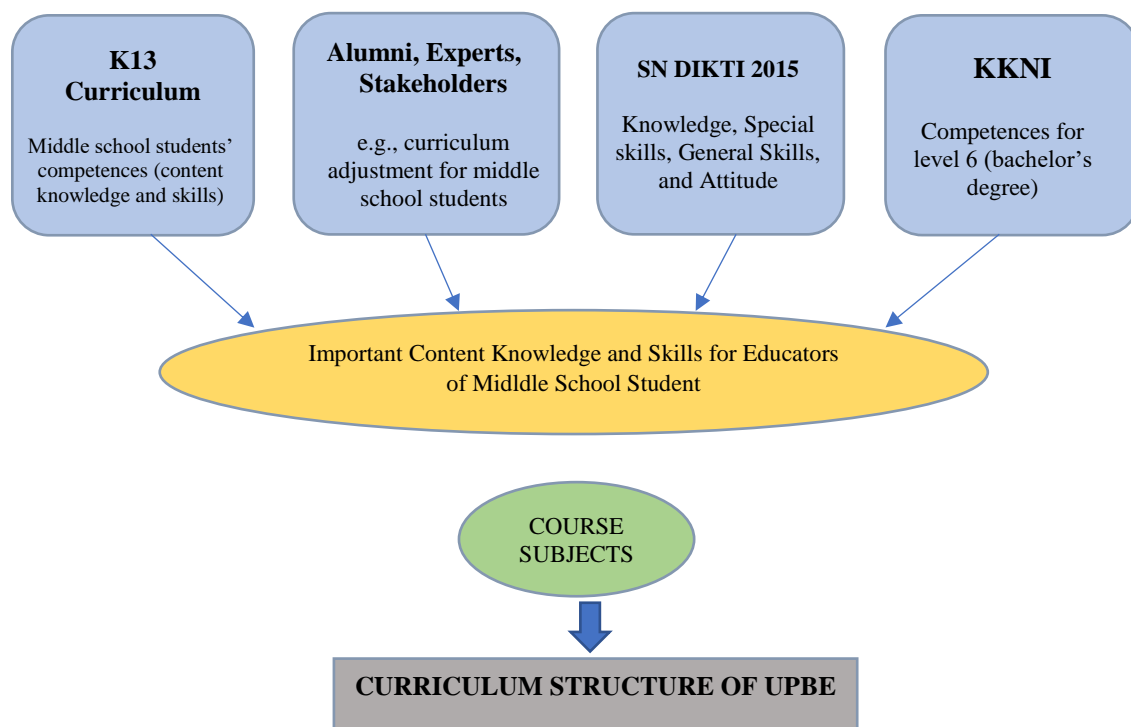


Figure 1. Curriculum Structure Chart

Curriculum Structure Model

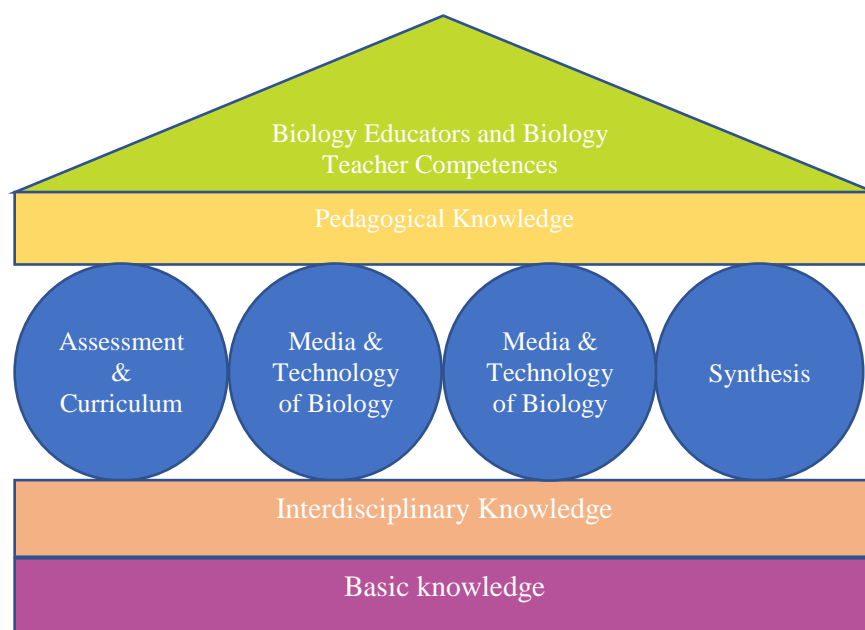


Figure 2. Curriculum Structure Model

Table 4. Mapping of the courses that support PLO of UPBE

NO	CODE	COURSE TITLE	CU	PLO															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Semester-1																	
1	UNI616101-616105	Religion Education	3 (2-1)													√			
2	UNI617108	Pancasila	2 (2-0)													√			
3	KIP620101	Basic Education	2 (2-0)	√															
4	KIP620103	Scouting	1 (0-1)	√													√		
5	KIE619101	Basic Mathematics	2 (2-0)	√															
7	KIE619102	Basic Physics	2 (2-0)	√															
8	KIE619103	Basic Chemistry	2 (2-0)	√															
9	KBO620101	Basic Biology	3 (2-1)	√	√														
10	KBO620102	Environmental Knowledge	2 (2-0)	√	√														
		Semester-2																	
1	UNI616106	Indonesian Language Education	2(2-0)										√						
2	UNI616107	Citizenship Education	2(2-0)																
3	KIP620104	Teaching and Learning	2(2-0)	√		√		√											
4	KIP620102	Psychology Education	3(3-0)														√		

NO	CODE	COURSE TITLE	CU	PLO															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
5	KIP619104	ICT-Based Learning	3(1-2)			√					√								
6	KBO620103	Biochemistry	2(2-0)																
7	KBO620104	Biology Cell	2(2-0)		√														
8	KBO620105	Plant Structure and Development	3(2-1)		√														
9	KBO620201	Management of Laboratory	3(1-2)		√		√												
		Semester- 3																	
1	KIP620201	Management of Education	2(2-0)					√											
2	KBO620202	Invertebrate Zoology	3(2-1)		√														
3	KBO620203	Animal Structure	3(2-1)		√														
4	KBO620204	Genetics	3(2-1)		√														
5	KBO620205	Evolution Theory	2(2-0)		√														
6	KBO620206	Biology Learning Strategy	3(2-1)					√											
7	KBO620208	Botanic I	3(2-1)		√														
8	KBO620214	Production and Utilization of Biology Learning Media	3(1-2)			√					√								√
		Semester-4																	
1	KBO620207	Vertebrate Zoology	3(2-1)		√														
2	KBO620209	Animal Physiology	3(2-1)		√														
3	KBO620210	Biodiversity	2(2-0)		√													√	
4	KBO620211	Nutrition and Health	2(2-0)		√												√		
5	KBO620212	Plant Physiology	3(2-1)		√														
6	KBO620213	Integrated Science	2(2-0)		√														
7	KBO620302	Review Curriculum I	3(3-0)		√				√										
8	KBO620306	Plant Ecology	3(2-1)		√														
		Semester-5																	
1	KBO620301	Biology Learning Design	3(2-1)			√		√											
2	KBO620302	Review Curriculum II	3(3-0)						√										
3	KBO620303	Assessment and Evaluation	3(2-1)			√		√											
4	KBO620304	Animal Development	3(2-1)		√														
5	KBO620305	Microbiology	3(2-1)		√														
6	KBO620312	Animal Ecology	3(2-1)		√														
7	KBO620307	Botanic II	3(2-1)		√														
8		Elective Course A, B, C	2(2-0)																
		Semester-6																	
1	KBO620308	Human Physiology Anatomy	3(3-0)		√														
2	KBO620310	Research Methodology	3(3-0)		√							√							
3	KBO620311	Biotechnology	3(2-1)		√														
4	KBO620314	Microteaching	3(1-2)																

NO	CODE	COURSE TITLE	CU	PLO															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
5	KBO620315	English Professional								√		√	√						
6		Elective Course A, B, C	2(2-0)																
		Semester-7																	
1	KIP619401	Teaching Internship I	1(1-0)						√					√					
2	KIP619402	Teaching Internship 2	3(0-3)						√					√					
3	UNI617401	Community Service	3(0-3)						√					√			√		√
4	KBO620402	Seminar I	1(0-1)						√										
5	KBO620403	Seminar II	1(0-1)						√										
6	KBO620404	Thesis	4(0-4)							√		√	√		√				√
		Semester-8																	
1	KBO620402	Seminar I	1(0-1)						√										
2	KBO620403	Seminar II	1(0-1)						√										
3	KBO620404	Thesis	4(0-4)							√		√	√		√				√
		Elective A: Ethnobiology																	
1	KBO620408	Toxicology	2(2-0)		√														
2	KBO620409	Animal Behaviour	2(2-0)		√													√	
3	KBO620410	Ethnoscience	2(2-0)		√													√	
4	KBO620401	Marine Biology	2(2-0)		√													√	
5	KBO620422	Entomology	2(2-0)		√														
5	KBO620421	Field Trip	1(1-0)																√
		Elective B: Applied Biology																	
1	KBO620413	Biometrics	2(2-0)		√														
2	KBO620411	Plant Tissue Culture	2(2-0)		√														
3	KBO620405	Biology Medicinal Plants	2(2-0)		√														
4	KBO620421	Field Trip	1(1-0)		√														√
		Elective C: Environment Biology																	
1	KBO620416	Waste Treatment Technology	2(2-0)		√														
2	KBO620417	Conservation	2(2-0)		√														
3	KBO620418	Epidemiology	2(2-0)		√														
4	KBO620419	Environmental Health	2(2-0)		√														
5	KBO620420	Disaster Mitigation	2(2-0)		√														
6	KBO620421	Field Trip	1(1-0)		√														
		TOTAL	146 CU (230,55)																

Table 5. Compulsory and elective courses in the UPSE

Course	CU	ECTS	Note
Compulsory	135	214,65	The 130 CU are distributed into 53 compulsory courses including university compulsory courses.
Elective Courses	11	17,49	There are 14 available CU which are distributed into 6 elective courses and students should take at least 14 CU
Total	146	230,55	

Table 6. UNILA compulsory courses

No	Code	Course Name	CU
1	UNI616106	Indonesian Language Education	2(2-0)
2	UNI616107	Citizenship Education	2(2-0)
	Total		4

Table 7. Elective courses in UPBE

No	Code	Course Name	CU
1	KBO620408	Toxicology	2(2-0)
2	KBO620409	Animal Behaviour	2(2-0)
3	KBO620410	Ethnoscience	2(2-0)
4	KBO620401	Marine Biology	2(2-0)
5	KBO620405	Physiology of Medicinal Plants	2(2-0)
6	KBO620421	Field Trip	1(1-0)
	Total		11

Tables 4, 5, 6 and 7 describe the total credits in each semester, the number of UPBE credits is 145. Unila code courses and study program courses with PSPB CU are the same except for field work. Then this table shows that Unila courses are distributed in the first semester and compulsory courses, while the KIP and UPBE code courses are distributed in second to eight semesters.

In the first and second semesters, students who enrolled in UPBE are obliged to attend courses which provide basic knowledge of natural biology and education. The courses include introductory of Basic Biology, Basic-Physic, Basic-Chemistry, Basic Mathematics, Environmental Knowledge, Basic Education, Study and Learning, and Psychology Education. These basic courses give foundations for students to learn

advance subjects or interdisciplinary knowledge in the following semesters. In order to support students' development of interpersonal capability, moreover, students need to enrol in order to support students' development of interpersonal capability, moreover, students need to enrol in other courses, such as Religion education, Pancasila, Digital Literacy, Citizenship Education and Indonesian Language.

In the third semester, Students of UPSE begin to learn interdisciplinary knowledge through courses that integrate two or more natural biology components, such as Invertebrate and Vertebrate Zoology, Animal Structure, Genetics, Evolution Theory, Botanic I, Animal Physiology, Biodiversity, Nutrition and Health Science, Plant Physiology, Plant and Animal Ecology, Animal Development, Microbiology, Biotechnology. While learning some interdisciplinary knowledge, students also learn culture (Ethnoscience). While learning come with interdisciplinary knowledge, students also learn in depth essential components of pedagogical knowledge through four seprate courses including Curriculum Review, ICT-Based Learning, Biology Learning Design, and Assesment and Evaluation. The students are further encouraged to apply their biology and pedagogical knowledge and skills in practice-oriented courses, such as Research Methodology, Microteaching, and Seminar, Research Methodology and Seminar are in series courses. The former requires students to create a research proposal in education, while the later provides practices for students to communicate their created research proposal. Students are also required to take a final project worth 6 CU known as Thesis (Roadmap of UPBE) presented in figure 3.

Curriculum Roadmap of Undergraduate Programme Biology Education

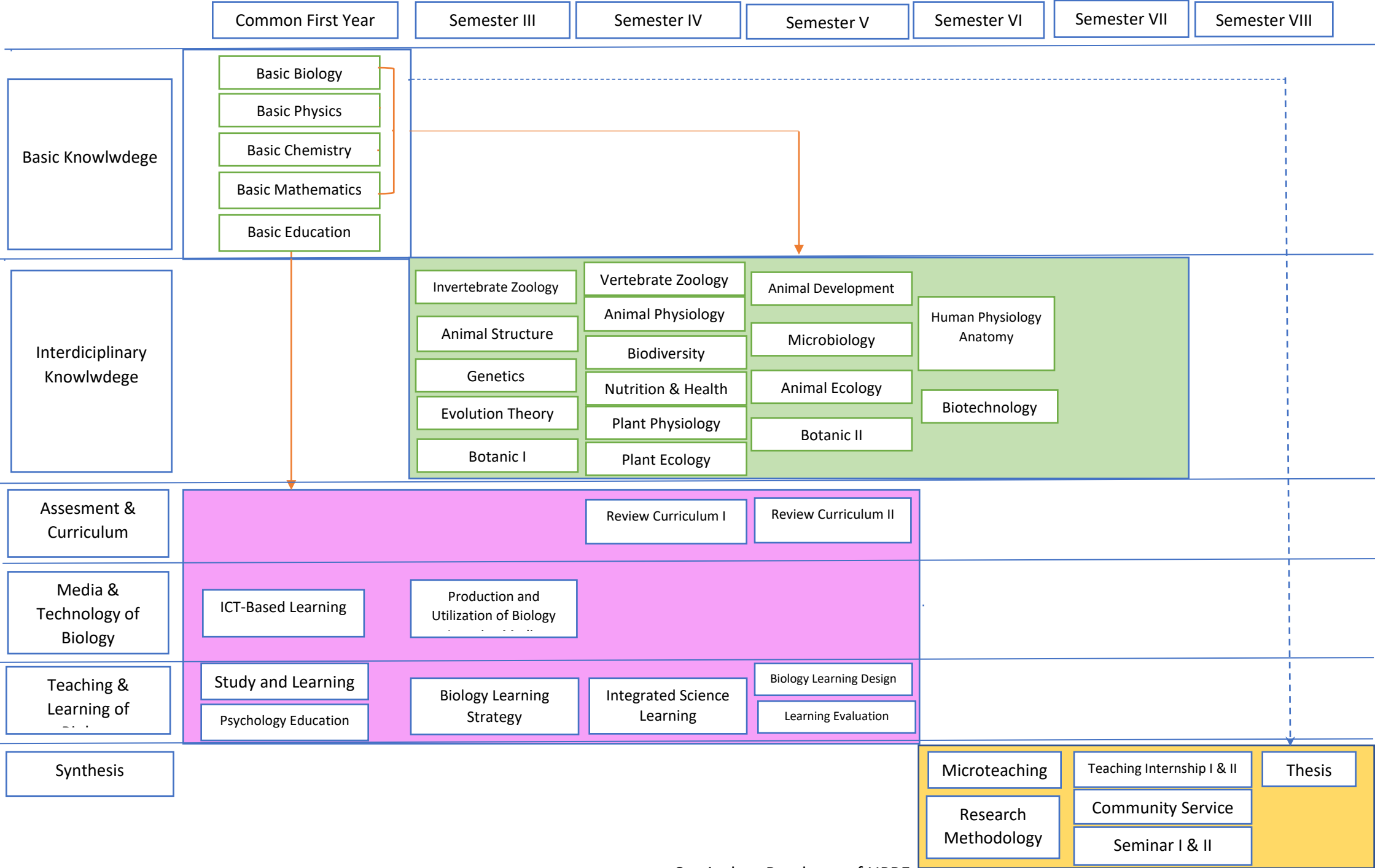
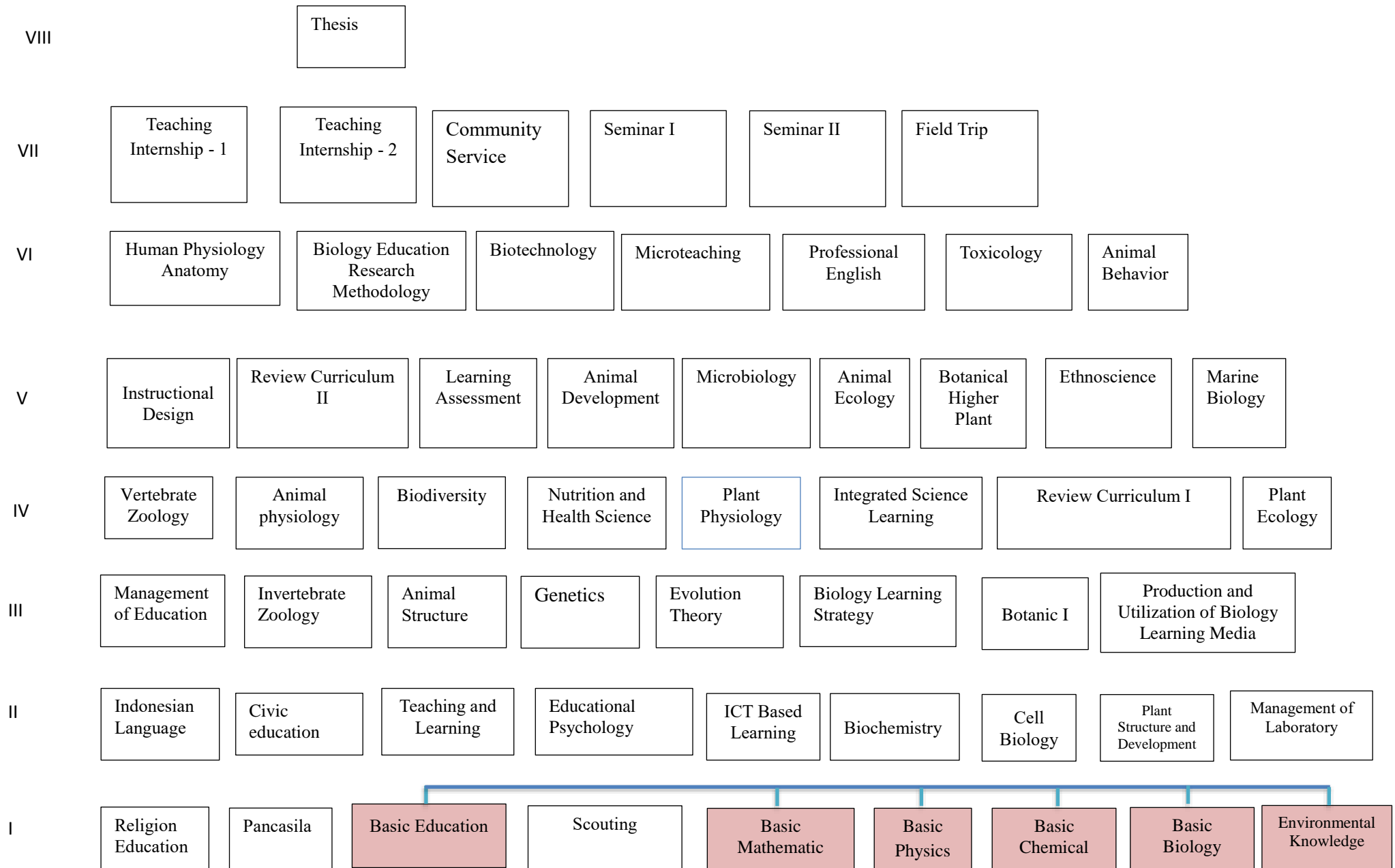
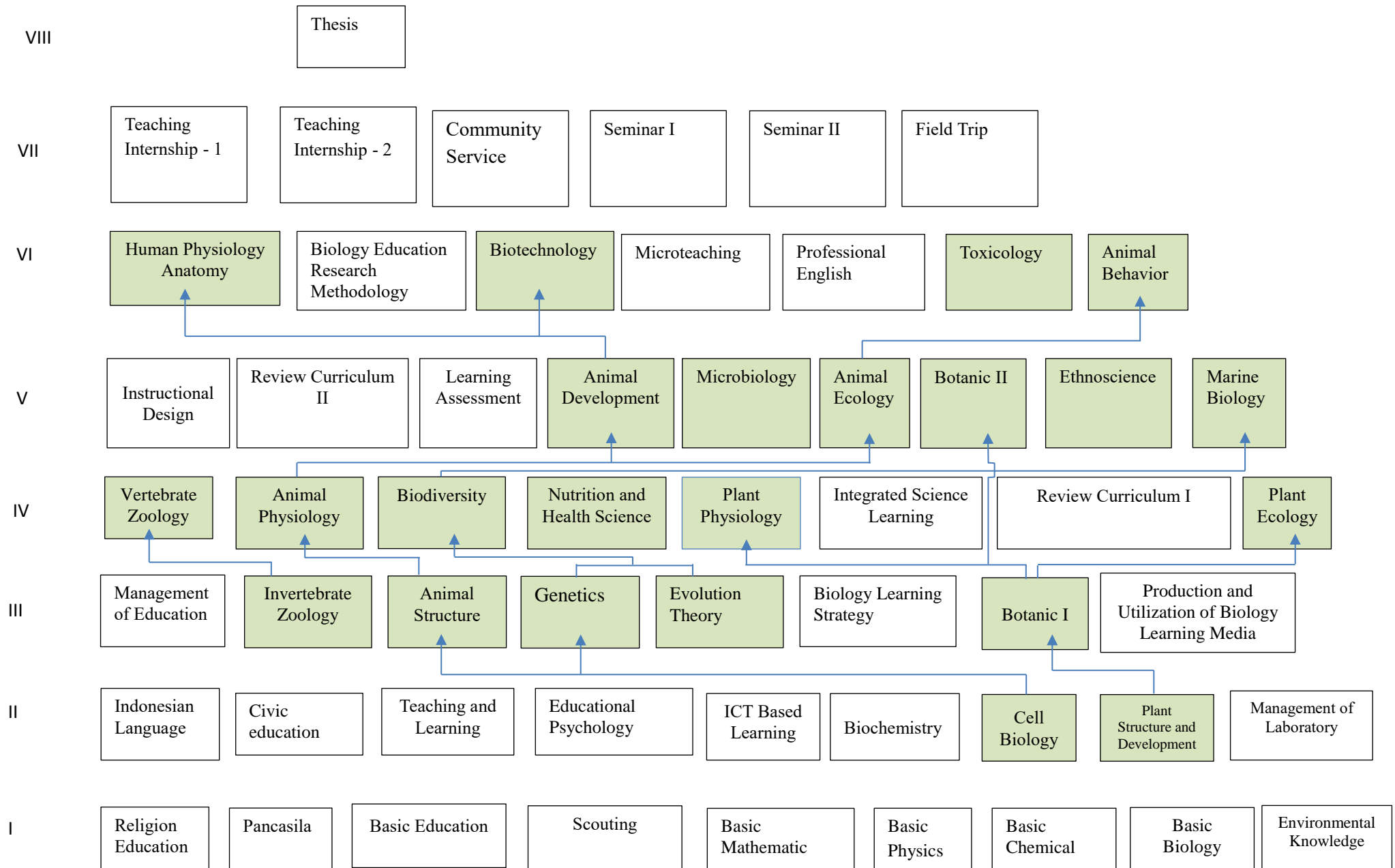


Figure 3. Curriculum Roadmap of UPBE

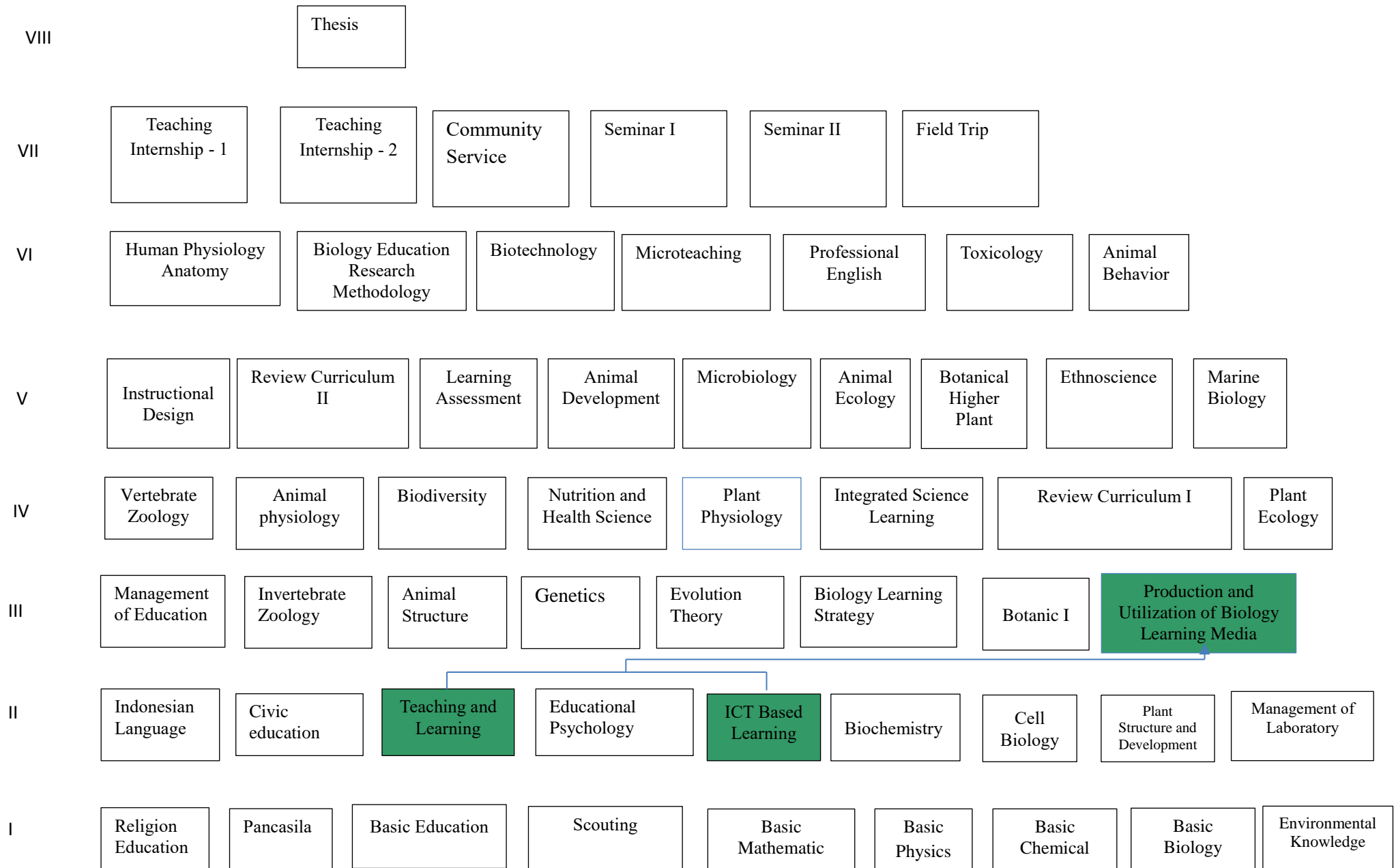
Roadmap PLO 1



Roadmap PLO 2



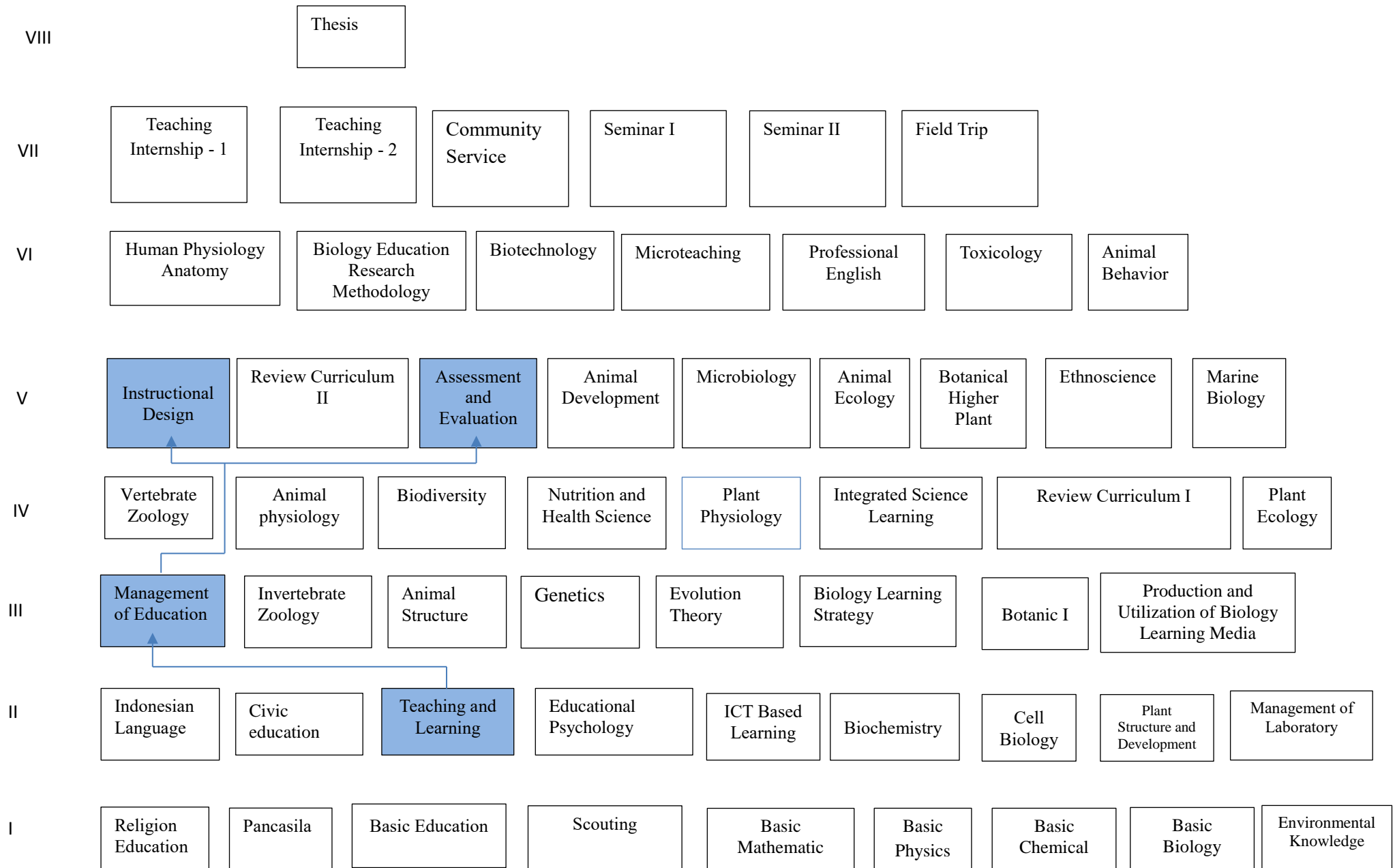
Roadmap PLO 3



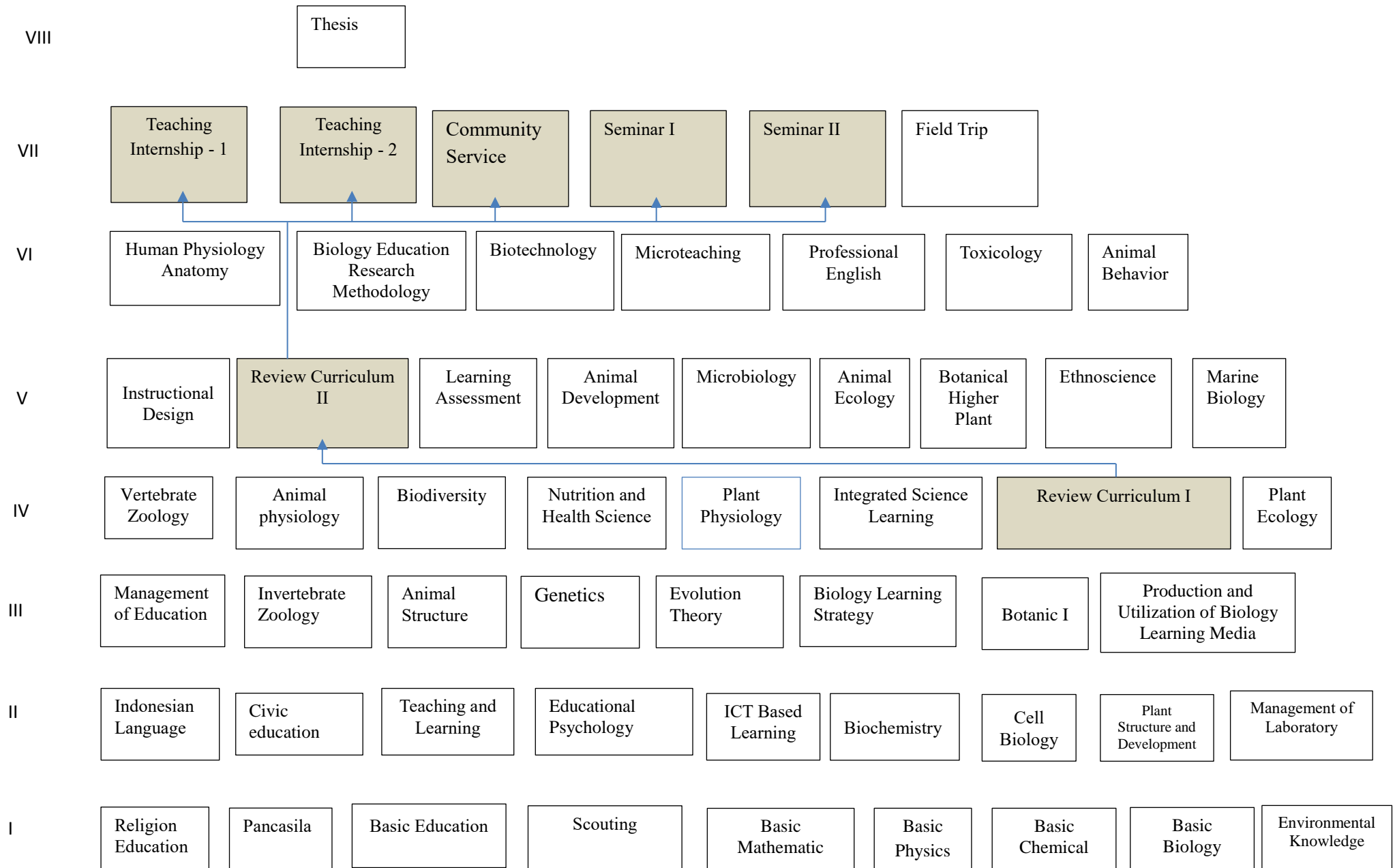
Roadmap PLO 4

VIII	Thesis								
VII	Teaching Internship - 1	Teaching Internship - 2	Community Service	Seminar I	Seminar II	Field Trip			
VI	Human Physiology Anatomy	Biology Education Research Methodology	Biotechnology	Microteaching	Professional English	Toxicology	Animal Behavior		
V	Instructional Design	Review Curriculum II	Learning Assessment	Animal Development	Microbiology	Animal Ecology	Botanical Higher Plant	Ethnoscience	Marine Biology
IV	Vertebrate Zoology	Animal physiology	Biodiversity	Nutrition and Health Science	Plant Physiology	Integrated Science Learning	Review Curriculum I	Plant Ecology	
III	Management of Education	Invertebrate Zoology	Animal Structure	Genetics	Evolution Theory	Biology Learning Strategy	Botanic I	Production and Utilization of Biology Learning Media	
II	Indonesian Language	Civic education	Teaching and Learning	Educational Psychology	ICT Based Learning	Biochemistry	Cell Biology	Plant Structure and Development	Management of Laboratory
I	Religion Education	Pancasila	Basic Education	Scouting	Basic Mathematic	Basic Physics	Basic Chemical	Basic Biology	Environmental Knowledge

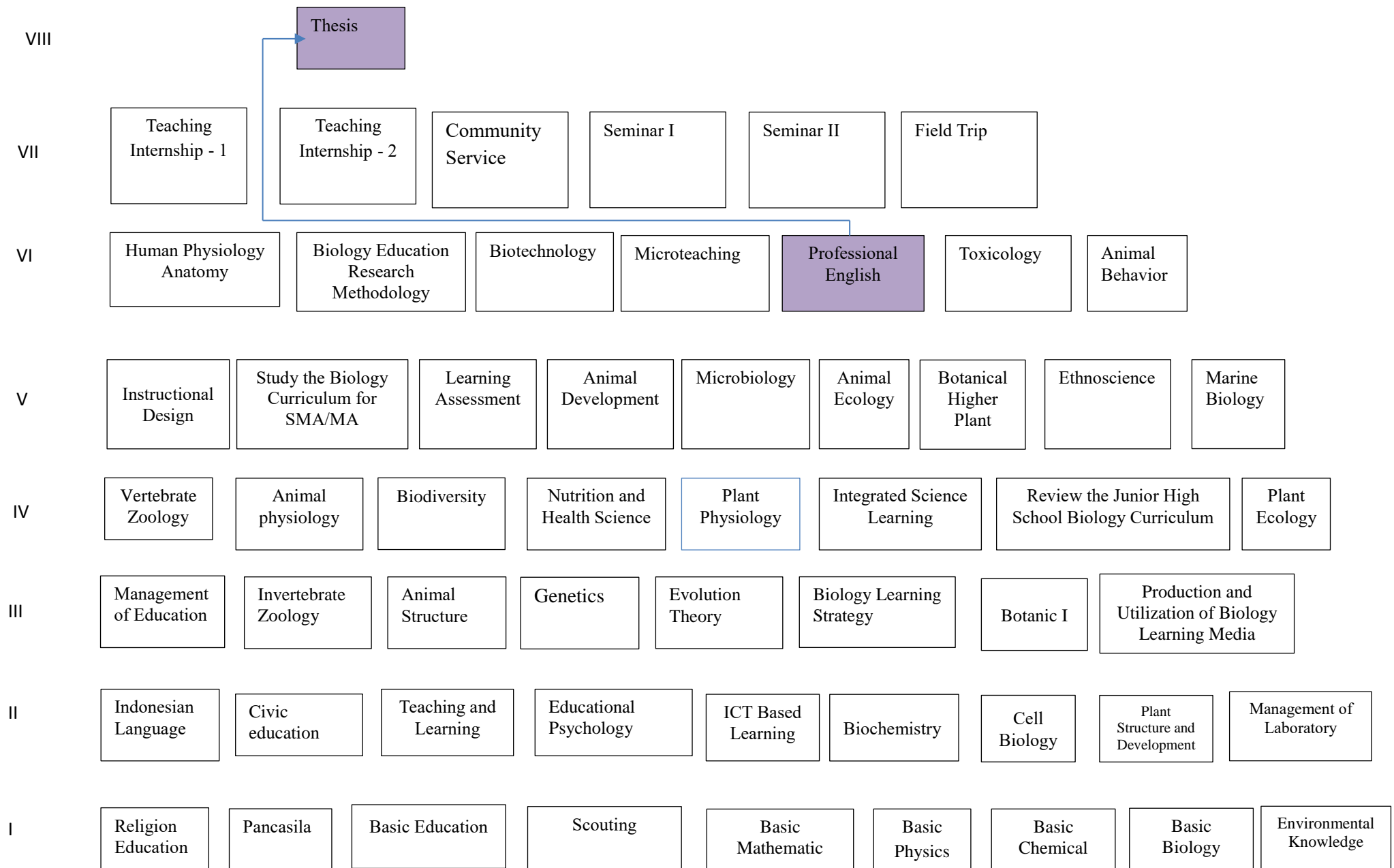
Roadmap PLO 5



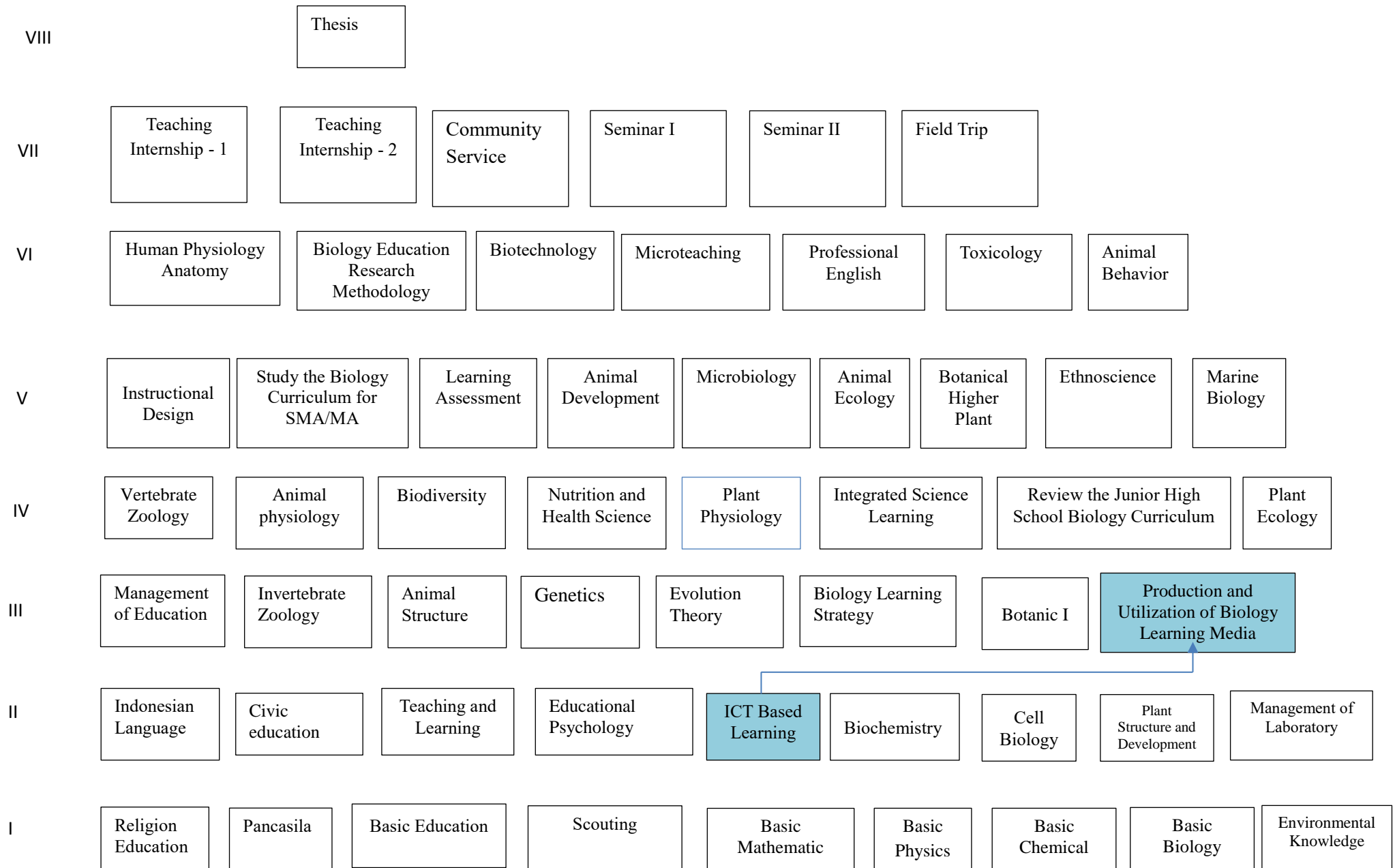
Roadmap PLO 6



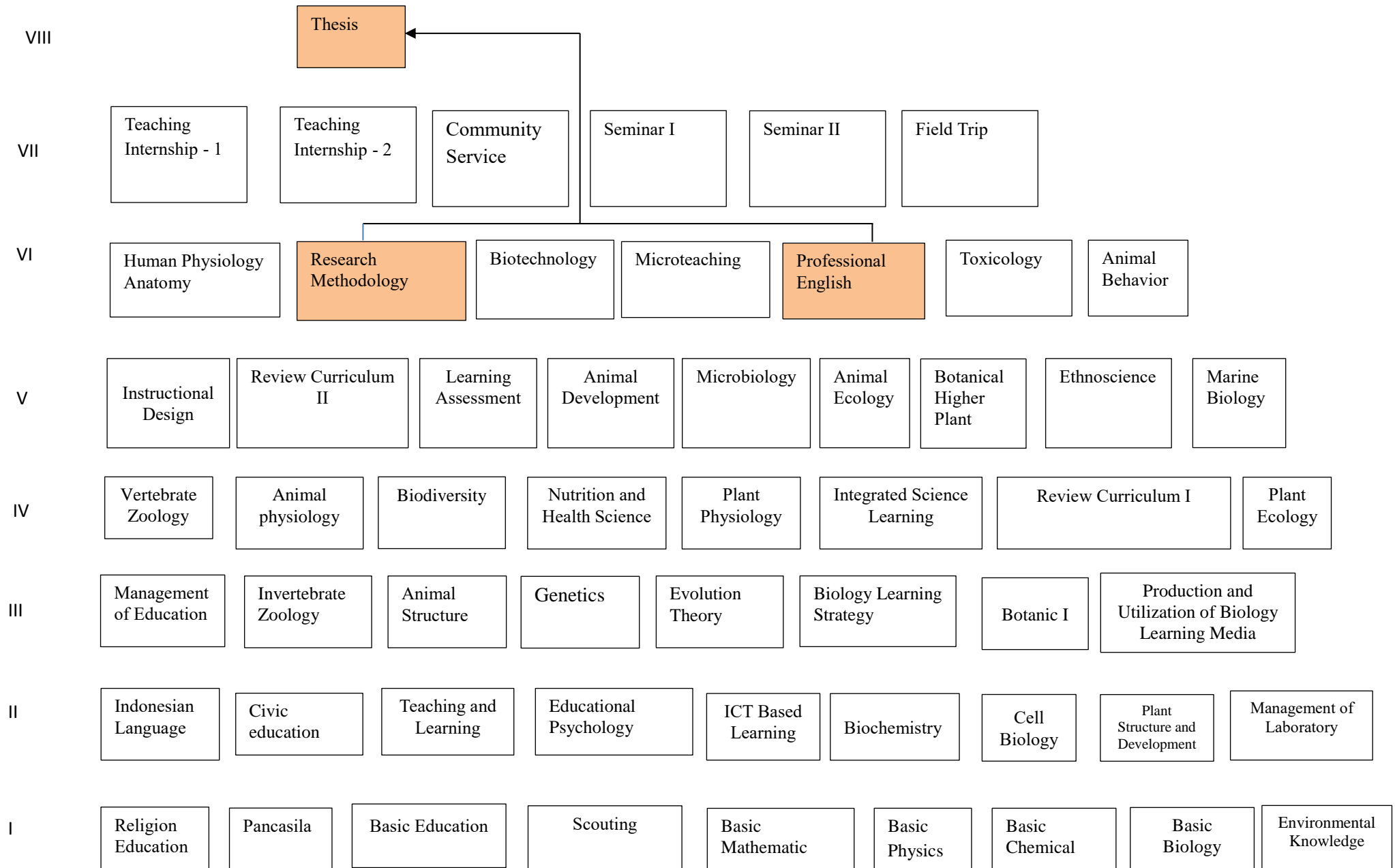
Roadmap PLO 7



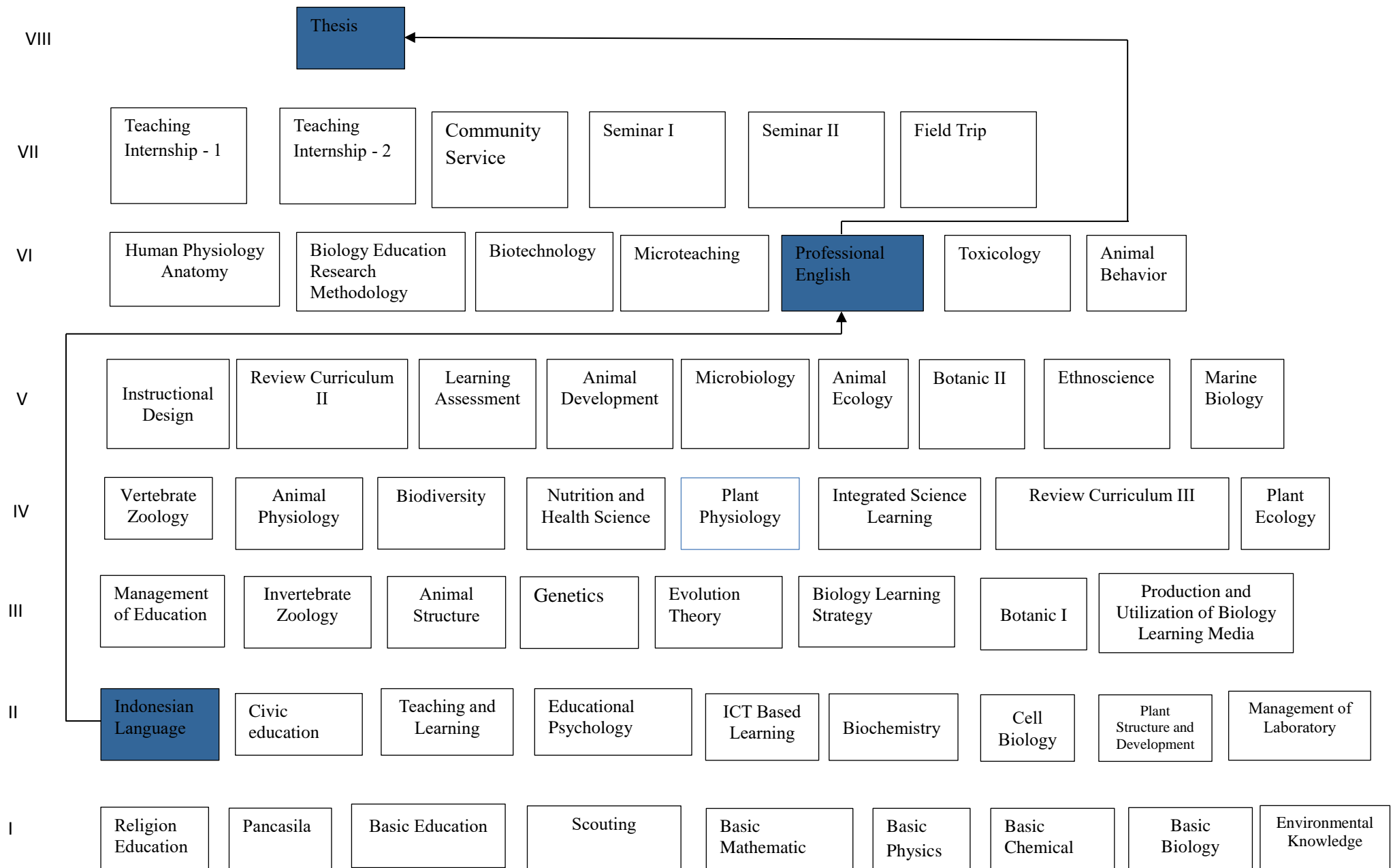
Roadmap PLO 8



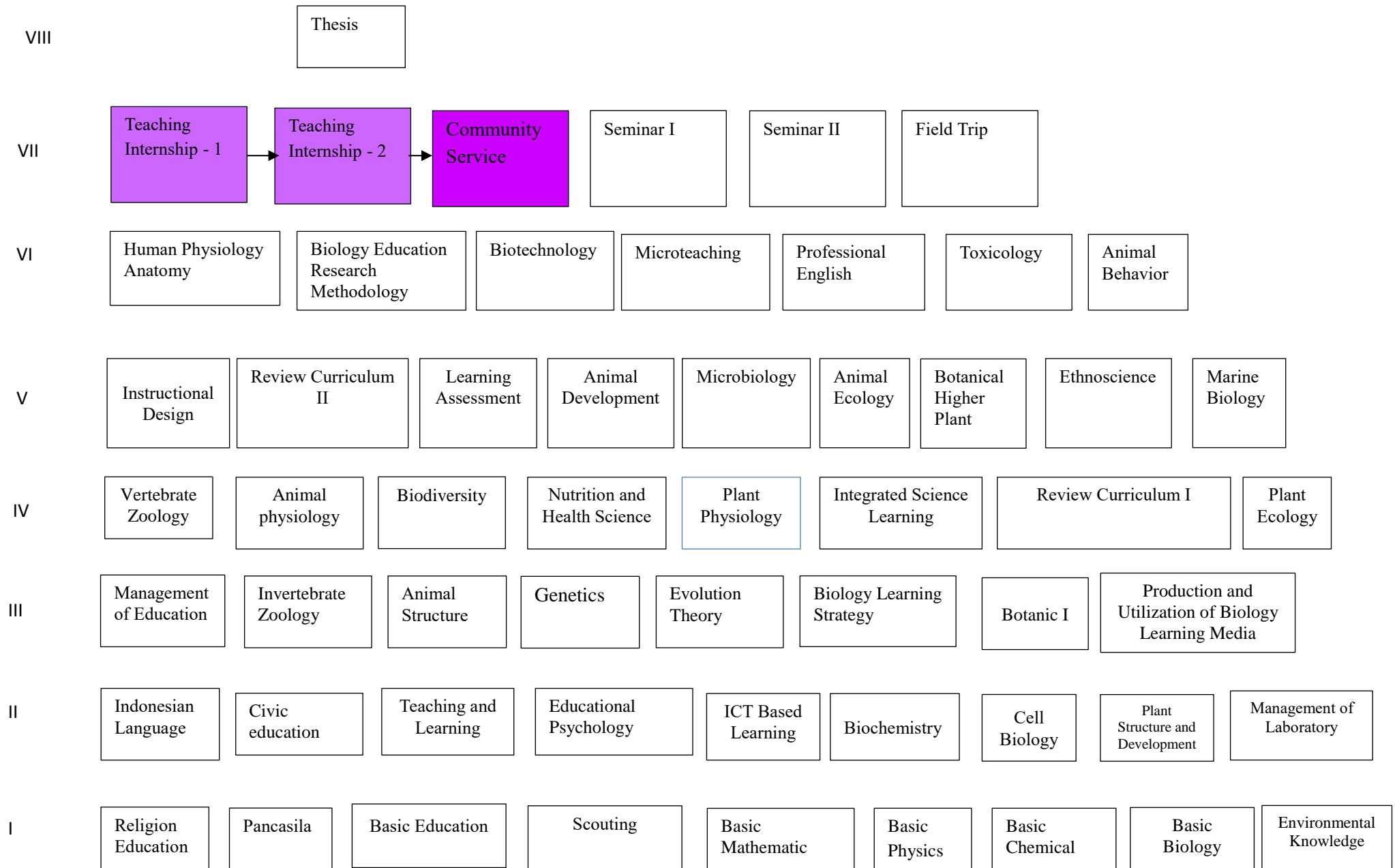
Roadmap PLO 9



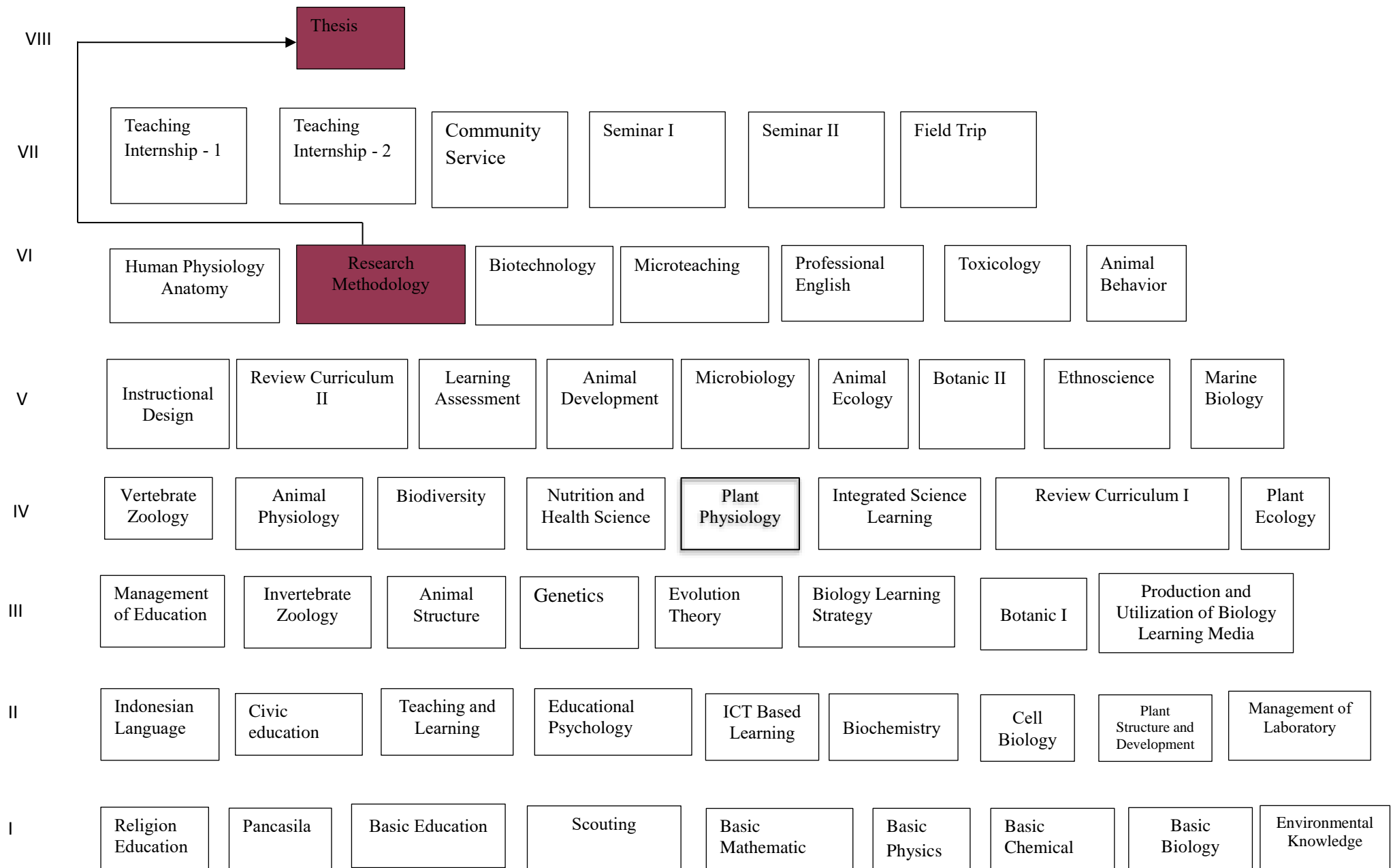
Roadmap PLO 10



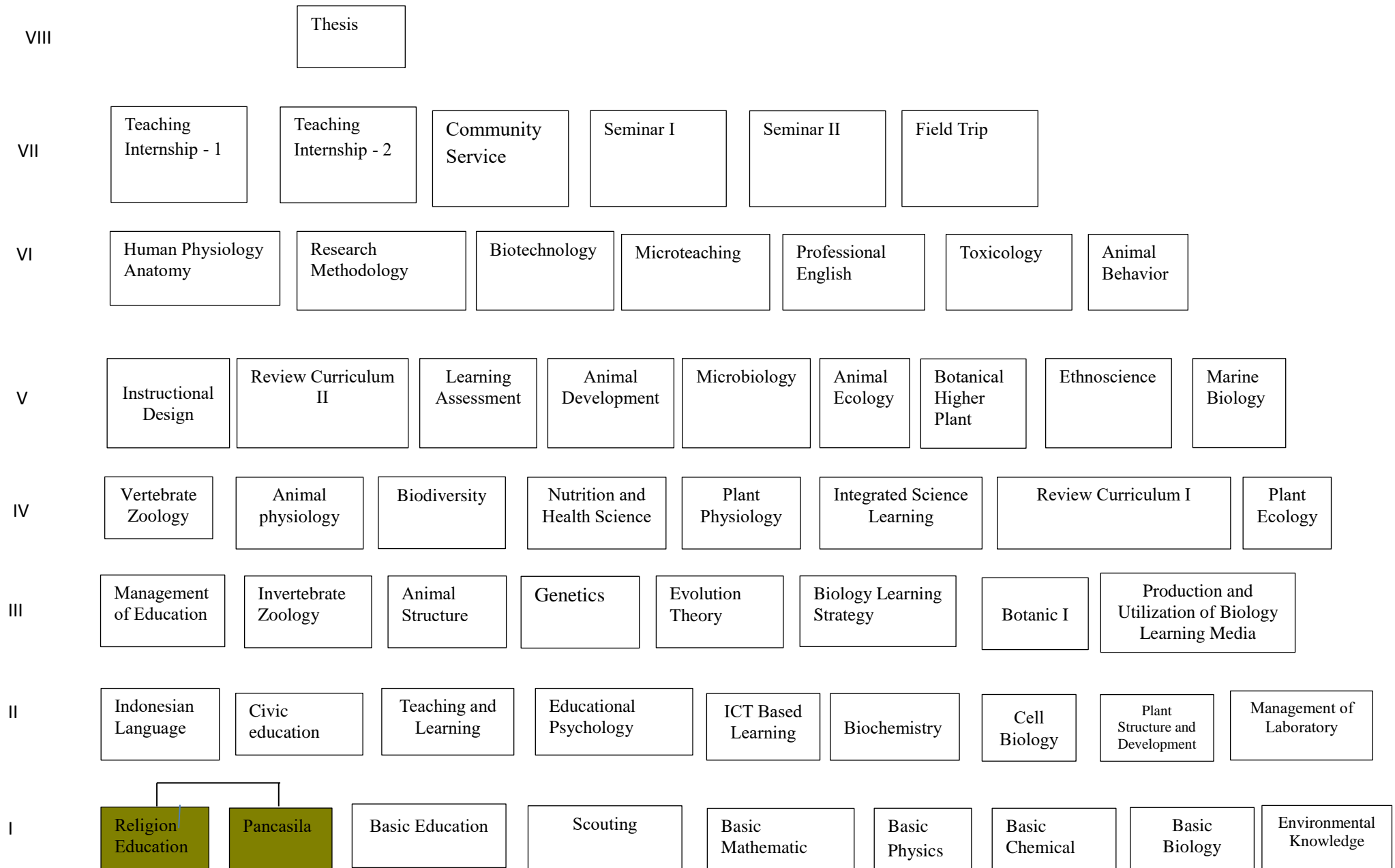
Roadmap PLO 11



Roadmap PLO 12



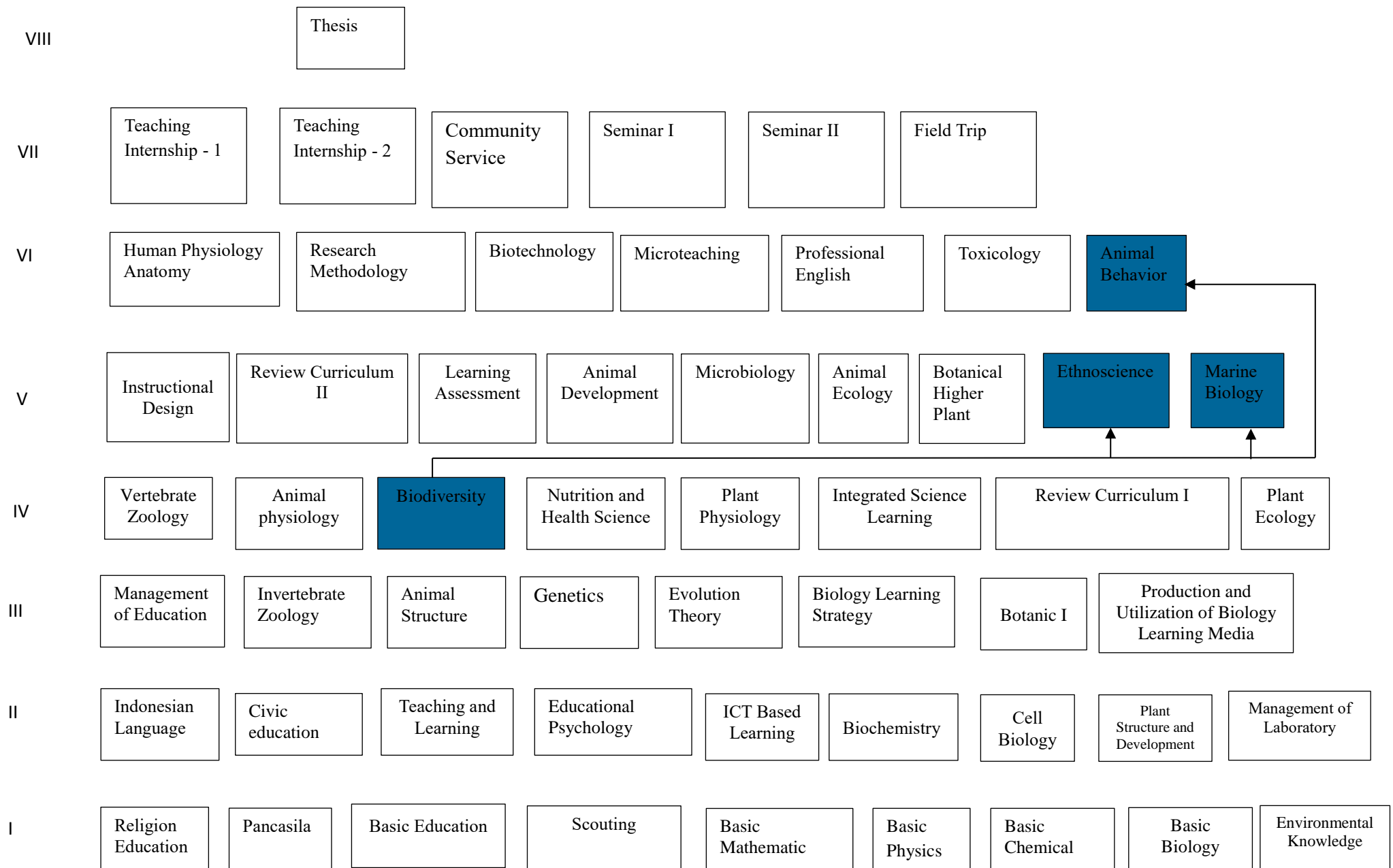
Roadmap PLO 13



Roadmap PLO 14

VIII	Thesis								
VII	Teaching Internship - 1	Teaching Internship - 2	Community Service	Seminar I	Seminar II	Field Trip			
VI	Human Physiology Anatomy	Research Methodology	Biotechnology	Microteaching	Professional English	Toxicology	Animal Behavior		
V	Instructional Design	Review Curriculum II	Learning Assessment	Animal Development	Microbiology	Animal Ecology	Botanic II	Ethnoscience	Marine Biology
IV	Vertebrate Zoology	Animal Physiology	Biodiversity	Nutrition and Health Science	Plant Physiology	Integrated Science Learning	Review Curriculum I	Plant Ecology	
III	Management of Education	Invertebrate Zoology	Animal Structure	Genetics	Evolution Theory	Biology Learning Strategy	Botanic I	Production and Utilization of Biology Learning Media	
II	Indonesian Language	Civic education	Teaching and Learning	Educational Psychology	ICT Based Learning	Biochemistry	Cell Biology	Plant Structure and Development	Management of Laboratory
I	Religion Education	Pancasila	Basic Education	Scouting	Basic Mathematic	Basic Physics	Basic Chemical	Basic Biology	Environmental Knowledge

Roadmap PLO 15



Roadmap PLO 16

