Table 7. Program Learning Outcomes of each course in UPBE

No.	Code	Course Name	CU	Program Learning Outcomes (PLO)												
				Social competences						Specialist competences						
				Attitude		*General Competences*				*Knowledge*				*Special competences*		
				AT 1	AT 2	GC 1	GC 2	GC 3	GC 4	KN 1	KN 2	KN 3	KN 4	SS 1	SS 2	SS 3
1	100000202x	Religion	2	√												
2	1000002033	Civic Education	2	√												
3	1000002018	Study of Pancasila	2	√												
4	1000002003	Bahasa Indonesia	2	√		√										
5	1000002047	Physical Education	2		√											
6	1000002046	Digital Literation	2			√	√									
7	1000002176	Entrepreneurship	2		√	√	√									
8	8420502034	English for Biology	2		√	√	√									
9	8420503056	General Biology	3		√					√						
10	8420503136	General Chemistry	3		√					√						
11	8420503100	General Physics	3		√					√						
12	8420502278	Mathematics	2				√	√								
13	8420502138	Conservation of Natural Resources and Environment	2		√	√	√	√		√	√					√
14	8420502012	Human Anatomy and Physiology	2			√				√						
15	8420502047	Biochemistry	2			√				√						
16	8420502318	Cellular and Molecular Biology	2							√	√					
17	8420502062	Biotechnology	2				√			√						√
18	8420504080	Ecology	4			√		√		√	√					√
19	8420502095	Evolution	2			√		√		√						
20	8420504101	Animal Physiology	4			√		√		√						
21	8420504102	Plant Physiology	4			√		√		√						
22	8420504322	Genetics and Genomics	4			√		√		√						
23	8420503164	Microbiology	3			√				√	√					
24	8420504221	Plant Systematics	4			√		√		√						

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				Social competences						Specialist competences						
				Attitude		*General Competences*				*Knowledge*				*Special competences*		
				AT 1	AT 2	GC 1	GC 2	GC 3	GC 4	KN 1	KN 2	KN 3	KN 4	SS 1	SS 2	SS 3
25	8420504220	Animal Systematics	4			√				√						
26	8420504226	Plant Structure and Development	4			√		√		√						
27	8420504271	Animal Structure and Development	4			√	√	√	√	√						
28	8420502316	Biodiversity	2					√		√						√
29	8420503158	Research Methodology in Biology Education	3			√	√	√	√				√		√	
30	8420502309	Biostatistics and Biocomputer	2			√	√		√						√	
31	1000002005	Fundamentals of Education	2			√						√				
32	8420502284	Learning Theories	2			√	√					√				
33	8420502294	School Curriculum	2									√		√		√
34	8420502290	Instructional Design	2									√		√	√	√
35	8420502292	Learning Evaluation	2									√		√		√
36	8420502291	Development of Learning Medium	2									√		√		√
37	8420502317	Microteaching	2									√	√	√		√
38	8420503293	Innovative Learning	2			√						√		√	√	√
39	1000020149	Professional Teaching Program Design	2	√	√	√	√									
40	MBKM0031	Professional Teaching Program Evaluation	2	√		√	√									
41	1000002104	Final Project Seminar	2			√	√	√	√		√	√	√	√	√	√
42	1000004105	Final Project	4			√	√	√	√		√	√	√	√	√	√
45	8420502046	Biogeography*	2			√				√						
46	8420503270	Conservation Biology*	2			√				√						
47	8420502055	Applied Biology*	2			√				√						
48	8420502063	Aquaculture*	2			√				√						
49	8420502079	Ecophysiology*	2			√				√						
50	8420502086	Ecotoxicology*	2			√				√						
51	8420502274	Aquatic Ecology*	2			√				√						
52	8420502110	Nutrition, Health, and Psychotropics*	2			√				√						
53	8420502111	Plant Pests and Diseases*	2			√				√						
54	8420502112	Histology*	2			√				√						
55	8420502113	Environmental Science*	2			√				√						
56	8420502114	Tissue Culture*	2			√				√						
57	8420502115	Mycology*	2			√				√						
58	8420502116	Applied Microbiology*	2			√				√						
59	8420502167	Microtechnology*	2			√				√						
60	8420502168	Biodiversity*	2			√				√						
61	8420502192	Waste Management*	2			√				√						
62	8420502213	Plant Reproduction*	2			√				√						
63	8420502211	Animal Reproduction*	2			√				√						

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				Attitude		*General Competences*				*Knowledge*				*Special competences*		
				AT 1	AT 2	GC 1	GC 2	GC 3	GC 4	KN 1	KN 2	KN 3	KN 4	SS 1	SS 2	SS 3
64	8420502212	Algae Systematics*	2			√				√						
65	8420502094	Curriculum Evaluation and Development*	2			√						√				
66	8420502149	Laboratory Management*	2			√				√						
67	8420502323	IT-Based Multi Media*	2			√						√				
68	8420502325	AI-Based Learning*	2			√						√				
69	8420502269	Instrument Development*	2			√						√				
70	8420502195	Development of Biology Education Research*	2			√						√				
71	8420502207	Problems and Innovations in Biology Education*	2			√						√				
72	1000002051	School Curriculum Analysis**	2									√	√	√	√	
73	1000002055	Learning Assessment Development**	2									√	√	√	√	
74	1000003053	Analysis of Teaching Materials**	3									√	√	√	√	
75	1000002054	Learning Media Development**	2									√	√	√	√	
76	1000003052	Learning Plan Development**	3									√	√	√	√	
77	1000020149	Teaching Practice**	4									√	√	√	√	
78	MBKM0051	Program Evaluation Research***	2			√	√									
79	MBKM0052	Program Planning Research***	2			√	√									
80	1000020150	Capita Selecta Biology Education***	3			√	√									
81	1000020151	Continuing Biology Education***	3			√	√									
82	1000020152	Application of Statistics in Biology Education***	4			√	√									
83	1000020164	Conference***	2			√	√	√								
84	8420502393	Critical Thinking***	2					√								
85	8420502401	Communication Skills***	2					√								
86	MBKM0041	Independent Study Program Evaluation***	2			√	√									
87	MBKM0042	Independent Study Program Planning***	2			√	√									
88	1000020156	Socio-Scientific Issue (SSI) in Society***	2			√	√									
89	8420504404	Community Biology***	4				√	√								√
90	8420504405	Biological reasoning***	4			√	√		√							
91	MBKM0033	Program Evaluation Teaching Assistant***	2									√		√	√	
92	MBKM0034	Program Planning Teaching Assistance***	2									√		√	√	
93	8420503374	Development of Biology-Based Literacy and Numeracy***	3			√						√			√	

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				AT 1	AT 2	GC 1	GC 2	GC 3	GC 4	KN 1	KN 2	KN 3	KN 4	SS 1	SS 2	SS 3
94	8420503335	Design & Implementation of Student-centered Learning***	3									√		√	√	√
95	8420502372	School Environment Empowerment Through Biology Education***	2											√		√
96	8420502401	Public Communication***	2				√	√				√				
97	8420502407	Personality development***	2		√	√	√									
98	8420502408	Management and Leadership***	2		√	√	√									
99	8420502409	Interpersonal Communication***	2		√		√	√								
100	MBKM0007	Program Evaluation Internship***	2		√	√						√		√	√	
101	MBKM0012	Program Planning Internship***	2									√		√	√	
102	8420502410	Project Implementation***	3						√						√	√
103	8420502411	Applied Research Methodology***	2			√			√						√	
104	8420502412	Field Project Management***	2						√					√	√	
105	8420502413	Product Innovation***	3			√			√							√
106	8420502414	Scientific Communication & Dissemination***	2					√								
107	MBKM0039	Program Evaluation Village Project***	2				√									√
108	MBKM0018	Village Project Program Planning	2				√					√				√
109	8420502375	Local Potential Development and Social Entrepreneurship***	2		√	√										√
110	8420502363	Community Empowerment Program Management***	2		√	√										√
111	8420502355	Leadership in Community Empowerment***	2	√	√	√										
112	8420502356	Information Technology for Community Empowerment***	2				√		√							
113	8420502328	Village Program Administration***	2			√			√							
114	8420502344	Evaluation of Community Empowerment Programs***	2		√	√	√		√							
115	8420502345	Community Empowerment Program Planning***	2		√	√	√		√							√
116	MBKM0039	Humanitarian Project Program Evaluation***	2		√	√	√		√							
117	MBKM0040	Humanitarian Project Program Planning***	2		√	√	√		√							
118	8420502373	Multicultural Education***	2	√	√	√										
119	8420502354	Social Innovation and Local Education***	2		√	√	√							√	√	
120	8420502359	Event Management***	2		√		√	√								√

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				AT 1	AT 2	GC 1	GC 2	GC 3	GC 4	KN 1	KN 2	KN 3	KN 4	SS 1	SS 2	SS 3
121	8420502385	Social Psychology and Humanities***	2	√	√											√
122	MBKM0041	Independent Study Program Evaluation***	2		√	√	√									√
123	MBKM0042	Independent Study Program Planning***	2		√	√	√									√
124	MBKM0007	Entrepreneurship Program Evaluation***	2		√	√	√									√
125	MBKM0012	Entrepreneurship Program Planning***	2		√	√	√									√
126	8420502386	Entrepreneurial Practices***	2		√		√									√

*) UPBE elective courses

**) Introduction to School (PLP) program special courses

***) Academic special courses