- A. Module Handbook
- B. Course Program
- C. Assessment Rubric
- D. Appendixes
 - 1. Question Sheet for Midterm Course Examination
 - 2. Question sheet for Final Course Examination
 - 3. Assessment Rubric of Final Examination
 - 4. Sample of students' answer



MINISTRY OF HIGHER EDUCATION, SCIENCE, AND TECHNOLOGY UNIVERSITY OF LAMPUNG FACULTY OF TEACHER TRAINING AND EDUCATION

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145 Telp./Fax: (0721) 704624 *e-mail*: fkip@unila.ac.id, laman: http://fkip.unila.ac.id

Undergraduate Program of Biology Education

MODULE HANDBOOK

Module Name	Learning Theories and Instruction
Module Level, if Applicable	Undergraduate
Code	KBO625101
Sub-Heading, (*if Applicable)	-
Classes, (*if Applicable)	-
Semester	I (First Semester)
Module Coordinator	Berti Yolida, S.Pd., M.Pd.
Lecturers	- Berti Yolida, S.Pd., M.Pd.
	- Dr. Panggih Priyambodo, M.Pd.
	- Mufidah Estu Kinasih, S.Pd., M.Pd.
Language	Bilingual (Bahasa and English)
Classification With in the Curriculum	Compulsory
Teaching Format/Class Hours	Contact hours: 16 weeks x 100 minutes
Per Week During the Semester	Structured learning: 16 weeks x 120 minutes
	Independent study: 16 weeks x 120 minutes
Teaching Methods	Lecture, Presentation, Group Discussion, Case-Based Learning
Workfload	Contact hours: 16 weeks x 100 minutes
Credit Points	2 SKS = (1.28 * 2) = 2.56 ECTS
Prerequisites Courses	-
Course Learning Outcomes (CO)	 Attitude (A) Students are able to demonstrate a responsible attitude, work collaboratively, and uphold academic ethics in the application of learning theories to enhance the quality of biology education. Knowledge (P) Students are able to explain and analyse various learning theories and relate them to innovative biology learning strategies and models. General Skills (GS) Students are able to apply logical, critical, systematic, and innovative thinking in making appropriate decisions related to the application of learning theories in biology education. Specialised Skills (SS) Students are able to design innovative solutions in the form of biology learning models or strategies based on learning theories, emphasising critical, creative, and metacognitive thinking.

Content	 Radical Constructivism (Glasersfeld) Social Constructivism (Vygotsky) Cognitive Neuroscience (Hebb & Neisser) Behaviorism (Skinner) Mid-Semester Examination Humanism (Maslow) Connectivism (Siemens) Critical Pedagogy (Freire) Brain-Based Learning (MacLean) Experiential Learning (Kolb) Meaningful Learning (Ausubel) Mastery Learning (Bloom)
Study/Exam Achievements	13. Learning Styles (Fleming; Honey & Mumford) 1. Exam 1 15% 2. Exam 2 15% 3. Final Exam 15% 4. Paper 20% 5. Project Assignment 30% 6. Class Activity 5%
Examination Methods	a. Written examination (essay, case-based questions)b. Paper/project evaluationc. Presentation and discussion performance
Forms of Media	 PowerPoint Presentation e-Book & Handout Case Studies Virtual Classroom
Literature	 Primary: Applefield, James M., Huber, R., & Moallem, M. (2000). <i>Constructivism in practice and theory: Toward a better understanding</i>. Ausubel, D. P. (2000). The Acquisition and Retention of Knowledge: A Cognitive View. Springer. Bandura, A. (1985). <i>Prentice-Hall series in social learning theory. Social foundations of thought and action: A social cognitive theory</i>. Prentice-Hall, Inc. Illeris, K. (2018). Contemporary Theories of Learning: Learning Theorists In Their Own Words. Routledge Kolb, A. Y., & Kolb, D. A. (2008). Experiential learning theory: A dynamic, holistic approach to management learning, education and development. In <i>The SAGE Handbook of Management Learning, Education and Development</i> (pp. 42–68). SAGE Publications Ltd. https://doi.org/10.4135/9780857021038.n3 Olusegun Steve, B. (2015). Constructivism Learning Theory: A Paradigm for Teaching and Learning. <i>IOSR Journal of Research & Method in Education Ver. I</i>, 5(6), 66–70. https://doi.org/10.9790/7388-05616670

- 7. Ormrod, J. E. (2016). Human Learning (7th ed.). Pearson.
- 8. Ormrod, J. E., Anderman, E. M., & Anderman, L. H. (2020). *Educational psychology: Developing learners* (10th ed.). Hoboken, NJ: Pearson Education. ISBN 978-0135206478.
- 9. Schunk, D. H. (2019). Learning Theories: An Educational Perspective (7th ed.). Pearson.
- 10. Skinner, B. F. (2011). About Behaviorism. Vintage.
- 11. Slavin, R. E. (2006). *Educational psychology: Theory and practice* (8th ed.). Pearson Education.
- 12. Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Harvard University Press. Woolfolk, A. (2020). Educational Psychology (14th ed.). Pearson.
- 13. Widayanthi, D. G. C., Subhaktiyasa, P. G., Hariyono, C. I. A. S. W., & Sanulita, H. (2024). *Teori Belajar dan Pembelajaran*. PT Sonpedia Publishing Indonesia. ISBN 978-623-514-077-3.

Supporters:

- 1. Ibda, F. (2015). Cognitive Development: Jean Piaget's Theory. *Intelektualita*, *3*(1), 242904.
- 2. Tarsono. (2010). Implications of Albert Bandura's Social Learning Theory in Guidance and Counselling. *Psympathic, Scientific Journal of Psychology, III*(1), 29–36.

https://doi.org/https://doi.org/10.15575/psy.v3i1.2174



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STUDY CONTRACT

Course Name	:	Learning and teaching theory
Course Code/Credit Code		KBO625101
Semester	:	I (First Semester)
Academic Year	:	2025/2026
Meeting Place	:	G10
Course Status	1:	Compulsory
Prerequisite Courses	:	-
Level	:	Degree program
Major	:	Science Education
Study program	1:	Biology Education
Course Description	:	This course covers topics related to learning and teaching theories that can be applied in biology education and how to use them in school settings.
Competence	:	 Attitude (A) Students are able to demonstrate a responsible attitude, work collaboratively, and uphold academic ethics in the application of learning theories to enhance the quality of biology education. Knowledge (P) Students are able to explain and analyse various learning theories and relate them to innovative biology learning strategies and models. General Skills (GS) Students are able to apply logical, critical, systematic, and innovative thinking in making appropriate decisions related to the application of learning theories in biology education. Specialised Skills (SS) Students are able to design innovative solutions in the form of biology learning models or strategies based on learning theories, emphasising critical, creative, and metacognitive thinking.
Topic	:	 Course contract and introduction Radical Constructivism (figure: Glasersfeld) Social Constructivism (figure: Vygotsky) Cognitive Neuroscience (figures: Hebb and Neisser) Behaviourism (figure: Skinner) Humanistic (figure: Abraham Maslow) Connectivism (figure: George Siemens)

Lecture Strategy/Presentation Method Evaluation	8. Critical pedagogy (figure: Freire) 9. Brain-Based Learning (figure: Paul MacLean) 10. Experiential learning (figure: Kolb) 11. Meaningful Learning (figure: Ausubel) 12. Mastery learning (Bloom) 13. Learning style (figure: Fleming; Honey Mumford) : Lecture, Presentation, Group Discussion, Case-Based Learning : 1. Exam 1 15% 2. Exam 2 15% 3. Final Exam 15% 4. Paper 20% 5. Project Assignment 30% 6. Class Activity 5%
Instructional Media	 : 1. PowerPoint Presentation 2. e-Book & Handout 3. Case Studies 4. Virtual Classroom
Literature	 Primary: Applefield, James M., Huber, R., & Moallem, M. (2000). Constructivism in practice and theory: Toward a better understanding. Ausubel, D. P. (2000). The Acquisition and Retention of Knowledge: A Cognitive View. Springer. Bandura, A. (1985). Prentice-Hall series in social learning theory. Social foundations of thought and action: A social cognitive theory. Prentice-Hall, Inc. Illeris, K. (2018). Contemporary Theories of Learning: Learning Theorists In Their Own Words. Routledge Kolb, A. Y., & Kolb, D. A. (2008). Experiential learning theory: A dynamic, holistic approach to management learning, education and development. In The SAGE Handbook of Management Learning, Education and Development (pp. 42–68). SAGE Publications Ltd. https://doi.org/10.4135/9780857021038.n3 Olusegun Steve, B. (2015). Constructivism Learning Theory: A Paradigm for Teaching and Learning. IOSR Journal of Research & Method in Education Ver. I, 5(6), 66–70. https://doi.org/10.9790/7388-05616670 Ormrod, J. E. (2016). Human Learning (7th ed.). Pearson. Ormrod, J. E., Anderman, E. M., & Anderman, L. H. (2020). Educational psychology: Developing learners (10th ed.). Hoboken, NJ: Pearson Education. ISBN 978-0135206478.

- 9. Schunk, D. H. (2019). Learning Theories: An Educational Perspective (7th ed.). Pearson.
- 10. Skinner, B. F. (2011). About Behaviorism. Vintage.
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Supporters:

- 1. Ibda, F. (2015). Cognitive Development: Jean Piaget's Theory. *Intelektualita*, *3*(1), 242904.
- 2. Tarsono. (2010). Implications of Albert Bandura's Social Learning Theory in Guidance and Counselling. *Psympathic, Scientific Journal of Psychology, III*(1), 29–36.

https://doi.org/https://doi.org/10.15575/psy.v3i1.2174

Bandar Lampung, August 20, 2025 Field Coordinator Expertise (PJMK)

Berti Yolida NIP 198310152006042001



LAMPUNG UNIVERSITY FACULTY OF TEACHER TRAINING AND EDUCATION DEPARTMENT OF MATHEMATICS AND NATURAL SCIENCES **BIOLOGY EDUCATION PROGRAM**

SEMESTER LEARNING PLAN (RPS)

Cou	ırse Name	Course Code Lecture	Credit Hours (sks)		Semester	Date of Compilation
Learning Theories and I	nstruction	KBO625101		2 (2-0)	I	
Aut	horisation		of Development Coordinator RPS Field Coordinator Expertise (if any)		Head of Stu	dy Programme
					7	1-178-
		Dr. Panggih Pr	Yolida, M.Ed. riyambodo, M.Ed. u Kinasih, M.Ed.	Dr. Berti Yolida, M.Ed.	Rini Rita	T. Marpaung, B.Ed., M.Ed.
Learning Outcomes	CPL-PROGRAM (Prograi	nme Learning Outc	omes) Assigned to Cour	ses		
(LO)	Attitude Domein (C)					

(LU)

Attitude Domain (S)

- 1. Contribute to improving the quality of community, national, and state life, as well as the advancement of civilisation based on Pancasila (CPL-S3)
- 2. Collaborate and possess social sensitivity and concern for society and the environment (CPL-S6)
- 3. Internalising academic values, norms, and ethics (CPL-S8)

Knowledge (P)

- 1. Able to create patterns, schemes, or models of knowledge related to biological concepts and problems based on the use of higher-order cognitive skills and effective collaboration (CPL-P6)
- 2. Able to create innovative biological works based on higher-order thinking skills (HOTS) (CPL-P7).

General Skills (GS)

- 1. Ability to apply logical, critical, systematic, and innovative thinking in the context of developing or implementing science and technology that considers and applies humanities values appropriate to their field of expertise (CPL-KU1)
- 2. Able to examine the implications of the development or implementation of science and technology that pays attention to and applies humanistic values in accordance with their expertise based on scientific principles, procedures, and ethics in order to produce solutions, ideas, designs, or artistic criticism, compile scientific descriptions of their research in the form of a thesis or final project report, and upload it to the university website (CPL-KU3).

	3. Able to make appropriate decisions in the context of problem-solving in their field of expertise, based on the analysis of information and data (CPL-KU5)
	Specialised Skills (KK)
	1. Able to discuss and negotiate various options for solving biological problems with the support of various facts, data, and relevant and accountable arguments
	(CPL-KK3)
	2. Able to initiate the creation of a product or solution to a biological problem by prioritising critical, creative, and metacognitive thinking (CPL-KK4)
	3. Able to create or compile reputable scientific works based on data and information converted from mini-research or field investigations that are valid, and
	accountable (CPL-KK5) CPMK (Course Learning Outcomes)
	Crmk (Course Learning Outcomes)
	1. Attitude (A)
	Students are able to demonstrate a responsible attitude, work collaboratively, and uphold academic ethics in the application of learning theories to enhance the
	quality of biology education.
	2. Knowledge (P)
	Students are able to explain and analyse various learning theories and relate them to innovative biology learning strategies and models.
	3. General Skills (GS)
	Students are able to apply logical, critical, systematic, and innovative thinking in making appropriate decisions related to the application of learning theories in
	biology education.
	4. Specialised Skills (SS)
	Students are able to design innovative solutions in the form of biology learning models or strategies based on learning theories, emphasising critical, creative,
	and metacognitive thinking.
Brief Description of	This course covers topics related to learning and teaching theories that can be applied in biology education and how to use them in school settings.
the Course	
Study Materials	Course contract and introduction
/ Learning	Radical Constructivism (figure: Glasersfeld)
Materials	3. Social Constructivism (figure: Vygotsky)
	4. Cognitive Neuroscience (figures: Hebb and Neisser)
	5. Behaviourism (figure: Skinner)
	6. Humanistic (figure: Abraham Maslow)
	7. Connectivism (figure: George Siemens)
	8. Critical pedagogy (figure: Freire)
	9. Brain-Based Learning (figure: Paul MacLean)
	10. Experiential learning (figure: Kolb)
	11. Meaningful Learning (figure: Ausubel)
	12. Mastery learning (Bloom)
	13. Learning style (figure: Fleming; Honey Mumford)
References	Primary:

	1. Applefield, James M., Huber, R., & Moallem, M. (2000). Constructivism in practice and theory: Toward a better understanding.
	2. Ausubel, D. P. (2000). The Acquisition and Retention of Knowledge: A Cognitive View. Springer.
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	4. Illeris, K. (2018). Contemporary Theories of Learning: Learning Theorists In Their Own Words. Routledge
	5. Kolb, A. Y., & Kolb, D. A. (2008). Experiential learning theory: A dynamic, holistic approach to management learning, education and development. In <i>The</i>
	SAGE Handbook of Management Learning, Education and Development (pp. 42–68). SAGE Publications Ltd. https://doi.org/10.4135/9780857021038.n3
	6. Olusegun Steve, B. (2015). Constructivism Learning Theory: A Paradigm for Teaching and Learning. IOSR Journal of Research & Method in Education Ver.
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	7. Ormrod, J. E. (2016). Human Learning (7th ed.). Pearson.
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	ISBN 978-0135206478.
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	12. Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Harvard University Press. Woolfolk, A. (2020). Educational
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	Supporters:
	1. Ibda, F. (2015). Cognitive Development: Jean Piaget's Theory. <i>Intelektualita</i> , 3(1), 242904.
	2. Tarsono. (2010). Implications of Albert Bandura's Social Learning Theory in Guidance and Counselling. <i>Psympathic, Scientific Journal of Psychology, III</i> (1),
	29–36. https://doi.org/https://doi.org/10.15575/psy.v3i1.2174
	Supporters:
	1. Ibda, F. (2015). Cognitive Development: Jean Piaget's Theory. <i>Intelektualita</i> , 3(1), 242904.
	2. Tarsono. (2010). Implications of Albert Bandura's Social Learning Theory in Guidance and Counselling. <i>Psympathic, Scientific Journal of Psychology, III</i> (1),
	29–36. https://doi.org/https://doi.org/10.15575/psy.v3i1.2174
Lecturer Name	1. Dr. Berti Yolida, M.Pd.
Instructor	2. Dr. Panggih Priyambodo, B.Ed., M.Ed.
	3. Mufidah Estu Kinasih
Course	-
Prerequisites (if	
any)	

Week	Sub-CPMK	Study Materials	Form and Methods of Learning		, , , , , , , , , , , , , , , , , , ,		Estimated	Student		Assessment	
Week	(Planned final competency)	(Learning Materials)	[Media & Learı	ning Resources]	Time	Learning Experience	Criteria & amp; Forms	Indicators	Weight (%)		
1	2	3	4	1	5	6	7	8	9		
I	Describe the scope of the Learning and Teaching Theory course and understand the course contract	Course contract and introduction	Lectures, Discussions Media: Video and PowerPoint materials	 e-learning V Class Media: Video, PowerPoint Learning Resources: e-book 	Face-to-face (TM) 2 x 50 minutes	Lectures and discussions	-	-	-		
II	Explaining the principles of radical constructivism in biology education	Radical Constructivism (Glasersfeld)	 Lectures, discussions, case studies Media: Videos and PowerPoint materials 	 e-learning V Class Media: Video, PowerPoint Learning Resources: e-book 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 1 Structured assignment assessment	 Explain the main principles of radical constructivism in a systematic manner. Provide examples of application in biology education. 	5		
III	Explaining the concepts of scaffolding and ZPD in collaborative biology learning.	Social Constructivism (Vygotsky)	 Lectures, discussions, case studies Media: Videos and PowerPoint materials 	 e-learning V Class Media: Video, PowerPoint Learning resources: e-books 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 1 Structured assignment assessment	 Explain the definitions of scaffolding and ZPD accurately. Relate the concept of ZPD to collaborative activities. 	5		
IV	Applying the principles of cognitive neuroscience in biology learning strategies	Cognitive Neuroscience (Hebb, Neisser)	Lectures, discussions, case studies Media: Videos and PowerPoint materials	e-learningV ClassMedia: Video, PowerPoint	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 1 Structured assignment assessment	 Linking brain function to learning methods. Students select learning strategies based on neuroscience principles. 	5		

V	Applying the principles of reinforcement and punishment in biology learning	Behaviourism (Skinner)	Lectures, discussions, case studies Media: Videos and PowerPoint materials	Learning resources: e-books e-learning V Class Media: Video, PowerPoint Learning resources: e-books	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 1 Structured assignment assessment	Providing examples of the application of rewards and punishments in simulations. Distinguishing between positive reinforcement, negative reinforcement, and punishment.	5
VI				Examin	nation 1				10
VII	Explain Maslow's hierarchy of needs in the context of biology learning	Humanistic (Maslow)	Lectures, discussions, case studies Media: Videos and PowerPoint materials	 e-learning V Class Media: Video, PowerPoint Learning resources: e-books 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 2 Structured assignment assessment	 Explaining each level of Maslow's hierarchy of needs. Connecting student needs with learning motivation. 	5
VIII	Analysing the application of connectivism principles in ICT-based biology learning	Connectivism (Siemens)	 Lectures, discussions, case studies Media: Videos and PowerPoint materials 	 e-learning V Class Media: Video, PowerPoint Learning Resources: 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 2 Structured assignment assessment	 Analysing the principles of connectivism in ICT-based learning. Designing a simple digital network-based biology learning plan. 	5

IX	Analysing the application of critical pedagogy in contextual biology learning.	Critical Pedagogy (Freire)	Lectures, discussions, case studies Media: Videos and PowerPoint materials	 e-learning V Class Media: Video, PowerPoint Learning resources: e-books 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 2 Structured assignment assessment	Analysing the role of the teacher as a critical facilitator. Linking critical pedagogy to the socio-biological context (e.g., environmental issues)	5
X	Evaluating biology learning strategies based on brain-based learning.	Brain-Based Learning (MacLean)	Lectures, discussions, case studies Media: Videos and PowerPoint materials	 e-learning V Class Media: Video, PowerPoint Learning resources: e-books 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 2 Structured assignment assessment	Comparing the advantages and limitations of brain-based learning. Assessing the suitability of brain-based learning strategies for biology education.	5
XI				Exam	ination 2				15
XI	Designing biology learning based on real experiences	Experiential Learning (Kolb)	Lectures, discussions, case studies Media: Videos and PowerPoint materials	e-learning V Class Media: Video, PowerPoint Learning resources: e-books	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 3 Structured assignment assessment	Developing a learning design aligned with the experiential learning cycle. Including field experience activities or simulations.	5

XIV	Developing assessment instruments for biology learning based on mastery learning.	Mastery Learning (Bloom)	 Lectures, discussions, case studies Media: Videos and PowerPoint materials 	 e-learning V Class Media: Video, PowerPoint Learning resources: e-books 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 3 Structured assignment assessment	Developing evaluation instruments in accordance with the principles of learning mastery. Formulating clear and measurable success criteria.	5
XV	Analysing students' learning styles in biology lessons	Learning Style (Fleming; Honey & Mumford)	 Lectures, discussions, case studies Media: Video and PowerPoint materials 	 e-learning V Class Media: Video, PowerPoint Learning resources: e-books 	Face-to-face (TM) 2 x 50 minutes	Student presentations, class discussions and lecturer confirmation	Written Test 3 Structured assignment assessment	 Identifying learning styles through diagnostic instruments. Adapting biology learning strategies to students' learning styles. 	5
XVI				Examin	ation 3				15

Assessment Rubric – Course: Learning Theories and Instruction

Final Grade Weighting

No	Assessment Components	Percentage
1	Examination 1	15
2	Exam 2	15
3	Examination 3	15
4	Paper	20%
5	Project Assignment	30%
6	Activities	5
	Total	100

Student participatory assessment

No	Assessment aspects	Participatory weighting
1	Participation in discussions,	25
2	Ability to ask and answer questions	25
3	Cooperation in groups	25
4	Responsible for tasks	25

Presentation assessment

No	Assessment aspects	Participation weight
1	Mastery of material	25
2	Communication skills	25
3	Presentation products	25
4	Presentation attitude	25

No.	Assessment Component	Weight	Criteria	Rubric Description
1	Exam 1 (Mid I)	15%	Understanding of basic theories (Constructivism, Cognitive Neuroscience, Behaviorism)	Excellent (90–100): Answers are accurate, comprehensive, and demonstrate critical understanding. Good (76–89): Mostly accurate with minor errors, shows adequate understanding. Fair (60–75): Limited explanation, some misconceptions. Poor (<60): Incomplete or incorrect answers.
2	Exam 2 (Mid II)	15%	Understanding of advanced theories (Humanism, Connectivism, Critical Pedagogy)	Same criteria as Exam 1, adjusted to content focus.
3	Exam 3 (Final)	15%	Mastery of all learning theories (Brain-Based, Experiential, Meaningful,	Same criteria as Exam 1, adjusted to content focus.

			Mastery Learning,	
4	Paper (Individual)	20%	Ability to analyze, synthesize, and apply learning theories to Biology	Excellent (90–100): Well-structured, original, critical analysis, proper references (APA/MLA). Good (76–89): Clear argument, sufficient references, minor
			education	weaknesses. Fair (60–75): Basic understanding, limited references, weak organization. Poor (<60): Plagiarized or irrelevant.
5	Project Assignment (Group/Individual)	30%	Application of learning theories in designing Biology teaching practices	Excellent (90–100): Innovative design, strong theoretical basis, practical relevance, excellent teamwork/presentation. Good (76–89): Relevant design, sufficient theoretical link, clear presentation. Fair (60–75): Simple design, weak theoretical link, average teamwork. Poor (<60): Irrelevant, incomplete, or lack of teamwork.
6	Class Activity & Participation	5%	Engagement in discussions, case-based learning, and presentations	Excellent (90–100): Active participation, constructive contributions, collaborative. Good (76–89): Participates regularly, contributes meaningfully. Fair (60–75): Occasionally participates, limited contribution. Poor (<60): Rarely participates, disruptive behavior.

Mid Exam – Learning Theories and Instruction

Program Study: Biology Education

Semester: Odd 2025/2026

Time Allocation: 90 minutes

Total Score: 100 points

General Instructions for Students

- 1. Answer all questions in essay form.
- 2. Write clearly and systematically, using appropriate academic English.
- 3. Support your answers with relevant theories, arguments, and examples, particularly in the context of Biology education.
- 4. Each answer should be between 250–400 words.
- 5. Use structured writing: introduction, explanation, example/application, and conclusion.
- 6. Plagiarism will result in zero points.

Essay Questions

- 1. Explain how this perspective views the role of students and teachers in the classroom.

 Provide one example of applying Radical Constructivism in Biology learning. (25 points)
- 2. Discuss how the Zone of Proximal Development (ZPD) can guide Biology teachers in designing learning activities. Provide one concrete classroom example. (25 points)
- Explain Hebb's principle 'neurons that fire together wire together.'
 Discuss its implication for teaching strategies that enhance memory and understanding in Biology. (25 points).
- 4. Compare positive reinforcement, negative reinforcement, and punishment in shaping student behavior. Give two examples of applying operant conditioning in Biology education. (25 points)

Scoring Rubric- Mid Exam – Learning Theories and Instruction

Criteria	Excellent (21–25)	Good (16–20)	Fair (11–15)	Poor (0–10)
Understanding of Theory	Demonstrates deep, accurate, and comprehensive understanding of the learning theory.	Demonstrates adequate understanding with minor inaccuracies.	Limited understanding with several misconceptions.	Very poor or incorrect understanding of the theory.
Application in Biology Education	Provides highly relevant, original, and practical examples in Biology learning.	Provides relevant examples but lacks depth or originality.	Provides general or vague examples with weak connection to Biology.	No relevant examples or completely off-topic.
Argumentation & Critical Thinking	Arguments are logical, coherent, critical, and well-supported with theoretical references.	Arguments are clear but less critical, with some support from theory.	Arguments are weak, less coherent, and lack theoretical support.	Arguments are unclear, unsupported, or absent.
Organization & Clarity	Essay is very well-structured, coherent, and written in fluent academic English.	Essay is structured and clear, with minor language issues.	Essay has weak organization and several language errors.	Essay is disorganized, unclear, and full of errors.

Final Exam – Learning Theories and Instruction (HOTS Essay Questions)

Program Study: Biology Education

Semester: Odd 2025/2026

Time Allocation: 120 minutes

Total Score: 100 points

General Instructions for Students

- 1. Answer all questions in essay form using academic English.
- 2. Apply critical thinking (analysis, evaluation, creation) in your answers.
- 3. Support arguments with theories, research findings, or classroom-based examples in Biology education.
- 4. Each essay should be between 300–500 words.
- 5. Use structured writing: introduction main discussion example/application conclusion.
- 6. Plagiarism will result in zero points.

Essay Questions

- 1. Analyze how unmet lower-level needs (physiological and safety) may obstruct Biology students' motivation and achievement. Then propose practical strategies for Biology teachers to help students reach higher-order needs such as self-actualization. (20 points)
- 2. Critically evaluate the effectiveness of connectivism compared to traditional learning theories (e.g., behaviorism, constructivism) in 21st-century Biology classrooms. Then design one Biology activity that applies connectivist principles using digital tools. (20 points)
- 3. Compare and contrast the key principles of Brain-Based Learning and Experiential Learning. Then analyze how integrating both approaches can enhance conceptual understanding in Biology. Provide a specific classroom activity as an example. (20 points)
- 4. Evaluate the strengths and limitations of Ausubel's and Bloom's approaches in supporting diverse student abilities in Biology. Then create a teaching scenario where both are combined to ensure all students achieve learning outcomes. (20 points)
- 5. Analyze the relationship between students' learning styles and empowerment in the classroom. Then design a Biology lesson that not only addresses different learning styles but also promotes critical awareness and student participation. (20 points)

Scoring Rubric Final Exam

Criteria	Excellent (17–20)	Good (13–16)	Fair (9–12)	Poor (0–8)
Understanding & Analysis of Theory	Demonstrates deep, accurate, and critical analysis of relevant theory; integrates multiple perspectives.	Shows adequate understanding and some critical analysis with minor inaccuracies.	Limited analysis with partial understanding; mostly descriptive.	Very poor or incorrect analysis; lacks theoretical understanding.
Application & Evaluation in Biology Education	Provides highly relevant, original applications in Biology learning; critically evaluates implications.	Provides relevant applications; some evaluation but lacks depth.	Applications are vague or limited; minimal evaluation.	No relevant application; no evaluation present.
Creativity & Problem-Solving	Proposes innovative strategies/lesson designs with strong theoretical basis.	Proposes clear strategies with adequate theoretical basis.	Strategies are simple, generic, or weakly connected to theory.	No strategies proposed or irrelevant to theory.
Argumentation & Critical Thinking	Arguments are logical, coherent, well-supported with references/examples; demonstrates high-level critical thinking.	Arguments are clear and mostly coherent; some critical perspective present.	Arguments are weak, less coherent, with little evidence of critical thinking.	Arguments are unclear, unsupported, or absent.
Organization & Clarity	Essay is very well-structured, coherent, and written in fluent academic English.	Essay is structured and clear, with minor language issues.	Essay has weak organization and frequent language errors.	Essay is disorganized, unclear, and full of errors.