

## SCIENTIFIC RESEARCH

**ISCED UNIT CODE:** 0111 541 19A

**TVET CDACC UNIT CODE:** HE/CU/AHP/CC/24/6/MA

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Conduct scientific research.

**Unit Duration:** 150 hours

### Unit Description

This unit specifies the competencies required by an animal health and production technologist to conduct scientific research. It involves preparing scientific research proposals, applying scientific research and analyzing scientific research.

### Summary of Learning Outcomes

By the end of this unit, the learner should be able to:

S/No	Learning Outcomes	Duration (Hours)
1.	Prepare scientific research proposal	50
2.	Apply scientific research methods	50
3.	Analyze scientific research finding	50
<b>Total</b>		<b>150</b>

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Methods of assessment
1. Prepare scientific research proposal	1.1. Introduction to scientific research proposal 1.2. Scientific research problem 1.3. Research objectives 1.4. Research questions/ hypothesis 1.5. Types of hypothesis 1.6. Hypothesis formulation	<ul style="list-style-type: none"><li>• Practical</li><li>• Project</li><li>• Portfolio of evidence</li><li>• Third party report</li><li>• Written assessment</li><li>• Oral questioning</li></ul>

	<p>1.7. Scientific research proposal</p> <p>1.8. Components of research proposals</p> <p>1.9. Format of research proposal</p> <p>1.10. Approval of research proposal</p>	
<p>2. Apply scientific research methods</p>	<p>2.1. Scientific research methods</p> <p>2.2. Scientific study design</p> <p>    2.2.1. Qualitative designs</p> <p>    2.2.2. Quantitative designs</p> <p>2.3. Sample size</p> <p>2.4. Sampling techniques</p> <p>    2.4.1. Probability</p> <p>    2.4.2. Non probability</p> <p>2.5. Ethical consideration</p> <p>2.6. Research materials</p> <p>2.7. Data collection</p>	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party report</li> <li>• Written assessment</li> <li>• Oral questioning</li> </ul>
<p>3. Analyze scientific research finding</p>	<p>3.1. Data analysis techniques</p> <p>3.2. ANOVA</p> <p>3.3. Measures of central tendency</p> <p>3.4. Measures of dispersal</p> <p>3.5. Components of a research report</p> <p>3.6. Formats of research report</p> <p>3.7. Dissemination methods</p> <p>3.8. Result finding</p> <p>3.9. Publishing</p>	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party report</li> <li>• Written assessment</li> <li>• Oral questioning</li> </ul>

### **Suggested Methods of delivery**

- Practical
- Projects
- Demonstrations
- Group discussion
- Direct instructions

### Recommended Resources for 25 trainees

S/No.	Category/Item	Description/ Specification	Quantity	Recommended Ratio (Item: Trainee)
	<b>Learning materials</b>			
1.	Projector		1	1:25
2.	Whiteboard/Smart board		1	1:25
3.	Desktop/computer		1	1:25
4.	Lecture/Theory room		1	1:25
5.	Animal farm	As guided by KVB	1	1:25
6.	Library		1	1:25
7.	E-Library		1	1:25