

Semester	5		
Course Code:	ZOOL 44952		
Course Name:	Animal Biotechnology		
Credit Value:	2		
Status:	Optional		
Pre-requisites:	ZOOL 21702 and ZOOL 21722		
Co-requisite:	None		
Hourly Breakdown:	Theory	Practical	Independent Learning
	24	18	58
Intended Learning Outcomes:			
At the completion of this course unit, student will be able to;			
<ol style="list-style-type: none"> 1. describe the important discoveries, techniques and approaches in animal biotechnology, 2. describe the applications of animal biotechnology in human and animal well-being, 3. demonstrate basic skills in experimental methods used in animal biotechnology, 4. critically comment on the ethical issues and regulatory aspects of animal biotechnology, and 5. recommend appropriate approaches to contemporary issues in animal biotechnology. 			
Course Content:			
<p>Introduction to animal biotechnology, landmark discoveries in animal biotechnology, Tools and techniques used in animal biotechnology; Gene identification, Genetic manipulation: rDNA, Gene editing, gene silencing, knock-out, overexpression etc., Alternatives to animal models, Cloning, Next-generation techniques, Applications of animal biotechnology in livestock, aquaculture, fisheries, conservation contemporary medicine, human health and well-being, Ethical and regulatory aspects of animal biotechnology, Challenges, trends and current topics in animal biotechnology</p> <p>Practical sessions on alternative animal models, in-vitro cell culture, cell based assays, advanced microscopy, advanced detection methods of biomolecules, gene sequencing</p>			
Teaching /Learning Methods:			
A combination of lectures, tutorial discussions, laboratory practical sessions, demonstrations, seminars, laboratory visits and computer-assisted learning.			
Assessment Strategy:			

Continuous Assessment 30%	Final Assessment 70%		
Details: Presentations and seminars - 10 Assignments - 10 Laboratory reports- 10	Theory 70	Practical -	Other -
Recommended Readings: 1. Smith J. E. 2009. Biotechnology, 5 th Edition, Cambridge University Press 2. Verma AS and Singh A .2020. Animal Biotechnology, 2 nd Edition, Academic Press 3. Singh B, Gautam SK and Chauhan MS. 2015. Textbook of Animal Biotechnology, The Energy and Resource Institute 4. Selected articles from journals and on-line resources			