



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

**Course Specifications
(CS)**

ANPR 226: Breeding and Genetic Improvement

**Dr. A. A. Alsobayel
Instructor**



Course Specifications

Institution King Saud University	Date of Report 23/12/2013
College/Department Food and Agricultural Sciences/ Animal Production Dept.	

A. Course Identification and General Information

1. Course title and code:: ANPR 226: Breeding and Genetic Improvement		
2. Credit hours 3 (2+1) Credits		
3. Program(s) in which the course is offered. Animal Production Sciences (If general elective available in many programs indicate this rather than list programs)		
4. Name of faculty member responsible for the course Dr. A. A. Alsobayel		
5. Level/year at which this course is offered Third Year		
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any) Stat 100		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="100%"/>
b. Blended (traditional and online)	<input type="checkbox"/> What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/> What percentage?	<input type="text"/>
d. Correspondence	<input type="checkbox"/> What percentage?	<input type="text"/>
f. Other	<input type="checkbox"/> What percentage?	<input type="text"/>
Comments:		



B Objectives

<p>1. What is the main purpose for this course?</p> <ul style="list-style-type: none"> To familiarize students with basic knowledge of farm animal breeding. To develop the students' understanding of principles of population genetics. To develop the students' appreciation of farm animal breeding as an applied science supported by theory and field trials. To develop in the students' awareness of the relevance of animal breeding to other areas of industrial importance, biological and food systems and environmental issues.
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <ul style="list-style-type: none"> Electronic materials and computer based programs have been utilized to support the lecture course material. Taking recent development in animal breeding into consideration.

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Applications of Mendelian genetics in farm animals.	1	4
Probability and tests of genetic hypotheses.	1	4
Principles of population genetics.	1	4
Selection methods.	2	8
Genetic relationships and inbreeding.	2	8
Laboratory		28
	Total	56



2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	28	N/A	28	N/A	N/A	56
Credit	3	N/A	N/A	N/A	N/A	3 Credits

3. Additional private study/learning hours expected for students per week. 2 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;

The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Describe genetic relationships and inbreeding and how to determine inbreeding and relationship coefficients.	Lecture-discussion	Written test
1.2	Develop sufficient knowledge on the inheritance of quantitative traits.	Paper pencil activity Group discussion	Rubric Assessment
1.3	Define selection methods and how to determine genetic value.	Lab. and field discussion.	Written test
1.4	Describe genetic improvement methods and acquire sufficient knowledge on various mating systems and their effect on animal performance	Lecture-discussion	Case study
2.0	Cognitive Skills		
2.1	Explain environmental and genetic effects and their relationships on farm animal performance and acquire knowledge to understand the different kind of gene effects.	Lecture-discussion	Written test
2.2	Analyze statistically determine important genetic parameters. Demonstrate the differences between various mating systems and acquire knowledge to be able to select the best animal for breeding.	Field visit and training Group discussion	Rubric Assessment
3.0	Interpersonal Skills & Responsibility		
3.1	Illustrate the work effectively both individually and in teams in both classroom and laboratory and field. Apply global rules and regulations for farm animal genetic improvement.	Group discussion	Rubric Assessment
3.2	Demonstrate the ethical and professional standards articulated by professional organizations (e.g. the	Small group discussion	Case study



	Animal Science Associations).		
3.3	Explain the interrelationships among animal breeding, technology, and new developments in science.	Lecture-discussion	Written test
4.0	Communication, Information Technology, Numerical		
4.1	Develop adequate written and oral skills with ability to summarize, evaluate, synthesize and appropriately communicate scientific concepts to a variety of audience.	Paper pencil activity Group discussion	Rubric Assessment
4.2	Recognize and uses appropriate technologies as computer applications, laboratory methodologies, breeding programs and genetic technology.	Small group discussion	Case study
5.0	Psychomotor		
5.1	N/A	N/A	N/A
5.2			

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct



Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider Maximize Continue Review Ensure Enlarge Understand
Maintain Reflect Examine Strengthen Explore Encourage Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Class activities (in-class quizzes, homework)	Weekly	10%
2	Major Exam I	Week 6	15%
3	Major Exam II	Week 12	15%
4	Final lab exam	Week 14	20%
5	Final Exam	Week 16	40%
		Total	100%



D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

The instructor is available for student consultation and academic advise on the following days:

Office hours (6 hours per week).

Email: asobayel@ksu.edu.sa

Office number: 4678480

Office: College of Agriculture, 2nd Floor, 2A 12

Students are welcome to call to set an appointment with the instructor.

Help session (genetic problems solving): as required.

E. Learning Resources

1. List Required Textbooks

- Animal breeding. S. Jalal and H.karam, Dar almaarif, 2003. Genetic of Livestock Improvement, John F. Lasley, Prentice-Hall, Inc., Englewood Cliffs, New Jersey 07632, 2002 .

2. List Essential References Materials (Journals, Reports, etc.)

Journal of Animal Breeding.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Website dedicated to animal science association available on the internet.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Computer breeding programs.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)



- A classroom containing at least 30 seats.
- A laboratory of at least 15 places.

2. Computing resources (AV, data show, Smart Board, software, etc.)

- Computer lab containing at least 15 computer sets.
- Scientific calculator.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

NA

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation by students.
Faculty – students general gathering.

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- Peer consultation on teaching.
- Departmental council discussions.

3 Processes for Improvement of Teaching

- Conducting workshops presented by experts on the teaching methodologies.
- Periodical departmental revisions on its methods of teaching.
- Monitoring of teaching activities by senior faculty members .

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Providing samples of all kind of assessment in the departmental course portfolio of the course.
- Assigning group of faculty members teaching the same course to grade same questions for various students. Faculties from other institutions are invited to review the accuracy of the grading policy.



5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- The course material and learning outcome are periodically reviewed and the changes to be taken are in the departmental and higher councils.
- The chairman of the department and faculty members take the responsibility.

Faculty or Teaching Staff:

Dr Abdullah Alsobayel

Signature: _____ **Date Report Completed: 23/12/2013** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____