****

**Department of Animal Resources**

**College of Agriculture**

**University of Salahaddin**

**Subject: Poultry Breeding**

**Course Book – (Year 4)**

**Lecturer's name: Dr. Hurea Saber Haddad**

 **Dr Lajan S. Ahmed**

**Academic Year: 2022/2023**

**Course Book**

|  |  |
| --- | --- |
| **1. Course name** | **Poultry Breeding** |
| **2. Lecturer in charge** | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| **3. Department/ College** | **Dept. of Animal Resources – College of Agriculture** |
| **4. Contact** | **e-mail:** **Tel: (optional)** |
| **5. Time (in hours) per week**  | **Theory: 2**  |
| **6. Office hours** | **4 hours** |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **e.g Webpage, Blog, Moodle…** **or few paragraphs about not less than 100 words****لێره‌ مامۆستای وانه‌بێژ پرۆفایلێک ده‌نووسیت له‌سه‌ر ژیانی ئه‌کادیمی خۆی (ته‌نها ئه‌کادیمی)** |
| **9. Kesywords** |  |
| **10. Course overview:** This course is very important to the student in the department of animal resources because they will be able:1. To have knowledge about the origin of the fowl, the theories which explain the origin of the fowl and to have different breeds? The classification of the fowl according to their class, place, and to their production purpose (egg production, meat and dual purpose). To let the students know the gametogenesis and the differences between spermatogenesis and oogenesis (the formation of avian germ cells).
2. To make the students have knowledge about the Mendelian inheritance, type of dominance, the modifications of Mendelian ratio, sex-chromosome, sex-linked inheritance, and lethal genes which cause death of the chicks at different ages and their classification. The inheritance of skin, plumage and egg colouration.
3. To have an idea about the pigments and enzymes responsible on inheritance of the colour of skin, plumage and eggs, as well the shapes of comb, and the abnormalities.
4. How to use the statistical measurements in poultry breeding, gene frequency and the factors affecting it. Hardey-Weinberg equilibrium, multiple alleles and average gene effect.
5. To have knowledge about the variance and its components, Estimation of heritability by using different methods as well estimating the genetic parameters including genetic and phenotypic correlation).
 |
| **11. Course objective:**1. Students will be able to understand principles of Poultry genetics and breeding; identify different breeding methods.
2. Inform the students about the importance of breeding the fowl, their classification, their conformation type and their production.
3. The economic useful of some traits which is linked with sex chromosome in isolating males from females.
4. How to avoid the problems resulted due to the lethal genes.
5. The benefit expected from the gene frequency and the factors affecting it, as well the multiple allele and the average effect of gene.
6. Develop the student’s ability in how to collect the data and estimate the genetic parameters.
7. Develop projects to improve the productivity of poultry (fowls) according to several economic traits in Kurdistan and identify worldwide breeding projects.
 |
| **12. Student's obligation*** Weekly Assignments (quiz)
* Homework, reports and Library research
* Mid-term exam (2 or 3)
* Final Exam.
 |
| **13. Forms of teach****Whit board , data show**  |
| **14. Assessment scheme**Breakdown of overall assessment and examination* Weekly Assignments (quiz)
* Homework, reports and Library research
* Mid-term exam (2 or 3)

Final Exam.‌ |
| **15. Student learning outcome:**1. Students will be able to understand principles of Poultry genetics and breeding; identify different breeding methods.
2. Inform the students about the importance of breeding the fowl, their classification, their conformation type and their production.
3. The economic useful of some traits which is linked with sex chromosome in isolating males from females.
4. How to avoid the problems resulted due to the lethal genes.
5. The benefit expected from the gene frequency and the factors affecting it, as well the multiple allele and the average effect of gene.
6. Develop the student’s ability in how to collect the data and estimate the genetic parameters.
7. Develop projects to improve the productivity of poultry (fowls) according to several economic traits in Kurdistan and identify worldwide breeding projects.
 |
| **16. Course Reading List and References‌:**1. Poultry Breeding (Arabic). (1990). T.H. Hussain and N.M. Ali.
2. Genetic of the fowl. (1949). Hutt, B.F. 1st Edition, USA.
3. Genetics and Animal Breeding. (1972). I. Johansson and J. Rendel, 1st edition.
4. Introduction to Quantitative Genetics. (1989). Falconer, D.S. 3rd edition, USA.
5. Understanding Animal Breeding. (1997). Richard M. Bourdon, 1st edition.
6. Poultry Genetics Breeding and Biotechnology.(2003).S.E.Aggrey.
7. Internet.
 |
| **17. The Topics:** | **Lecturer's name** |
| 1. Origin of the fowl and their species.
2. Theories to explain origin of the fowl.
3. Theories of having different breeds.
4. Classification of the fowl.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Classification of the fowl. (Continued).
2. Cytology and reproduction.
3. Spermatogenesis and Oogenesis.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Mendlian Inheritance.
2. Type of dominance.
3. Gene interaction.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Modification of Mendelian ratio:1. One pair of genes.
2. Two pairs of genes.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Sex chromosome.
2. Sex determination.
3. Sex linked inheritance.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| The lethal genes:1. Obligate lethal genes.
2. Facultative lethal genes.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Inheritance of skin and colouration and plumage characteristics.
2. Inheritance the colour of eggs.
3. Plumage characteristics.
4. Variation in the structure of feathers.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Inheritance of comb shape and feet distortions.
2. Abnormalities of Spurs.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Time of Examination |
| Gene frequency, random mating.Hardey-Weinberg law, test the equilibrium.Factors affecting gene frequency:1. Mutation
2. Migration
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Selection
2. Chance (random drift)

Multiple alleles.Average gene effect. | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| The variance components.Relationship between relatives. | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Estimation of heritability:1. Selection experiments.
2. Likeness of relatives.
3. Half sibs.
4. Full sibs.
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| 1. Regression Analysis:
2. Intra-sire regression of offspring on dam.
3. Parent-offspring means
 | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Repeatability and Genetic parameters | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Mating systems | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Selection methods, selection response, correlated response. | **Dr. Hurea Saber Haddad** **Dr Lajan S. Ahmed** |
| Time of Examination |
| **18. Practical Topics (If there is any)** |  |
|  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***subjects*** | ***weeks*** |  |
| **Pareezan Wshear****Kamaran M taha** | Origin of the fowl and their species.Theories to explain origin of the fowl.Theories of having different breeds.Classification of the fowl. | **1st week** | 1 |
| **Pareezan Wshear** | Classification of the fowl. (Continued).Cytology and reproduction.Spermatogenesis and Oogenesis. | **2nd week** | 2 |
| **Kamaran M taha** | Mendlian Inheritance.Type of dominance.Gene interaction. | **3rd week** | 3 |
| **Pareezan Wshear** | Modification of Mendelian ratio:1. One pair of genes.
2. Two pairs of genes.
 | **4th week** | 4 |
| **Kamaran M taha** | Sex chromosome.Sex determination.Sex linked inheritance. | **5th week** | 5 |
| **Pareezan Wshear** | The lethal genes:Obligate lethal genes.Facultative lethal genes. | **6th week** | **6** |
| **Kamaran M taha** | Inheritance of skin and colouration and plumage characteristics.Inheritance the colour of eggs.Plumage characteristics.Variation in the structure of feathers. | **7th week** | 7 |
| **Pareezan Wshear** | Inheritance of comb shape and feet distortions.Abnormalities of Spurs. | **8th week** | 8 |
| **Kamaran M taha** | Gene frequency, random mating.Hardey-Weinberg law, test the equilibrium. | **9th week** | 9 |
| **Pareezan Wshear** | Factors affecting gene frequency:1. Mutation2- Migration | **10th week** | 10 |
| **Pareezan Wshear** | SelectionChance (random drift)Multiple alleles.Average gene effect. | **11th week** | 11 |
| **Pareezan Wshear** | The variance components.Relationship between relatives. | **12th week** | 12 |
| **Kamaran M taha** | Estimation of heritability:1. Selection experiments.
2. Likeness of relatives.
3. Half sibs.
4. Full sibs.
 | **13th week** | 13 |
| **Pareezan Wshear** | Regression Analysis:Intra-sire regression of offspring on dam.Parent-offspring means.Genetic parameters. | 14th week | 14 |

|  |
| --- |
| **19. Examinations:*****1. Compositional:*** In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?With their typical answersExamples should be provided***2.******True or false type of exams:***In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided***3. Multiple choices:***In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase. Examples should be provided. |
| **20. Extra notes:**Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks. |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.*(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌  |