**** The Islamia University of Bahawalpur

**Department of Zoology**

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| **Course Instructor** | Prof. Dr. Nuzhat Sial |
| **Course Title** | Ornithology |
| **Course Code** | Zool-02804 |
| **Program** | BS Zoology |
| **Semester** | 8th |
| **Level** | Bachelors |
| **Credit Hours** | 3 (2+1) |

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| **Aims & Objectives:**  1. Impart knowledge to identify birds and understand their behavior and relationships in their natural habitat.  2. Provide vision to understand the factors that cause bird populations to change, and to assess certain bird habitats in relation to climate changes.  3. Address both the theoretical and practical knowledge regarding widespread bird diversity in the diversified environments.  4. Solve the issues to detect minute morphological variations by using different high power spotting scopes in the field study for various habitats.  5. Analyze the likely impacts of changing climatic conditions on variety of birds in different ecosystems to sift in roosting, nesting and behavioral mechanisms. |

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| **Contents** |
| 1. Introduction to ornithology; basic ecology and themes of study. |
| 2. Evolution of birds; evolution of bird flight, aerodynamics and aerial movements. Bird ancestry; development of feathers, types and their structure; plumage analysis. |
| 3. Biology of fossil birds; study of the representative bird’s viz. Archaeopteryx, Archaeornithes and Neoornithes. Comparison with the present existing birds. |
| 4. Behavioral studies of birds: song and sound dialects in birds; types of songs; preferred season and time for bird pleasure calls; distress calls. Courtship behavior in birds, bird foraging, nesting and roosting activities. Learned and imprinting mechanisms in birds; brood parasitism and importance. |
| 5. Predator-Prey relationships, mobbing impacts; foraging and territoriality scuffles; predator avoidance. |
| 6. Physiology of birds: types of food; mastication; digestion; metabolism, skeletal system; circulatory and nervous system. Role of kidneys in birds. Bird conservation strategies; sanctuaries and importance of urban zoos in bird life. |

**Weekly plan**

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| 1st Week | Introduction to ornithology; basic ecology and themes of study. |
| 2nd Week | Bird ancestry; development of feathers, types and their structure; plumage analysis. |
| 3rdWeek | Evolution of birds; evolution of bird flight, aerodynamics and aerial movements.  Biology of fossil birds |
| 4thWeek | Study of the representative birds and Comparison with the present existing birds |
| 5thWeek | Behavioral studies of birds: song and sound dialects in birds |
| 6thWeek | Types of songs; preferred season and time for bird pleasure calls; distress calls. |
| 7thWeek | Courtship behavior in birds, bird foraging, nesting and roosting activities. |
| 8thWeek | **Mid Term Examination** |
| 9thWeek | Learned and imprinting mechanisms in birds |
| 10thWeek | Brood parasitism and importance. |
| 11th Week | Predator-Prey relationships, mobbing impacts; predator avoidance.. |
| 12thWeek | foraging and territoriality scuffles |
| 13th Week | Physiology of birds: types of food; mastication; digestion; metabolism, skeletal system; |
| 14thWeek | Circulatory and nervous system. |
| 15thWeek | Role of kidneys in birds. |
| 16th Week | Bird conservation strategies; sanctuaries and importance of urban zoos in bird life. |

**Suggested Readings**

1. Howell, S. N. G. (2010). Peterson Reference Guide to Molt in North American Birds (Peterson Reference Guides. Amazon Co.

2. A.J.Urfi (2009). Birds of India: A Literary Companion, OUP.

3. Perrins Christopher. 2004. The New Encyclopedia of Birds. Oxford University Press.London.

1. Fuller, Errol. 2000. Extinct Birds. Oxford University Press. London.
2. Prakash M. 1998. Birds in Laboratory. Anmol Publications Pvt. Ltd. New Delhi
3. Frank B. Gill., 1994. Ornithology (2nd ed.). W.H. Freeman and Company, N. York.
4. Roberts, T.J. 1991 and 1992. The Birds of Pakistan. Oxford Univ. Press, N.York.
5. Alan H. B and Clark, G.A. Jr., 1983. Perspectives in Ornithology. Cambridge Univ. Press, London.

**Student Evaluation criteria:**

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| Attendance | 5% |
| Workshop / Assignments/Case study | 5% |
| Surprise Test/Sudden Test , Quizzes | 5% |
| Class Participation | 5% |
| Mid Term Paper | 30% |
| Final Term paper | 50% |
| **Total** | **100%** |

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| **Academic and Moral Integrity for Students:**  Students must attend class on time and remain in class for the period.  Cellular Phones and Beeper must be Turned off (Proper classroom decorum [behavior] adopts, Course outlines and calendars explain requirements and assignments.  Students are also responsible for doing all assigned work on time. Excessive absences (more than 03) will result in “F Grade”. Students may prepare Sketchbook for taking notes and for references. |

**Instructor/Tutor**

**Approved by: Chairperson**