

Letter No. 32/DZ/BBAU/2020

Date- 16/11/2020

**NOTICE**

It is to inform to all concerned that the Department of Zoology is offering one optional paper under open elective course in 1<sup>st</sup> semester (M.Sc. Zoology). Open Elective Paper can be opted under **Choice based Credit System** being followed by the University. **Dr. Venkatesh Kumar R.**, Department of Zoology is student advisor for this course.


**The paper is as under: -**

Sl. No.	Paper Code	Timing	Paper Name	Maximum Marks		Credit	No of Seats
				End Semester	Sessional		
1.	ZL(OE)- 01	09:30 AM to 10:30 AM	Population Ecology	70	30	04	58

Students are required to give their application on email [headdaasbbau@gmail.com](mailto:headdaasbbau@gmail.com) latest by **25<sup>th</sup> November 2020**.

**Copy to: -**

1. Dean Academic Affairs, BBAU.
2. All Deans/ Heads/ Coordinators, BBAU.
3. COE, BBAU.
4. Dr. Venkatesh Kumar R., Course Teacher.
5. I/c University website for it uploading on the University website.
6. Notice Board.

  
(Head)  
Department of Zoology  
प्राणि विज्ञान विभाग / Department of Zoology  
बी.बी.ए.सू. लखनऊ / BBAU, Lucknow

  
(Head)  
Department of Zoology  
प्राणि विज्ञान विभाग / Department of Zoology  
बी.बी.ए.सू. लखनऊ / BBAU, Lucknow

80/3/20  
16/11/2020

## Discipline Specific Elective (DSE)

### **ZL(OE)-01: Population Ecology**

#### **Unit 1**

- Population Growth: Population growth and their characteristics, exponential growth, Verhulst - Pearl logistic growth model.
- Stochastic models of population growth, stable age distribution, Life table.

#### **Unit 2**

- Competition and Niche Theory: intraspecific and interspecific competition, history of niche concepts, theory of limiting similarity
- Ecological interdependence and interaction (mutualism, commensalism, amensalism, neutralism, symbiosis, parasitism. )
- Evolution of mutualism, Plant - pollinator and animal - animal interactions basic models

#### **Unit 3**

- Population Regulation: Extrinsic and Intrinsic Mechanisms
- Hardy- Weinberg Equilibrium (their application, equation, factors affecting the Hardy- Weinberg law )
- Lotka- Volterra Model (their equation, application, measuring parameter of Lotka- Volterra model)

#### **Unit 4**

- Life history strategies: Evolution of life history traits, longevity and theories of ageing,
- Geological time scale.
- Parental investment and offspring, reproductive strategies - ecology and evolution of sex and mating systems, optimal body size, r and k selection

#### **Suggested Reading Material**

- Begon, M., J.L. Harper and C.R. Townsend. Ecology, Individuals, Populations and Communities. Blackwell Science, Oxford, UK.
  - Cherratt, J.M. Ecological concepts. Blackwell Sci. Publ. Oxford, UK.
  - Elseth, B.D. and K.M. Baumgartner. Population biology. Van Nostrand Co., New York.
  - Jorgensen, S.E. Fundamentals of ecological modeling. Elsevier, New York.
  - Krebs, C.J. Ecology. Harper & Row, New York.
  - Krebs, C.J. Ecological methodology. Harper & Row, New York.
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- Ludwig, J.A. and J.F. Reynolds, 1988. Statistical ecology. John Wiley & Sons, New York.
  - Pianka, E.R. Evolutionary ecology. Harper & Row, New York.
  - Ricklefs, R.E. and G. Miller. Ecology, W.H. Freeman & Co., New York.
  - Roughgarden, J., Ecological methods. Southwood, T.R.E.
  - Swartzman, G.L. and S.P. Kaluzny. Ecological simulation primer. MacMillan, New York.
  - Roff, O.A. The evolution of life histories. Theory and Analysis. Chapman & Hall, London, UK.