UZO-447 **Ecological Modelling** **Cr. (2)**

Course Objectives:
The objective of this course is
1. to understand the history of camera and its functions
2. to understand how to take photos of ecosystem landscapes, birds, mammals, insects

Course Learning Outcomes:
Upon successful completion of this course, the student will be able to:
1. ACQUIRE theoretical knowledge about nature and its components
2. UNDERSTAND the camera and its functionsand the mechanics of imaging.
3. SOLVE and highlights the nature in photography
4. ANALYSE pictures and raw data of photographs
5. EVALUATE the key issues of nature
6. DEMONSTRATE the ecological assessment and importance of wildlife through photography

Course Contents:

Introduction into the Course, Introduction into Ecological Modelling, Individual-based Models, Models with Temporal Variability, Incorporating Temporal Variability, Environmental Change, Spatial Models, Spatial Models in Ecology, Metapopulation Models & Viability Analysis, Equation-based Population Models, Limited & Unlimited Growth, Stochastic Limited Growth, Bridging between Bottom-up and Top-down Approaches.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work: 25 marks
Midterm Exam: 35 marks
Final term Exam: 40 marks

Books Recommended

1. Fath, B., and Jorgensen, S. E. 2001. Fundamentals of Ecological Modelling (Developments in Environmental Modelling, 21).
2. Fath, B., and Jorgensen, S. E. 2011. Fundamentals of Ecological Modelling (4th Edition) 2011
3. Fath, B., and Jorgensen, S. E. Fundamentals of Ecological Modelling, Fourth Edition: Applications in Environmental Management and Research (Developments in Environmental Modelling).
4. Jorgensen, S. E., and Endoricchio, G. Fundamentals of Ecological Modelling.
5. Jeroen C. J. M. A at Barendregt, B., and Gilbert, A. J. 2004. Spatial Ecological-Economic Analysis for Wetland Management: Modelling and Scenario Evaluation of Land Use.
6. Jopp, Fred Reuter, Hauke Breckling. 2011. Broder Modelling Complex Ecological Dynamics: An Introduction into Ecological Modelling.
7. Soetaert, K. and Herman, P. M. J. 2008. A Practical Guide to Ecological Modelling: Using R as a Simulation Platform.
8. Derrida, J. 2010. Copy, Archive, Signature: A Conversation on Photography.
9. Miotke, J. 2007.The Better photo Guide to Digital Nature Photography.
10. Gerlach, J and Gerlach, B. 2007. Digital Nature Photography: The Art and the Science.
11. Kieffer, J. 2004. Mastering Nature Photography: Shooting and Selling in the Digital Age.
12. Shaw, J. 2000. John Shaw's Nature Photography Field Guide.
13. Moss, K. 2006. K. Moss. Digital Nature Photography and Adobe Photoshop 2006
14. Walden, S. 2008. Photography and Philosophy: Essays on the Pencil of Nature.

UZO-448   Ecological Modelling (Lab.)   Cr. (1)

Course Objectives:

The objective of this course is
1. to understand the history of camera and its functions
2. to understand how to take photos of ecosystem landscapes, birds, mammals, insects

Course Learning Outcomes:

Upon successful completion of this course, the student will be able to:
1. ACQUIRE theoretical knowledge about nature and its components
2. UNDERSTAND the camera and its functionsand the mechanics of imaging.
3. SOLVE and highlights the nature in photography

4. ANALYSE pictures and raw data of photographs
5. EVALUATE the key issues of nature
6. DEMONSTRATE the ecological assessment and importance of wildlife through photography

Course Contents:
Ecological Modeling exercises and assignments, Practical use of photography, Practical use, understanding and in depth study of the ecological photography during the field visits. Research Project Preparation, Selecting the research subject and preparation of the project assignments

Teaching-Learning Strategies
Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments
The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination
Sessional Work: 25 marks
Midterm Exam: 35 marks
Final term Exam: 40 marks