

College of Science

Department of biology

Subject name : Principles of ecology / 1st year Biology students

Course code : B105

===== Lectures syllabus =====

1: Ecosystem.....Page 1-19

1-1: Principles of ecosystemLecture 1

Definitions of essential terms

Population , Community , Environment & Habitat , Ecosystem ,
Biosphere

Components of the ecosystem

Abiotic substances

Producer organisms , **Lecture 2**

Consumer organisms , Decomposer organisms

Incomplete ecosystems , Ecosystem development

1-2: Functions of the ecosystemLecture 3

**(Basic features of Production , Consumption and
Decomposition)**

Production and productivity (Photosynthesis , Chemosynthesis ,
Productivity)

Consumption

Decomposition

1-3: Biogeochemical cycles

and Ecosystem homeostasis..... Lecture 4

Carbon cycle , Nitrogen cycle , Phosphorus cycle , Sulfur cycle

Ecosystem homeostasis

1-4: Energy flow and trophic structure..... Lecture 5

The source of energy , Food chains and trophic structure.

Trophic structure and ecosystem stability. **Lecture 6**
Ecological pyramids , Ecological efficiencies

1-5: Limiting factors and tolerance levels

Shelford's and Liebig's laws
Indicator organisms

First examination..... Week 7

2: Population ecology.....Page 20-31

2-1: Structure of single species populations..... Lecture 7

Population sizes , Spatial distribution , Sex ratios , Age structures
& Life tables .

Population growth , Population fluctuations..... **Lecture 8**

2-2: Interspecific populations (two species population interactions) Lecture 9

Commensalism , Mutualism , Predation , Parasitism , Competition ,
Amensalism and Antibiosis

3: Community ecology.....Page 32-36

3-1: Principles of community structure..... Lecture10

Species diversity , Succession

3-2: Major terrestrial biotic communities , the biomes

Arctic tundra , Northern coniferous forest , Grasslands , Deserts,
Tropical rain forests

Second examination.....Week 12

Assist. Prof.

Dr. Abdul jaliel M. Al- Zubaidi

Textbooks :

Southwick, C.H. (1976) . Ecology and the quality of our environment, second edition, New York : D. Van Nostrand, 426 pages .

Further readings :

1- Cunningham ,W.P ; Cunningham ,M.A and Saigo, B.W. (2007) : Environmental science a global concern , ninth edition , Mc Graw-Hill companies,620 pages.

2- Lewis, R. Gaffin, D. Hoefnageles, M. and Parker, B.,(2004). Life ,fifth edition. McGraw-Hill companies,981 pages.

3- Peter Castro and Michael E. Huber, (2008) . Marine Biology, seventh Edition, McGraw-Hill companies ,265 pages.