

## **Biological Sciences (SFY-S-985)**

**Unit Leader Mandy Maidment**

### **Aims**

- 1 To develop the student's understanding of elementary principles of biology.
- 2 To enable students to become competent in interpretation of biological data.

### **Learning Outcomes**

The students should be able to:

- 1 Appreciate and understand basic concepts, principles and factual information presented in the indicative content.
- 2 Interpret and analyse critically a range of different scientific information presented in a variety of forms.
- 3 Apply the basic concepts and principles presented to unfamiliar situations in a range of problem solving exercises.

### **PDP & Transferable Skills**

During this unit, students will continue to develop skills in the following areas

- Learning how to study.
- Literacy and numeracy skills.
- Knowledge acquisition. The integration of empirical data with theoretical ideas.
- Observational skills, including note taking and drawing.

### **Teaching and Learning Patterns**

Students will attend a series of lead lectures, followed by small group tutorials. There will be 2 hours of lectures and 1 hour of tutorials, supported by tutorial worksheets for 13 weeks.

In week 14, 2 x 1 hour revision sessions will be held.

### **Indicative Content**

- 1 The Organization of Life. Homeostasis and Cellular communication.
- 2 Control & Co-ordination. Endocrine, nervous and excretory systems.

- 3      Reproduction and reproductive systems. Animal and plant life cycles.
4.      Genetics. The gene at work.
5.      Population and Community ecology. Populations, size and structure; fluctuation and regulation. Communities and their dynamics.
- 6      Ecology of Ecosystems. Food chains, geochemical cycles and energy flow.
- 7      Evolution and Natural selection. The Origin of Life.

### Weekly Teaching Programme.

|         |   |
|---------|---|
| Week 1  | The Organization of Life.<br>[Core text reading pp : 80-86]   |
| Week 2  | Homeostasis and Cellular communication<br>[Core text reading pp : 257-263, 264-265]   |
| Week 3  | Control & Co-ordination and Transport<br>[Core text reading pp : 265-275, 314-333]  |
| Week 4  | Endocrine, nervous and excretory systems<br>[Core text reading pp : 277-297, 363-378]   |
| Week 5  | Reproduction and reproductive systems.<br>[Core text reading pp : 181-197]  |
| Week 6  | Animal and plant life cycles.<br>[Core text reading pp : 217-233, 235-252]  |
| Week 7  | Genetics.<br>[Core text reading pp : 57-58, 199-215]  |
| Week 8  | The gene at work<br>[Core text reading pp : 108-122]  |
| Week 9  | Population and Community ecology. Populations, size and Structure; fluctuation and regulation.<br>[Core text reading pp : 298-312, 433-447] |
| Week 10 | Communities and their dynamics.   |

[Core text reading pp : 448-458]

Week 11 Ecology of Ecosystems. Food chains.  
[Core text reading pp:459-461]

Week 12 Geochemical cycles and energy flow.  
[Core text reading pp : 461-468]

Week 13 Evolution and Natural selection. The Origin of Life  
[Core text reading pp : 19-34]

Week 14/15 Revision/Course review, Review Tutorial Worksheets  
Examination week.

### **Assessment Method**

The unit will be assessed by a combination of 2 coursework assignments (40%) and a 2-hour end-of-unit written examination (60%).

A student must achieve a minimum of 30% in the examination and coursework elements. The overall unit pass mark is 40%.

### **Indicative Reading**

**Core Reading**  
Sutton, Julian

Biology Foundations  
Macmillan (1998)

### **Background Reading**

Roberts, M

Biology - A Functional Approach  
Nelson (1988)