Module: Animal and Plant Physiology *by Richard Howell*

Code: BIO2513

20 credits at level HE5

Description and Purpose of Module

To provide a comparative study of the relationships between structure, function and adaptation in some major animal groups

To further develop students knowledge and understanding of the major theoretical aspects of plant physiology

To introduce students to the study of plant anatomy in a range of plant taxa

To introduce students to plant taxonomy and classification

To enhance students' transferable skills, including IT, data interpretation, researching and communication skills

Indicative Syllabus Content

Homeostasis - The consequences of respiration. Temperature regulation in bees, reptiles and birds.

Obtaining, processing and supplying fuel to the cells. Feeding methods in animals, digestion, absorption and transport via the circulatory system.

Oxygen supply and responses to changing demands (Effects of hypoxia e.g.. at altitude, and in aquatic animals)

Removal of waste materials. Excretion of CO2 and nitrogenous wastes, osmotic and ionic regulation, ion transport mechanisms.

Comparative morphology of skeletal systems (Roles in locomotion, muscle systems and their control).

Control systems: Hormones and nerves.

Plant Classification and taxonomy - life cycles, derived and relict features;.

Plant Anatomy - Plant tissues; floral structure in Anthophytes; structure of roots and shoots.

Palnt Growth and development - Primary and secondary meristems. Germination and dormancy.

Plant Nutrition and transport - water potential. Mycorrhizal fungi and their association with plant roots. Transpiration and transport of water through the plant. Transport of photoassimilates. Photorespiration and C3, C4 and CAM photosynthetic pathways.

Anthophyta

Role of plant hormones in plant development. Agricultural and horticultural applications of hormones.

Learning, Teaching and Assessment

Topics will be introduced by interactive lectures, drawing on students' prior knowledge and extended in class through small group work using paper exercises together with CD-ROMs, videos and Internet-based activities and some laboratory activities.

Directed reading and other activities will be used to allow students to expand on class material and to prepare for later sessions

Learning Outcomes and Assessment Criteria

	Learning Outcomes when you have successfully completed this module you will:	Assessment Criteria to demonstrate that you have achieved the learning outcome you will:
1.	Demonstrate understanding of aspects of the physiology of a number of animal groups	1a) Explain, by reference to examples, the concept of homeostasis b) Explain the functioning of a number of physiological systems, the inter-relationships between these systems and their adaptive significance in major groups of animals
2.	Demonstrate a knowledge of the major concepts in plant physiology, classification and anatomy	Describe and explain major concepts in plant science
3.	Access, evaluate, and make use of appropriate scientific literature to support their understanding of organism physiology.	Provide clear evidence of reading around the subject and of selection of appropriate sources of information

Assessment

Your achievement of the learning outcomes for this module will be tested as follows:

Type	CW	EX
Description	Two essays	Unseen Examination

%age	50	50
Final Assessment	N	N
Learning Outcomes	1,2,3	1,2

Prerequisite Module(s)

There are no prerequisites for this module.

Barred Combinations

No restrictions apply.

Indicative Reading

Bell, A.D. (1991) Plant Form. Oxford: University Press (out of print, but available from Library)

Blake, R.W. (1991) Efficiency and economy in animal physiology. CUP

Gilles, R. (1991) Advances in comparative and environmental physiology. Volume 9 : volume and osmolarity control in animal cells. Springer Verlag

Hopkins, W.G. (2004) An Introduction to Plant Phsiology. 3rd Ed. New York: John Wiley

Kay, I. (1998) Introduction to animal physiology. BIOS

Lack, A.J., & Evans, D.E. (2001) Plant Biology. Instant Notes Series, Oxford: Bios Scientific.

Mauseth, J.D. (2003) Botany: an Introduction to Plant Biology. 3rd Ed. London: Jones & Bartlett

Prosser, C.L. (1991) Environmental and metabolic animal physiology.
Wiley-Liss (out of print, but available from LS and D)

Randall, D. et al (1997) Eckert animal physiology: mechanisms and adaptations. Freeman

Salisbury, F.B. & Ross, C.W. (1992) Plant Physiology. 4th Ed. Wadsworth

Schmidt-Nielsen, K. (1997) Animal physiology. CUP

Stewart, M. (1991) Animal physiology. Hodder & Stoughton (out of print, but available from Library)

Taiz, L. & Zeiger, E. (2002) Plant Physiology. 3rd Ed. Sinauer

Willmer, P. et al (2000) Environmental physiology of animals. Blackwell Science.

Withers, P.C. (1992) Comparative animal physiology. Saunders

Various Internet sources (e.g.) LSTN Biosciences material

Open University videos for S203 (Biology) and S324 (Animal physiology)

Module Type:	CORE
Module Length:	1
Host Subject Group:	Psychology and Life Sciences
Version Number::	0.1

Activity Log

User Name	Date Accessed	Action
ch7	17/01/2005 15:18:19	added
ch7	18/01/2005 09:36:48	amended
jd5	18/01/2005 12:57:54	amended
jd5	18/01/2005 14:38:34	amended
jd5	18/01/2005 16:34:30	amended
jd5	21/01/2005 10:29:16	amended
jd5	21/01/2005 10:31:13	amended
ch7	24/01/2005 16:07:08	amended
jd5	24/01/2005 16:34:12	amended
ch7	09/03/2005 16:10:09	amended
jd5	10/03/2005 14:35:01	amended
ch7	14/03/2005 12:18:14	amended
rw4	14/03/2005 12:20:04	amended
rh1	17/03/2005 11:24:56	amended
rh1	17/03/2005 11:25:26	amended
dmm1	18/08/2008 19:49:43	added

Admin	09/12/2009 15:38:25	Validated
rah3	31/03/2014 11:12:23	added