

W.94

GRANDE PRAIRIE REGIONAL COLLEGE

SCIENCE DEPARTMENT

COURSE: ZOOLOGY 2500 - SURVEY OF THE INVERTEBRATES

SECTION: Winter Lecture Section A3 (MWF 1000-1050)
Lab Section L1 (T 1500-1750)

TRANSFERABILITY: U of A - Zoology 250 (3)
U of C - Senior Zoology (3)
U of L - Zoology 3xxx (3)

INSTRUCTORS: Mr. Terry R. Shewchuk Office - J 221
Telephone - 539-2986 (Office)
Dr. Ken Fry J 222
Telephone - 539-2827
- 539-2953 (Lab)

DESCRIPTION: Zoology 2500 is a general introduction to the functional anatomy and life cycles of the major invertebrate taxa. Topics covered will include the classification, functional morphology and life cycles of the major invertebrate groups including: Protozoa, Porifera, Cnidaria, Platyhelminthes, Nematoda (and other pseudocoelomates), Echinodermata, Annelida, Mollusca, and Arthropoda. Laboratories are correlated with the lecture material, with major dissections and living and preserved demonstration materials.

PREREQUISITE: Zoology 1200

REQUIREMENTS: A. Since presence at lectures and laboratories, participation in classroom discussion and projects, and the completion of assignments are important components of this course, students will serve their interests best by regular attendance. Those who choose not to attend must assume whatever risks are involved. In this connection, the attention of the students is directed to the Academic Guidelines of the College.
B. MidTerm Exam
C. One final Lecture Exam (Scheduled by the Registrar's Office during Term Exam Week)
D. Final Lab Exam
E. Occasional Lecture and Lab Quizzes and Reports

ZOOLOGY 2500 - COURSE SYNOPSIS

PAGE 2

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EVALUATION:	A. Lecture/Lab Quizzes	- 20%
	B. MidTerm Exam	- 30%
	C. Final Lab Exam	- 20%
	D. Final Lecture Exam	- 30%

RESOURCES: (* denotes main resources)

Elson, 1982. The Zoology Coloring Book. Fitzhenry and Whiteside Limited.

*Barnes, 1986. Invertebrate Zoology. Saunders.

Pearse, et. al. 1987. The Living Invertebrates. Blackwell Scientific Publications.

*Wallace, et. al. 1989. Beck and Braithwaite's Invertebrate Zoology: A Laboratory Workbook. Macmillan.

University of Alberta Zoology 250 Lab Guide.

ZOOLOGY 2500
 COURSE SYNOPSIS
 PAGE 3

WINTER 1994

WK	LABS	MON	TUES	WED	THURS	FRI	WK
1			J-4	5 INTRO	6	7 PROTOZOA	1
2	'SCOPES PROTOZOA	10 PROTOZOA	11	12 PROTOZOA	13	14 PROTOZOA	2
3	PORIFERA CNIDARIA	17 PROTOZOA	18	19 PORIFERA	20	21 CNIDARIA	3
4	PLATY- HELM'S	24 CNIDARIA	25	26 PLATY- HELM'S	27	28 PLATY- HELM'S	4
5	PSEUDO- COEL'S	31 PLATY- HELM'S	F-1	2 PLATY- HELM'S	3	4 PLATY- HELM'S	5
6	ECHINO- DERMS	7 PSEUDO- COEL'S	8	9 PSEUDO- COEL'S	10	11PSEUDO- COEL'S	6
7	NO LAB	14PSEUDO- COEL'S	15	16PSEUDO- COEL'S	17	18 MID TERM	7
8		21	22	23 READING WEEK	24	25	8
9	ANNELIDS	28ECHINO- DERMS	M-1	2ECHINO- DERMS	3	4ECHINO- DERMS	9
10	MOLLUSCS I	7 ANNELIDS	8	9 ANNELIDS	10	11 ANNELIDS	10
11	MOLLUSCS II	14 ANNELIDS	15	16 MOLLUSCS	17	18 MOLLUSCS	11
12	ARTHRO- PODS	21 MOLLUSCS	22	23 MOLLUSCS	24	25 MOLLUSCS	12
13	LAB EXAM	28ARTHRO- PODS	29	30ARTHRO- PODS	31	A-1 NO CLASS	13
14		4 ARTHRO- PODS	5	6 ARTHRO- PODS	7	8 ARTHRO- PODS	14
15		11ARTHRO- PODS	12	13ARTHRO- PODS	14	15 NO CLASS	15

LECTURE OUTLINE

(Numbers in parentheses refer to page numbers in Barnes)

PROTOZOA

Importance to humans

Sizes

Difficulties in defining the phylum

Phylum Sarcomastigophora

Subphylum Mastigophora (the flagellates) (14-24)

Locomotion

Nutrition

Reproduction and life cycles

Examples:

Free-living: Choanoflagellates, Dinoflagellates

Parasitic: Trypanosomes - species, vectors, diseases
Giardia

Subphylum Sarcodina (the amoebae) (24-34)

Locomotion and types of pseudopodia

Nutrition

Reproduction and life cycles

Amoebae as research animals

Examples:

Free-living

Parasitic: Entamoeba

The Sporozoans (split into three phyla in the lab manual) (34-37)

General features

Plasmodium - species, vectors, life cycles

Quinine, chloroquinone, newer drugs

A vaccine?

Phylum Ciliophora (the ciliates) (37-56)

Form and structure

Locomotion

Nutrition

Water Balance

Reproduction and life cycles

PORIFERA (71-91)

General features

The three types: asconoid, syconoid, leuconoid

General features of an asconoid type

General features of a syconoid type

Feeding in sponges

The three classes of sponges

The commercial bath sponge

Asexual and sexual reproduction in sponges

Fragmentation

Gemmule formation

CNIDARIA (92-163)

General features

The classes

Alternation of generations (?)

 Polyps and medusae

 Polymorphism

Cell types of a polyp

Polyp morphology - differences between classes

Medusa morphology - differences between classes

Nematocysts: Anatomy, function, how discharged, independent effectors,
 dual stimuli, penetration of prey, miscellaneous

Feeding and digestion by Hydra

Typical life cycle of a Hydrozoan: Obelia

Atypical life cycle of a hydrozoan: Hydra

Reproduction

Coral reefs

PLATYHELMINTHES (164-202)

General features

The classes

Symbiosis and free-living

 Obligate versus facultative relationships

 Dispersal and colonization

 Typical class life cycles

 Fecundity

 Sexual and asexual reproduction

Class Turbellaria

 Distribution, orders

Dugesia tigrina detail

 Ectocommensal examples

Class Monogenea

 Distribution, orders

 Anatomy

 Life history

Class Digenea

 Distribution, major orders

 Anatomy

 Life history of selected examples: *Schistosoma*, *Alaria*, *Clonorchis*

 Swimmer's itch

Class Cestoda

 Distribution, major orders

 Anatomy

 Life history of selected examples: *Diphyllobothrium*, *Taenia*,
 Echinococcus, *Proteocephalus*, *Triaenophorus*

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THE PSEUDOCOELOMATES (217-262)

The pseudocoelomate phyla

General features

The phyla

Phylum Nematoda

General features

Hydrostatic skeleton

Growth, moulting, life cycle, the L₁ stage

"Excretory" system

Sensory structures

Importance to man

Free-living

Plant parasitic

Animal/human parasites: *Necator*, *Ascaris*, *Enterobius*, *Dracunculus*,

Trichinella, *Wuchereria*, *Onchocerca*, *Parelaphostrongylus*,

Pseudoterranova