Biology 452/552 Syllabus

Introduction

This is an immersion course in insect biology. There are two “phases”, Lecture and Practical. In the Lecture phase we will cover published information, principally from your text but supplemented with other sources and in which you will also participate in a group presentation (undergrads) or a formal Term Paper (grads, also to be presented to class as a draft version). There will be 4 weekly take-home problem sets *in lieu* of quizzes and an *in-class* comprehensive final exam. Grading will be based on all elements. In the Practical or Lab/Field phase, you will learn entomological methods, ecology & natural history of insects, the identity of over a hundred arthropod taxa, and will assemble a professional grade collection arthropod collection. Participation in the official class field trip is mandatory. You will keep a field notebook. Assessment will be based on weekly quizzes, a collection grade, notebook, and a final practical exam. Both phases will contain a participation element. Any element may contain Extra Credit options (see below). Course Elements & Structure are summarized in the following table:

Phase	Element	Points
Lecture	Readings Text (Elzinga) Other, supplementary	-
	Lecture Shows, Discussion	-
	Group Project (undergrads) Power Point show to class Term Paper (grads) Final draft to class	20
	Problem Sets (Weekly X 4) [Source: Readings, Shows, Projects]	@ 15 => 45
	General Participation Peer Eval. from Group Project & Term Paper Instructor’s Assessment	5
	Final Lecture Exam (Objective) [Source: All Elements	30
	Lecture Subtotal	**100**
Lab/Field	Practical Quizzes (Weekly X 3)	@ 10 => 30

Phase	Element	Points
	Collection & Notebook	50
	Practical Exam	20
	Lab/Field Subtotal	**100**
	Final Grade (up to 4.0)	**200**
	Extra Credit (optional, add-on)	**40 (<= 20%)**
	Final Grade with Extra Credit	<= 240

Grading & Extra Credit

Straight point scale; NOT CURVED! Extra Credit will consist of extra questions or special additions to the collection. Any points accrued will be added to an EC “account”. EC points will be added ON TOP of the basic point score at end of course.

Biology 4/552 Course Schedule

Class Day & Lecture/ Lab No.	Day of Week	Date	ENTOMOLOGY LECTURE			ENTOMOLOGY LAB		
			Topics	Assigned Readings: Chapters, pages	Supplementary Activity, Notes	Taxa Covered	Ancillary Topics	Activity, Notes
1	M	21/6/2010	Introduction, Arthropod Diversity, Systematics	1, 14 (for lab)	-	-	Introduction, Goals, Plans, Tools, Keying	Cure your entomophobia now!
2	T	22/06/2010	External Anatomy	2	-	CRUSTACEA, ARACHNIDA, MYRIPODA	Collecting Skills: Killing & preserving	Demonstration Collecting at Student Farm
3	W	23/06/2010	Internal Morphology & Physiology I	3, 68-87	-	Primitive Hexapods, Basal Orders	Layering & Rehydrating, Basic Preparation & Curatorial Skills	T.B.A.
4	H	24/06/2010	Internal Morphology & Physiology II	3, 88-108	-	Aquatic Orders	Traps & Extraction Techniques; Field Trip Preparation	T.B.A.
-	F	25/06/2010						**COLLECT ON YR OWN!**
5	Sat	26/06/2010						OFFICIAL FIELD TRIP
6	Sun	27/06/2010						OFFICIAL FIELD TRIP
7	M	28/06/2010	Development & Specialization	4; Special Reading	Group Presentation	Orthopteroids	Labeling	Special Reading: H. E. Evans on Molting
8	T	29/06/2010	Senses & Behavior	6, 183-188; 201-222.	Group Presentation	(Orthopteroids)	Spreading	T.B.A.
9	W	30/06/2010	Sex & Reproduction	6, 189-200	***GUEST LECTURE:*** Dr. John Edwards, University of Washington Biology	Hemipteroids	Slide-making	Edwards: Arthropod Colonization of post-Eruption Mt. St. Helens & other Extreme Habitats
10	H	1/7/10	Migration & Diapause	6, 201-203; Special Reading	Group Presentation	Neuropteroids, COLEOPTERA	Galls & Mines	**QUIZ**
-	F	2/7/10						4th of July Weekend; **COLLECT!**
-	Sat	3/7/10						
-	Sun	4/7/10						
-	M	5/7/10						
12	T	6/7/10	Defense & Protective Behavior	6, 203-204	**MIDTERM**	(COLEOPTERA)	Pronounciation	T.B.A.
13	W	7/7/10	Ecology	5	Group Presentation	HYMENOPTERA		T.B.A.
14	H	8/7/10	Parasitism & Predation	*, 9	Group Presentation	HYMENOPTERA, Bees		**QUIZ**
-	F	9/7/10						Country Fair; **COLLECT!**
-	Sat	10/7/10						FIELD TRIP to COAST (Pending)
-	Sun	11/7/10						FIELD TRIP (Pending)

Biology 4/552 Course Schedule

15	M	12/7/10	Pest Management	11	Group Presentation	Minor Antliophora, DIPTERA		crank on collections
16	T	13/7/2010	Medical Entomology	10	Group Presentation	LEPIDOPTERA		crank on collections
17	W	14/7/2010	Insect Sociobiology	7	Group Presentation	(LEPIDOPTERA)		crank on collections
18	H	15/7/2010	Mutualisms & Pollination, Insect Conservation, Review	Special Reading	**FINAL EXAM**			**FINAL EXAM, Collections Due**
-	F	16/7/2010						
-	Sat	17/7/2010						
-	Sun	18/7/2010						
	M	19/7/2010			GRADES SUBMITTED			GRADES SUBMITTED
	T	20/7/2010						Keep Collecting! ;)
-	W	21/7/2010						
-	H	22/7/2010						
-	F	23/7/2010						

Biology 4/552 Order Checklist

CLASS OR GROUPING	ORDER {INSECTA: ~by Phylogeny} ( ) = infrequently collected, exotic, or rare	Collection Requirements [Grads]	Estimated Diversity Rank of INSECTA (* very high)	INSECTA Developmental State
CRUSTACEA (Terrestrial)	ISOPODA	Any One [2]		
	AMPHIPODA			
MYRIAPODS	CHILOPODA			
	DIPLOPODA			
	(SYMPHYLA)			
ARACHNIDA	ARANEAE	Any Two [3]	**	
	ACARI		***	
	OPILIONES			
	SCORPIONES			
	(SOLFUGIDA)			
	(UROPYGI)			
	(RICINULEI)			
	(AMBLIPYGI)			
	(PALPIGRADI)			
PRIMITIVE HEXAPODS	COLLEMBOLA	Any One [1]	*	
	PROTURA			
	DIPLURA			
INSECTS	ARCHAEOGNATHA	11 [12]	24	Ametabolous
	THYSANURA		23	
	EPHEMEROPTERA		18	Hemimetabolous
	ODONATA		9	
	ORTHOPTERA		6	
	PHASMATODEA		14	
	(GRYLLOBLATTODEA)		27	
	(MANTOPHASMATODEA)		28	
	DERMAPTERA		20	
	PLECOPTERA		17	
	(EMBIOPTERA)		26	
	(ZORAPTERA)		26	
	ISOPTERA		16	
	MANTODEA		19	
	BLATTODEA		11	
	HEMIPTERA (=> HETEROPTERA, AUCHENORRHYNCHA, STERNORRHYNCHA)		5	
	THYSANOPTERA		10	
	PSOCOPTERA		13	
	PHTHIRAPTERA		12	
	NEUROPTERA (=> NEUROPTERA, MEGALOPTERA, RAPHIDIOPTERA)		8	Holometabolous
	COLEOPTERA		1	
	LEPIDOPTERA		3	
	TRICHOPTERA		7	
	HYMENOPTERA		4	
	MECOPTERA		22	
	SIPHONAPTERA		15	
	(STREPSIPTERA)		21	
	DIPTERA		2	
	TOTAL	15 [18]	RED= "BIG FOUR"	

Collection Summary
UO Biology 4/552

***Submission Date*_____** ***Name*_____**

I am donating my collection (if part, indicate which): YES___ NO___ PART_____

Specimen No. 1 Spec. per Line*	Order (List Phylogenetically)	Family	Pin Alcohol Slide PoinT Other	Extra Credit	Scientific Name (source here or notebook) Other Notes
1					
2					
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50					

Ecological/Behavioral Criteria [usually applies to immature (feeding stage) but may apply also to adult] **Only correctly identified specimens count. (1) Notes, below.**	Specimen No(s)
Aquatic Adult	
Aquatic Larva or Nymph	
Cryptic or Aparent Mimic (5)	
Decomposer	
Economically Important (1)	
Economically Important (1)	
Eusocial (2)	
Eusocial (2)	
Gall-making or Leaf-Mining	
Holometabolous Larva	
Leaf-chewing Adult	
Leaf-chewing (holomet) Larva	
Parasite (3)	
Parasitoid (4)	
Predator	
Sap Feeder	
Primitive Hexapod	
Seed- or Fruit-eater	
Terrestrial Nymph	
Wood-borer (feeder)	
[Grads: 5 more species i.d. wih references]	
Total	

E/B Criteria Notes: No credit if specimen incorrectly identified. List only ONE example per criterion. No more than two uses per single specimen. (1) Must I.d. to genus &/or species for credit. (1, 2) Must come from different families. (3) Animal host. (4) Parasitoid =/= Parasite! (5) Must suggest "mime" on Notes line.

*"Specimen No." for enumeration here, reference to E/B Citeria and to your notebook. No live exhibits except by permission!

Fill this out!

TOTALS		=>
ORDERS		
Families (must be named)		
Specimens		
pinned specimens		
alcohol specimens		
other		

leave blank:

continue on another sheet if necessary, No's 51...

Collection Score Sheet
UO Biology 4/552

***Student Name*_____**

***Submission Date* _____**

Category	Min. No. Units Required [Grads]	Points Per Unit (Extra Credit, Detractions)	Points Possible (Extra Credit)	Required Points Awarded	Extra Credit Points Awarded	Notes
Diversity						**Total Diversity Extra Credit Possible = 20 pts**
No. Orders	15 [18]	1 (0.5)	**15 [18]** (5)			Must include 2 Arachnids + (1 Myriapod or 1 Crustacean). Non-hexapods s/b <20% of specimens. Only correct I.d.s count.
No. Families	30 [40]	0.5 (0.5)	**15 [20]** (10)			Only families *per se* (not "Order-only")
No. Specimens	50 [60]	0.30 (0.125)	**15 [18]** (10)			Pin + vial + other individual exhibits; incorrect I.d. disqualifies; duplicate specimens not counted.
Ecology/Behavior Criteria	20	1	**20 [25]**			see Summary Sheet
Presentation						
Overall Quality			**5**			Apparent effort, aesthetics, ease of grading
Complete Summary Form			**5**			**Must include totals!**
Phylogenetic Sequence			**5**			as in cladogram or text/class presentation
Label readability, consistency			**5**			hand-written OK if neat
Appropriate Head Labels			**5**			please put above target group
Collection Notebook			**10**			completeness, organization, detail, authenticity
Special Extra Credit						**Total Special Extra Credit Possible = 20 pts**
Early Submission		(1)	(10)			1 pt. per day prior to deadline
Rare or Unusual Species		(1-3)	(10)			see notes elsewhere
Special Exhibits		(1)	(10)			see notes elsewhere
Extra Species i.d.		(1)	(5)			1/0.5 pts; **must indicate reference!**
Extra spreading, taxidermy etc.		*variable*	(5)			>5 Leps. May include other orders, taxidermy, etc.
Special Labels		*variable*	(5)			Trap, host, host plant etc.; generally @ 0.5 pt.
Diversity Within Families		(1)	(5)			Three or more different species per family
Misc. (list below)						
1		*variable*	*variable*			
2		*variable*	*variable*			
3		*variable*	*variable*			
Detractions						may be less for immature specimens
Late Submission		-5				-5 per day; NOT ACCEPTED AFTER EXAM WEEK!
Mis-I.d. Order, Class, Red-Line		-5				**DO NOT MIS-I.D. THESE!!! -- DOUBLE CHECK!!!**
Mis-I.d. Families		-1				after first (one mistake allowed)
Misspellings @		-1				beyond first 1 or 2 or if egregious.
Inappropriate Mounting		-1				variable
Incomplete or No Label(s)		-1				beyond 1st
Excessive Damage		-1				variable
Difficult to Grade		*variable*				(>1 hour)
Misc. (list below)						
1		*variable*				variable
2		*variable*				variable
3		*variable*				variable
TOTALS			**100 [116]** (20)			100 [111] pts Required; up to 20 pts Total Extra Credit
COURSE POINTS (% of grade)			**50** (10)			TOTALS/4 => **RECORDED SCORE**
OVERALL PERFORMANCE						Required (50% of course grade) + Extra Credit, adjusted

General Comments (more on back of this sheet):

Grader init _____ *Date* _____

INSTRUCTOR WILL SUPPLY THIS FORM!

file:ColGrd.xls last updated 20100617 by EAS