



HUMAN PARASITOLOGY

Biology 398

Spring 2012

"Ex Africa semper aliquid novi."

--Pliny the Elder

Course

Description and Objectives: This course examines the foundation principles of human clinical parasitology including epidemiology, diagnosis, course of infection and clinical pathology. Both lecture and laboratory are required for this course.

Objectives: The course will cover the essential principles of human clinical parasitology. We will not cover all human parasites, but will use the most common and abundant parasites for particular study and as

models for understanding related parasites not covered in the course. To become a parasitologist: you must learn to think like a parasitologist. Competent parasitologists are good zoologists, excellent ecologists, and adequate physicians. In order to succeed in this course you must learn to think about parasitological interactions among human and animal populations. You will only be able to do this if you fully understand the basic zoological, ecological, and clinical information about each parasite species. You must integrate laboratory material with lecture material. You are responsible for all of the material presented in lecture and all of the material in your text related to lecture topics.

Specific Areas of Responsibility: You are responsible for the following topic areas for each species or disease we cover *even if we do not cover the specific information in lecture.*

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|----------------------|---------------------------------|---------------------------------|
| 1) Morphology | c) Habitat | 7) Diagnosis |
| 2) Taxonomy | d) Stadial length and life span | 8) Epidemiology |
| 3) Life cycle | 4) Geographic Distribution | a) Prevalence |
| a) Ontogenetic Stage | 5) Symptoms | b) Immunity |
| b) Sizes | 6) Pathology | c) Reservoirs |
| | | 9) Drug of Choice and Prognosis |

General:

Meetings: Lectures: Monday, Wednesday: 11:00-12:15, Hoyt 307. Laboratory: Tuesday, 9:30-11:15, Hoyt 221.

Textbook: *Foundations of Parasitology* by Roberts and Janovy; *New Guinea Tapeworms and Jewish Grandmothers*, Robert Desowitz. **Other materials:** 1 6-inch ruler with metric scale, #3H drawing pencil, 1-inch 3-ring binder reserved for use as your laboratory notebook. If your geography is poor splurge the \$25 and buy a detailed world atlas.

Prerequisites: Biology 101 and Biology 102.

Instructor: Dr. Richard E. Clopton, Professor of Biology. BS (1987) Agriculture; MS (1989) Entomology; Ph.D. (1993) Parasitology; University of Nebraska-Lincoln. Other Research Training: Molecular Biology, Colorado State University; Insect Pathology, Texas A&M University. My research centers on the systematics and taxonomy of parasites of insects and the evolution of biodiversity. I am interested in how the world became biologically diverse, especially the effect that evolutionary novelty in one lineage may have on diversification of symbiotic lineages. My office schedule appears below.

R. E. Clopton, PhD (rclopton@peru.ed)					
Office: Hoyt 312	Daily Class & Office Schedule Spring 2012				Phone No. 872-2284
	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 am to 9:15 am	Course Preparation	Course Preparation	Course Preparation	RESEARCH	RESEARCH
9:30 am to 10:45 am	Intro. Botany Biol 101 Lecture Hoyt 105	Parasitology Biol 398 Lab	Intro. Botany Biol 101 Lecture Hoyt 105	RESEARCH	RESEARCH
11:00 am to 12:15 pm	Parasitology Biol 398 Lecture Hoyt 307	Hoyt 221 9:30 – 11:15	Parasitology Biol 398 Lecture Hoyt 307	RESEARCH	RESEARCH
12:30 pm to 1:45 pm	Office/Lab Hours	Office/Lab Hours	Office/Lab Hours	RESEARCH	RESEARCH
2:00 pm to 3:15 pm	RESEARCH	RESEARCH	Office/Lab Hours	RESEARCH	RESEARCH
3:30 pm to 4:45 pm	RESEARCH	RESEARCH	Office/Lab Hours	RESEARCH	RESEARCH

I am available in my office or the adjoining lab during office hours. I am available at other times by appointment.

Course Plan

Topic Schedule: The lecture topic sequence appears below. This is a rough guideline subject to change.

Week of:	Lecture	Laboratory
Jan 9	Introduction, Significance, Ameobae	Amoeba I
Jan 16	Amebiasis, diagnosis, epidemiology	Amoeba II
Jan 23	M (NO CLASS); Intestinal Flagellates of Humans	Amoeba III
Jan 30	Hemoflagellates of Humans; 1st reading assign (1st)	Intestinal Flagellates
Feb 6	Trypanosomiasis, African & American; TEST I (8th)	Hemoflagellates
Feb 13	<i>Plasmodium</i>	Plasmodium I
Feb 20	Coccidiosis & Toxoplasmosis; Epidemiology; 2nd reading assign (22rd) .	Plasmodium II
Feb 27	Lung and Liver Flukes	Flukes
Mar 5	Midterm Break – No Classes	Schistosomes
Mar 12	Schistosomiasis; TEST II (14th)	Cestodes I
Mar 19	Introduction to cestodes; 3rd reading assign (21st) .	Cestodes II
Mar 26	Pseudophyllidea, Cyclophyllidea and larval cestode infections of Humans	Nemata I
Apr 2	<i>Enterobius</i> and <i>Trichinella</i>	Nemata II
Apr 9	<i>Trichiuria</i> & <i>Ascaris</i>	NO LAB
Apr 16	Hookworm; 4th reading assign (18th) .	Arbonemata
Apr 23	Filariasis & Onchocerciasis; Dead Week	PRACTICAL
April 30	FINALS WEEK: TEST III (May 3, 10:30-12:30)	-----

Weekly Plan: Scheduled lectures will cover the above topics. Read the relevant material in your textbook *before* lecture for greatest effect. Laboratory will focus on recognition and clinical diagnosis of parasitic organisms discussed in lecture..

Use of the Textbook: I will assign readings to you as the semester progresses, but you are responsible for choosing and reading text material that compliments the lecture content. As a minimum, you should read and assimilate your areas of responsibility for parasite species we discuss in lecture. The textbook is also a source of pictures and drawings for use in lab. You must bring your textbook to lab each week.

New Guinea Tapeworms and Jewish Grandmothers: This book supplements the lecture and textbook by providing a novel view of parasitism. This reading will be the basis for 4 written assignments (details in lecture; due dates above). Each writing assignment must conform to the following format: Typewritten, 3 full pages in length, 1-inch margins all sides, Times New Roman or Arial font in 12 point type maximum, double spaced with no additional paragraph spacing, your name right-flush in the top header and vertically centered in the upper margin. In your assignment you may not mention your own family, money, politics, agriculture, medicine, the military, sex, sports, or religion. Assignments not conforming to format and topical restrictions will be returned ungraded. Assignments are due at the beginning of lecture as indicated above.

Assessment:

Grading: Three exams (3@100pts each); Laboratory practical exam (50 pts); Laboratory Notebook (50 pts); four reading summaries (4@12 pts each); Total of 448 pts: A (90-100%), B+ (85-89%), B (80-84%), C+ (75-79%), C (70-74%), D+ (65-69%), D (60-64%), F (<60%). I reserve the right to modify the final grade distribution.

Exams: Exams will be based on lectures and any assigned readings from the textbook. We will discuss their format as the first exam approaches. Exams will be given **ONLY** when scheduled: if you have a conflict, tell me before the end of the first week of class. *There are no exceptions. None.* Missed exams score zero points is unexcused and are prorated if excused. A missed test is excused if and only if I have given written consent **PRIOR** to the test. Permission to be excused from an examination will be given only in cases involving extreme or extenuating circumstances. College functions, class field trips, and athletic events do not constitute “extreme or extenuating circumstances.” These are scheduled events and it is **YOUR** responsibility to inform me of the conflict in a timely manner. I will assume no official PSC sanctioned conflicts with the test schedule below after the first week of lecture. Do not email, telephone, or leave phone messages regarding missed lectures or exams: I delete them without consideration.

Laboratory practical: There will be a laboratory practical at the end of the semester, during Dead Week. The practical will consist of 20-25 stations, each with a specimen that we have examined in laboratory during the semester. Each station will ask 2 questions about that specimen, and students will have 1-2 minutes at each station to answer questions. We will discuss the format of the practical as it approaches.

Other Course Policies and Notes

Interruptions: Active cell phones are not allowed in lecture or laboratory without my permission for extenuating circumstances (active duty military service, first-response on-call, imminent parturition, etc.). Please turn off your cell phones prior to entering the lecture or laboratory. Active cell phones during an examination or quiz are a violation of academic integrity and are grounds for summary failure of the course, regardless of course performance.

Laboratory attendance: Laboratory is required, not optional. Failure to complete laboratory constitutes failure to complete the course as a whole.

How to do well: It is not my job to teach you parasitology. My job is to present the material to you in such a way that you can learn to be a parasitologist. Learning is something you have to do for yourself, but I can offer the following strategies for success:

1. **Attend lecture:** The overwhelming bulk of the material for exams will come from lectures. Perfect attendance is the most important thing you can do to succeed in this course. Consistent attendance will improve your final grade more than any other investment of time that you can make.
2. **Take notes industriously:** Constant and diligent note-taking is essential to assembling the information in this course. You are responsible for the information whether or not it appears in your notes.
3. **Review, reorganize, and rewrite your notes:** Rewriting your notes in an organized way will help you organize the information in your mind, find mistakes, fill in gaps, and be prepared to ask me questions about material to clarify the information. This is particularly helpful with a good study partner from the course.
4. **Make a vocabulary list:** You must master the working vocabulary of the discipline in order to succeed. Use your notes and your textbook to assemble a vocabulary list. For each word or phrase, note what the term means and what kind of animal it applies to. *Add to the list after each lecture or reading assignment as the first step in studying new material.* If you need an aid to learn the terms, prepare a stack of index cards with terms on one side and definitions on the other. Sort the cards into three stacks -- terms you know, terms you sort of know, and terms you don't know. Go through your cards in your free time until you only have one stack -- terms you do know. Use your vocabulary as it develops or you will lose it.
5. **Know your specific areas of responsibility for each organism:** Immerse yourself and become a parasitologist – PSC has one of the best parasitology faculties in the world - this is your chance to excel in a unique environment. Start by knowing the specific areas of responsibility listed on the first page and knowing them cold. If you do not know this basic information, you cannot pass the course. If you know all of the basic information, you are ready to think about parasitological problems and synthesize solutions. We will discuss many of these areas in lecture and in the laboratory. However, we will may not cover all areas for all groups. Thus YOU are responsible for finding the information on your own. This will not be a problem: all of the information can be found in your text.
6. **Ask questions:** Do not hesitate to interrupt in lecture and ask questions. Come to class prepared to ask questions; I always ask for questions at the beginning of each lecture. Come and see me outside of class.
7. **Draw.** Clinical parasitology often relies on the most expensive and complicated diagnostic tools in the civilized world: the experienced, trained human mind. For this reason, the laboratory is biased very heavily toward drawing as a means to force critical observation and discrimination. A trained clinical parasitologist can often diagnose and suggest appropriate treatment for a potentially life-threatening infection with less than \$1 of reagents, a good microscope, and 15 minutes lab work. I know- I've done it and seen it done by others. Technology and modern bioassay can do the same thing for about \$1,000 and 2 weeks time, but such delay and expense normally comes at the price of a dramatically reduced prognosis. In lecture, drawing even rough sketches is the best way to learn this type of material.

Laboratory policies: Other laboratory guidelines and rules will be discussed during the 1st lab.

Responsibilities: Your responsibilities are to learn: 1) the taxonomic names of the specimens you are studying; 2) the structures that the lab directs you to find; and, 3) the functions of the structures. The labs are intended to be self-directing assuming 2 things: 1) that you follow the instructions in the lab; and 2) that you faithfully bring and consult your textbook as well as any other lab guidelines provided to you by me.

College Policies

Academic Integrity

The College expects all students to conduct themselves in a manner that supports an honest assessment of student learning outcomes and the assignment of grades that appropriately reflect student performance. It is ultimately the student's responsibility to understand and comply with instructions regarding the completion of assignments, exams, and other academic activities. At a minimum, students should assume that at each assessment opportunity they are expected to do their own original academic work and/or clearly acknowledge in an appropriate fashion the intellectual work of others, when such contributions are allowed. Students helping others to circumvent honest assessments of learning outcomes, or who fail to report instances of academic dishonesty, are also subject to the sanctions defined in this policy.

Instances of academic dishonesty may be discovered in a variety of ways. Faculty members who assign written work ordinarily check citations for accuracy, run data base and online checks, and/or may simply recognize familiar passages that are not cited. They may observe students in the act of cheating or may become aware of instances of cheating from the statements of others. All persons who observe or otherwise know about instances of cheating are expected to report such instances to the proper instructor or Dean.

In order to promote academic integrity, the College subscribes to an electronic service to review papers for the appropriate citations and originality. Key elements of submitted papers are stored electronically in a limited access database and thus become a permanent part of the material to which future submissions are compared. Submission of an application and continued enrollment signifies your permission for this use of your written work.

NSCS Board of Trustees Policy 4220 states that each College “. . . will establish a distance learning assessment

policy that will include, at a minimum, a substantial culminating experience that is proctored.” Peru State College’s policy is that each course that is offered entirely online will feature a proctored final exam that substantially measures the extent the course’s stated learning objectives are achieved. Courses which feature graded site-based activities (e.g., teaching demonstrations) and/or video-taped presentations that occur near the end of the term, and that are designed to substantially assess the achievement of learning objectives, can be considered in compliance with this policy. Project-based capstone and graduate courses utilizing real-time discussions held by web-cam, phone or in person with the faculty member as part of the assessment process can also be considered in compliance with this policy.

Should an occurrence of academic misconduct occur, the faculty member may assign a failing grade for the assignment or a failing grade for the course. Each incident of academic misconduct should be reported to the Dean and the Vice President for Academic Affairs (VPAA). The VPAA may suspend students for two semesters found to be responsible for multiple instances of academic dishonesty. The reason for the suspension will be noted on the student’s transcript.

A faculty member need present only basic evidence of academic dishonesty. There is no requirement for proof of intent. Students are responsible for understanding these tenets of academic honesty and integrity. Students may appeal penalties for academic dishonesty using the process established for grades appeals.

Title IX Compliance Notice

Peru State College is an equal opportunity institution. PSC does not discriminate against any student, employee or applicant on the basis of race, color, national origin, sex, disability, religion, or age in employment and education opportunities, including but not limited to admission decisions. The College has designated an individual to coordinate the College’s nondiscrimination efforts to comply with regulations implementing Title VI, VII, IX, and Section 504. Inquiries regarding non-discrimination policies and practices may be directed to Eulanda Cade, Director of Human Resources, Title VI, VII, IX Compliance Coordinator, Peru State College, PO Box 10, Peru, NE 68421-0010, (402) 872-2230.

Students requesting reasonable accommodation and tutoring services should contact the Center for Achievement and Transition Services (CATS).

I reserve the right to alter the Course Syllabus with notice given during regularly scheduled lectures.