BIOLOGY 362/562
Parasitology Class Schedule - Fall 2016

Instructor: Dr. Todd C. Huspeni **Office Hours:** Mon. - Thu. 7-8 a.m. in TNR 460

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Required textbook: *Foundations of Parasitology (FOP)*, 9th Ed. Roberts & Janovy (Bookstore rental)

Optional textbook: *Parasite Rex* by Carl Zimmer (Amazon.com, Borders, etc…)

Required lab manual: *Animal Parasitology Lecture-Laboratory Manual (APLLM)* by Taft & Huspeni (Available from the Bookstore)

The purchase of fine dissecting forceps is also highly recommended.

Course objective: The objective of this course is to introduce students to the amazing and diverse world of animal parasites. We will examine topics ranging from life cycles, morphology, adaptations to parasitism, ecology, evolution, physiology, pathological effects, taxonomic classifications, and historical impacts of animal parasites. Students will be exposed (pun intended ☺) not only to parasites of medical and veterinary importance, but also parasites that demonstrate important ecological, physiological, and life history principles

Enduring Understandings:

1) Students will understand & value the varied roles parasites play at individual host (e.g., pathology, behavior modification), host population, host community, and ecosystem levels.
2) Students will understand the variety of adaptations (e.g., physiological, behavioral, life history) parasites have for exploiting hosts and what defenses hosts utilize to avoid and mitigate parasite infections.
3) Students will understand and value the different types of exploitative interspecific interactions (typical parasites, parasitic castrators, parasitoids, micropredators, predators) and how resultant pathology is influenced by the nature of these exploitative trophic interactions.

Essential Learning Outcomes:

1) Students will be able to identify and distinguish the following parasite groups based upon morphology, anatomical observation, host species, and site of infection within the host:
   A) **Platyhelminthes**- Turbellaria, Trematoda (Aspidobothridia, Digenea), Monogenea, Cestoda
   B) **Nematoda**- Large roundworms (ascarids), hookworms, pinworms, whipworms, Guinea worms, filarial worms, insect nematodes
   C) **Acanthocephala** (thorny-headed worms)
   D) **Arthropoda**- Crustacea (Copepoda, Branchiura, Cirripedia, Amphipoda, Isopoda); Arachnida (mites and ticks); Hexapoda (Siphonaptera, Phthiraptera, Hemiptera, Diptera, Hymenoptera, & Strepsiptera)
   E) **Cnidaria**- Myxozoa
   F) **Parasitic protists**- Microsporidia, amoebas, flagellates, ciliates, gregarines, coccidians (including malaria parasites)

2) Students will be able to describe and articulate the life cycles of representative species of the above-stated parasite groups, including all hosts involved in the life cycle completion, mode of infection (e.g., ingestion of egg, direct penetration, trophically transmitted by eating parasitized prey, vector-borne, etc…), and specific names for parasite life history stages utilized by the above-stated groups.

3) Students will be able to describe, distinguish, and articulate specific human and wildlife diseases caused by representatives of the above-stated groups, including geographic distribution, pathology and its cause, source of infection, prevention, and treatment.

4) Students will be able to demonstrate facility and proficiency in the necropsy of hosts, isolation and identification of parasites, preservation, staining, mounting, and scientific labeling techniques as evidenced through the production of a parasite collection.

Course requirements: This course consists of two 50-minute lectures and two 120-minute labs per week. You will be required to take three lecture exams, three lab practical exams, and you will also construct and complete a parasite collection. (Details of the parasite collection will be explained during lab.)

Grading: Points for this course will be assigned as follows:

Two lecture exams (75 points each)	= 150 points
Three lab practicals (60 points each)	= 180 points
Parasite collection (70 points)	= 70 points
Cumulative final lecture exam (200 points)	= 200 points
Total	**= 600 points**

Final grades will be assigned based on the following **minimum** cutoff percentages:

A	= ≥93%	B-	= 79.9%	D+	= 67%
A-	= 89.9%	C+	= 77%	D	= 63%
B+	= 87%	C	= 73%	F	≤ 59.9%
B	= 83%	C-	= 69.9%		

Attendance: Attendance for lecture and lab is mandatory, and past experience indicates there is a strong positive correlation between the amount of time a student spends in class and her/his final grade. We will frequently use living material, and scheduling make-up opportunities for missed classes is exceedingly difficult. Make-up exams will be provided only in the case of serious illness (requiring a physician's note), or the death of a relative. However, absences relating to a student's religious beliefs will be accommodated according to UWS 22.03, providing the student notifies the instructor within the first three weeks of the beginning of class regarding the specific dates she/he will be absent.

Study Aids: The primary handouts for lectures are provided in the *Lecture Supplement* these are available as a file named "BIOL 362 Lecture Supplement.pdf" on D2L. I will make and distribute to you copies of any color handouts in the *Lecture Supplement*. Additional handouts may also be provided during particular lectures. Lecture PowerPoint presentations will be made available to registered students through the course link in *Desire to Learn* (D2L). Students must recognize the content of these files **cannot** replace regular class attendance.

Academic integrity:

UW-Stevens Point values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, we have developed a set of expectations for all students and instructors. This set of expectations is known as the *Community Rights and Responsibilities* document, and it is intended to help establish a positive living and learning environment at UWSP. Click here for more information: http://www.uwsp.edu/dos/Documents/CommunityRights.pdf - page=11.

Academic integrity is central to the mission of higher education in general and UWSP in particular. Academic dishonesty (cheating, plagiarism, etc.) is taken very seriously. Don't do it! The minimum penalty for a violation of academic integrity is a failure (zero) for the assignment. For more information, see the UWSP "Student Academic Standards and Disciplinary Procedures" section of the *Community Rights and Responsibilities* document, Chapter 14, which can be accessed through the link above.

Disabilities:

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. For more information about UWSP's policies, check here: http://www.uwsp.edu/disability/Pages/faculty/lawAndPolicy.aspx.

If you have a disability and require classroom and/or exam accommodations, please register with the Disability and Assistive Technology Center and then contact me at the beginning of the course. I am happy to help in any way that I can. For more information, please visit the Disability and Assistive Technology Center, located on the 6th floor of the Learning Resource Center (the Library). You can also find more information here: http://www.uwsp.edu/disability/Pages/default.aspx.

Open Lab Time:

I will attempt to leave the lab door open (or unlocked) during all other available hours. Students should plan dissections and slide preparation activities accordingly during open blocks of room time. Generally, prepared slides will be available for student review during all open lab times.

Dissection Specimens:

Assorted carcasses (e.g., raptors, assorted mammals, etc…) are available for student dissection to procure parasites for the parasite collection. The available carcasses can be found in the labeled freezer in TNR 460 and are available on a first come first served basis. Carcasses from completed dissections **must** be placed into the other labeled freezer for appropriate disposal. Ask your instructor about other carcasses that might also be available.

Important Dates:

Parasite collections are due by 5:00 p.m. on Dec. 15 (though they may be turned in earlier ☺).

The final cumulative exam (200 points) is scheduled for: Tue. Dec 20 @ 12:30 - 2:30 p.m.

Animal Parasitology (Bio 362/562) Fall 2016 Schedule

DATE	TOPIC	PAGES
Sep. 6	Introduction, grading, general principles, definitions	Chaps. 1 & 2 *(FOP)*
Sep. 7	Parasite adaptations, host specificity, Turbellaria, Monogenea, Aspidoboth.	Chaps. 13-14, 19 *(FOP)*
Sep. 8	Digenea: schistosome pathology, immunology, distribution, & life cycle	Chap. 3, 15-16 *(FOP)*
Sep. 12	**Lab 1:** Turbellaria, Monogenea & Aspidobothrea	Pp. 1-12 *(APPLM)*
Sep. 13	Schistosomiasis control, other digeneans, trematode community ecology	Chaps. 17 & 18 *(FOP)*
Sep. 14	**Lab 2:** Digenea Intro., Digenea II & *Schistosoma* (Adult worms)	Pp. 12-26 *(APPLM)*
Sep. 15	Mesozoa, life in gut, Cestoda: *Hymenolepis* physiology & growth	Chaps. 12 & 20 *(FOP)*
Sep. 19	**Lab 3:** Digenea III (Adult worms); Intro. to processing parasites	Pp. 27-36 *(APPLM)*
Sep. 20	Cestoda energetics, *Hymenolepis* competition, gut parasite communities	Chap. 20 *(FOP)*
Sep. 21	**Lab 4:** Digenea IV (Adult worms)	Pp. 37-52 *(APPLM)*
Sep. 22	Cestodaria, Pseudophyllidea & major eucestode orders	Chap. 21 *(FOP)*
Sep. 26	**Lab 5:** Larval Digenea & Life Cycles	Pp. 53-78 *(APPLM)*
Sep. 27	Cyclophyllideans I: *Taenia* spp., *Hymenolepis* spp., *Dipylidium caninum*	Chap. 21 *(FOP)*
Sep. 28	**Lab 6:** Cestodaria, major eucestode orders	Pp. 79-105 *(APPLM)*
Sep. 29	Cyclophyllideans II: Hydatid disease	Chap. 21 *(FOP)*
Oct. 3	**Lab 7:** Cyclophyllideans I	Pp. 106-116 *(APPLM)*
Oct. 4	Nematodes: General features, Trichostrongyles, host hybrids, sex selection	Chap. 22 *(FOP)*
Oct. 5	**Lab 8:** Cyclophyllideans II & Caryophyllidea	Pp. 117-124 *(APPLM)*
Oct. 6	Nematodes: Geohelminths I	Chaps. 23-28 *(FOP)*
Oct. 10	**Lab 9:** Nematodes I	Pp. 125-153 *(APPLM)*
Oct. 11	Nematodes: Geohelminths II	Chaps. 23-28 *(FOP)*
Oct. 12	**Lab Practical 1 followed by open lab for parasite collection work**	
Oct. 13	**Lecture Exam 1**	
Oct. 17	**Lab 10:** Nematodes II	Pp. 154-159 *(APPLM)*
Oct. 18	Nematodes: Guinea worm, filarial worms	Chaps. 29 & 30 *(FOP)*
Oct. 19	**Lab 11:** Nematodes III	Pp. 160-174 *(APPLM)*
Oct. 20	Insect nematodes, Nematomorpha & Acanthocephala	Chaps. 24, 31-32 *(FOP)*

DATE	TOPIC	PAGES
Oct. 24	**Lab 12:** Fecal survey or "We're #1 when it comes to #2" ☺	Pp.175 & 309-328 *(APPLM)*
Oct. 25	Parasitic Crustacea & parasitic castration	Chaps. 33-34 *(FOP)*
Oct. 26	**Lab 13:** Acanthocephala, Mollusca, Annelida & Pentastomida	Pp. 176-182 *(APPLM)*
Oct. 27	Parasitic crustacea & chelicerates (mites & ticks)	Chaps. 34-35, 41 *(FOP)*
Oct. 31	**Lab 14:** Parasitic Crustacea	Pp. 183-189 *(APPLM)*
Nov. 1	Insecta: Siphonaptera, Phthiraptera (Mallophaga & Anoplura)	Chaps. 36-38 *(FOP)*
Nov. 2	**Lab 15:** Mites, Ticks & Siphonaptera	Pp. 190-206 *(APPLM)*
Nov. 3	Insecta: Diptera, biological control and Hymenoptera	Chaps. 39 & 40 *(FOP)*
Nov. 7	**Lab 16:** Insecta: Phthiraptera (Mallophaga & Anoplura)	Pp. 207-213 *(APPLM)*
Nov. 8	Cnidaria (Myxozoa), Protista: Microspora & Amebae	Chaps. 11, 4 & 7 *(FOP)*
Nov. 9	**Lab Practical 2 followed by open lab for parasite collection work**	
Nov. 10	**Lecture Exam II**	
Nov. 14	**Lab 17:** Insecta: Diptera I: sand flies, mosquitoes, black flies, etc…	Pp. 214-238 *(APPLM)*
Nov. 15	Termite flagellates, gut flagellates, Opalinida, & Hemoflagellates I	Chaps. 6 & 5 *(FOP)*
Nov. 16	**Lab 18:** Insecta: Diptera II, Hemiptera, Hymenoptera, & Coleoptera	Pp. 239-250 *(APPLM)*
Nov. 17	Hemoflagellates II: New World Sleeping Sickness, Leishmaniasis	Chap. 5 *(FOP)*
Nov. 21	**Lab 19:** Myxozoa, Microsporidia & Amoebae (Demonstrations)	Pp. 251-260 *(APPLM)*
Nov. 22	Ciliates & Apicomplexa I: Gregarines & Coccidia	Chaps. 10 & 8 *(FOP)*
Nov. 23	**Lab 20:** Gut Flagellates & Opalinida	Pp. 261-266 *(APPLM)*
Nov. 28	**Lab 21:** Hemoflagellates	Pp. 267-274 *(APPLM)*
Nov. 29	Apicomplexa II*: Toxoplasma* life cycle & epidemiology	Chap. 8 *(FOP)*
Nov. 30	**Lab 22:** Ciliates & Apicomplexa I (Gregarines)	Pp. 275-282 *(APPLM)*
Dec. 1	Malaria: History & life cycle	Chap. 9 *(FOP)*
Dec. 5	**Lab 23:** Apicomplexa II (Coccidians)	Pp. 283-287 *(APPLM)*
Dec. 6	Malaria life cycle & pathology I	Chap. 9 *(FOP)*
Dec. 7	**Labs 24 & 25:** Malaria I & II	Pp. 288-298 *(APPLM)*
Dec. 8	Malaria pathology II	Chap. 9 *(FOP)*
Dec. 12	**Lab:** Open lab for work on parasite collection	
Dec. 13	Malaria diagnosis, treatment, history, & genetic adaptations to malaria	Chap. 9 *(FOP)*
Dec. 14	**Lab Practical III** & open lab for work on parasite collection	
Dec. 15	Overview Lecture (or "You are *how* you eat" ☺)	