ESF Course Proposal Form
Committee on Instruction - ESF Faculty Governance
Office of Instruction & Graduate Studies

Date: March 24, 2011
Course Number: EFB 453
Course Title: Parasitology

☑ New Course OR ☐ Changes in existing course (check all that apply):

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This course meets the General Education standards in the following knowledge and skills area (check all that apply):

| ☐ American History | ☐ Humanities | ☐ Other World Civilizations |
| ☐ The Arts | ☐ Mathematics | ☐ Social Sciences |
| ☐ Basic Communication | ☐ Natural Sciences | ☐ Western Civilization |

Prequisites or co-requisite requirements:

☑ Prerequisites: One year of introductory biology, Ecology.

☐ Co-requisites:

Institutional Impact:

Anticipated Enrollment: 20-30 per semester


Computing Resources: Network/internet access, Adobe Acrobat Reader, Flash media player, Blackboard software, PowerPoint software.

Library Resources: Access to existing print and digital Moon library holdings. Specific texts to be purchased or put on reserve will be listed by the instructor and provided to the library staff. Student internet access. Study areas.

Transportation Requirements: none

Forest Properties or Field Practicum Facilities Required: none
Health and Safety Considerations:

Conditions or situations present in association with the course?  

1. **Will substances with any of the following properties be used during instruction?** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?  
   
   **Yes / No**  
   
   Yes  

2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).  
   
   **Yes / No**  
   
   Yes  

3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).  
   
   **Yes / No**  
   
   No  

4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).  
   
   **Yes / No**  
   
   No  

5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).  
   
   **Yes / No**  
   
   No  

6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).  
   
   **Yes / No**  
   
   No  

7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**  
   
   **Yes / No**  
   
   No  

8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)  
   
   **Yes / No**  
   
   Yes  

If the answer was “Yes” to any of the HEALTH AND SAFETY questions, please explain:

1. Small amounts of 70% ethanol and 10% neutral buffered formalin (NBF) are commonly used to preserve parasite specimens. Students will be provided gloves for handling all specimens, and will have lab coats and eye protection. Any formalin-fixed specimens will be handled in a fume hood. Almost all fixed specimens will be stored in 70% ethanol as opposed to 10% NBF. Most specimens examined in class will be stained and mounted.  

2. Students will carry out dissections using scissors, scalpels, and needles. Students will be instructed on their appropriate use and disposal.  

3. In dissection labs, students will require gloves, eye protection, and lab coats.  

**CATALOG DESCRIPTION** (Please provide using the precise format currently used in the ESF catalog, please do not exceed 1000 characters):

Two hours of lecture/discussion per week, three hours laboratory. Diversity, ecology, and impact of parasites of ecological, medical, and veterinary importance. Emphasis on identification, life history, control, host-parasite interactions and evolution, population patterns, and parasite communities. Spring, even years.
DETAILED COURSE DESCRIPTION

COURSE:  
EFB 453 – Parasitology  
3 Credit Hours – Spring Semester, even years  
2 Hours Lecture Per Week  
3 hours Laboratory Per Week  
Prerequisite(s): One year of Introductory Biology, Ecology.

SCOPE:

1. **Level of Instruction:**  
a. EFB 453 is an upper division elective intended for students with completed coursework in general biology and ecology.

2. **Relation to curriculum or to other ESF or Syracuse University courses:**  
a. Prerequisites are a year of Introductory Biology and a course in Ecology.  
b. Shared resource requirements: A graduate offering EFB 653 uses the same lecture and laboratory materials. Graduate students will have additional responsibilities as listed in the EFB 653 description. Credits will not be granted for both EFB 453 and EFB 653.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. List adaptations found in the parasitic way of life.  
2. Differentiate and classify parasite taxa by morphological observation.  
3. Diagram, describe, and contrast various parasite life cycles.  
4. Discuss the life histories of parasites of medical importance in relation to transmission, prevention and control.  
5. Discuss genetic interactions between hosts and parasites.  
6. Describe parasite community structure and role in food webs.  
7. Explain the effects of parasites at multiple biological scales, from host cells to ecosystems.  
8. Discuss the role of parasites as selective agents in host evolution and in host-parasite coevolution.

MAJOR CONCEPTS OR METHODOLOGIES:

Parasite Diversity: Form and function, life cycles, adaptations to environment and host, and pathogenesis for representatives of the following: protists, microsporidians, myxozoans, platyhelminths, acanthocephalans, nematodes, nematomorphs, pentastomes, and arthropods.


Parasite Community Ecology: General characteristics and quantification of parasite communities. Niche restriction, species richness. Parasites as biological tags, indicators of pollution, and environmental sentinels.

Impacts of Parasites: Pathology and immunology. Morbidity and mortality of individuals and populations. Parasitism as a driver of evolution.
ESF 453. Parasitology (3)

Two hours of lecture/discussion per week, three hours laboratory. Diversity, ecology, and impact of parasites of ecological, medical, and veterinary importance. Emphasis on identification, life history, control, host-parasite interactions and evolution, population patterns, and parasite communities. Spring, even years.

Prerequisite(s): One year of Introductory Biology, Ecology. Note: Credit will not be granted for both EFB 453 and EFB 653

COURSE HISTORY:

This course has never been taught at ESF.
Last approved: never.

Revised Draft: November 10, 2009 (form in protected format: 3/24/11)