New Course Request

Indiana University

South Bend Campus

Check Appropriate Boxes: Undergraduate credit ☒ Graduate credit ☐ Professional credit ☐

1. School/Division: Biology/College Liberal Arts & Sci ☒ Academic Subject Code: BIOL

2. Course Number: Z373 (must be cleared with University Enrollment Services)

4. Instructor: Dr. Thomas Clark

5. Course Title: Entomology

Recommended Abbreviation (Optional)

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year):
Fall 2004

7. Credit Hours: Fixed at 3 or Variable from ________ to ________

8. Is this course to be graded S-F (only)? Yes ☐ No ☒

9. Is variable title approval being requested? Yes ☐ No ☒

10. Course description (not to exceed 50 words) for Bulletin publication:
P: One introductory biology course: biology of insects with emphasis on evolution, distribution, behavior and structure.

11. Lecture Contact Hours: Fixed at ________ or Variable from ________ to ________

12. Non-Lecture Contact Hours: Fixed at ________ or Variable from ________ to ________

13. Estimated enrollment: ________ of which ________ percent are expected to be graduate students.

14. Frequency of scheduling: alternate yrs Will this course be required for majors? ☐ No ☒

15. Justification for new course: Expand majors electives, increase courses with lab/field components.

16. Are the necessary reading materials currently available in the appropriate library? ☐ Yes ☒

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:

Date 12/14/04

Department Chairman/Division Director

Approved by:

Date 2/3/04

Dean

Date

Chancellor/Vice-President

Date

University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724

University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow;
Department/Division—Pink; University Enrollment Services Advance—White
Z373 Entomology

Instructor: Dr. Thomas M. Clark
Textbook: Daly HV, Doyen JT, Purcell AH III. Introduction to insect biology and diversity.

Outline: Students will be introduced to the biology of insects. Insect Anatomy and physiology, behavior, ecology, and diversity will be discussed. The lecture will be accompanied by a laboratory.

Z383 Laboratory in Entomology

Instructor: Dr. Thomas M. Clark
Textbook: none

Outline: Students will examine the structure and diversity of insects. Early in the semester, we will go on field trips to observe and collect insects. Some live insects will be observed more closely in the laboratory. The students will learn to use dichotomous keys to identify insect orders and families, and will prepare a collection. They will also be held responsible for identifying insects to order.
When you become a student at Indiana University, you join an academic community internationally known for the excellence and diversity of its programs. Indiana University is one of the nation’s oldest and largest state universities, with eight campuses serving 96,000 students. IU also offers courses through facilities at Columbus, Elkhart, and many other sites.

**Indiana University Campuses**
- Indiana University Bloomington
- Indiana University–Purdue University Indianapolis
- Indiana University East (Richmond)
- Indiana University–Purdue University Fort Wayne
- Indiana University Kokomo
- Indiana University Northwest (Gary)
- Indiana University South Bend
- Indiana University Southeast (New Albany)
L293 Evolution (3 cr.) P: L311 or S311. Provides a rigorous exploration of the theory of evolution—the conceptual core of biology. Topics include origins and history of life; the interplay of heredity and environment in shaping adaptations; molecular, behavioral, and social evolution; patterns of speciation, extinction, and their consequences; methods for inferring evolutionary relationships among organisms. Credit not given for both L318 and S318, or both L318 and L479.

S318 Evolution, Honors (4 cr.) P: L311 or S311. Provides a rigorous exploration of the theory of evolution—the conceptual core of biology. Topics include origins and history of life; the interplay of heredity and environment in shaping adaptations; molecular, behavioral, and social evolution; patterns of speciation, extinction, and their consequences; methods for inferring evolutionary relationships among organisms. Credit not given for both L318 and S318, or both S318 and L479.

Z318 Developmental Pathology Laboratory (2 cr.) P: L317 or P C: L317. A laboratory about developing organisms, with emphasis on vertebrate embryology and organogenesis.

S319 Genetics Laboratory (3 cr.) P or C: L311. Experiments with plants, animals, bacteria, and viruses demonstrating fundamental genetic mechanisms. Credit given for only one of L319 or S319.

L321 Principles of Immunology (3 cr.) P: L211, and CHEM C101 or C105. R: L312. An introductory survey of the basic principles of immunology and their practical applications.

L322 Writing Workshop in Molecular Biology (3 cr.) N & M: P: L211. Scientific writing styles and techniques will be taught so as to provide students with the opportunity of writing about complex phenomena in molecular biology, for sharpening thought processes used in evaluating complicated data, and for communicating intricate ideas and concepts. Emphasis will be placed on the "logic and rhetoric" of molecular biology. Research reports will be regularly reviewed by the instructor, and in the context of cooperative learning groups, students will engage in writing exercises. Does not meet a lecture requirement.

L329 Molecular Biology Laboratory (3 cr.) P: L211. Manipulation and analysis of genes and genomes. Gene cloning and library screening. Gene amplification and disease diagnosis. Gene mapping and Southern blot analysis of complex genome structure. Credit given for only one of L323, L324, or S211.

L334 Human Molecular Biology Laboratory (3 cr.) P: L211 or consent of instructor. Theory and molecular biology techniques used to study the human genome and human genes. Students isolate DNA from their cells and apply current techniques for DNA fingerprinting of macro- and micro-satellites, telomere length estimation, SNP and Alu polymorphism analysis, gene expression analysis, DNA sequencing, and computer analysis. Credit given for only one of L323, L324, or S211.

L331 Introduction to Human Genetics (3 cr.) P: A course in genetics. Principles of human genetics are presented. The emphasis is on new developments in the field afforded by present-day techniques in molecular biology. Among the topics considered are sex inheritance, molecular basis of genetic diseases, oncogenesis, and immune system structure.

L341 Natural History of Coral Reefs (GEOL C341) (4 cr.) N & M: P: A 100-level biology course for majors and a course in organism biology/ecology, sedimentology, or stratigraphy; demonstrated proficiency in swimming; students must apply. Four-week summer course introducing principles of biology, ecology, and geology as applied to coral reef ecosystems. Week 1: daily meeting at IUB to provide background; weeks 2-4 field/lab exercises and research projects at tropical marine laboratory; subsequent fall semester: one-day student colloquium at IUB.

M350 Microbial Physiology and Biochemistry (3 cr.) P: L112 and CHEM C341. Intended for majors in microbiology, biology, or chemistry. Introduction to microbial biochemistry and physiology: nutrition, growth composition, and metabolism of selected bacteria.

B351 Fungi (3 cr.) P: L111 and L112. R: junior or senior standing or consent of instructor. Morphology, life histories, classification, genetics, physiology, development, ecology, medical and economic importance of fungi.

B352 Fungi: Laboratory (2 cr.) P or C: B351. R: junior or senior standing or consent of instructor. Laboratory and field studies of fungi and their activities.

M360 Microbial Physiology Laboratory (3 cr.) P or C: M350 or consent of instructor. Introduction to techniques for the fractionation, isolation, and purification of cellular components. Analysis of bacterial growth, enzyme purification, chromatographic analysis of proteins and other metabolites, gel electrophoresis and fermentation studies.

B364 Summer Flowering Plants (5 cr.) N & M: P: One introductory biology course. For those desiring a broad, practical knowledge of common wild and cultivated plants. SS.

B368 Ethnobotany (3 cr.) N & M: P: L111. Plants in relation to man with primary emphasis on food plants. Credit given for only one of L370 or S370.

B371 Ecological Plant Physiology (3 cr.) P: College chemistry and L111 and L112. The interrelationships among plant function and temperature, water supply, nutrient level, light quality, light quantity, gases, and other organisms.

B373 Mechanisms of Plant Development (3 cr.) P: L111, L121. Physiological and molecular mechanisms controlling growth and development with an emphasis on the ways that hormones, light, and other factors alter gene activity and cellular physiology.

Z373 Entomology (3 cr.) P: one introductory biology course. Insects, with emphasis on evolution, distribution, behavior, and habitat.

Z374 Invertebrate Zoology (3 cr.) P: one introductory biology course. Ecology, evolution, and phylogeny of major invertebrate groups, with emphasis on current controversies and concepts.

M375 Human Parasitology (3 cr.) P: L111 and L112. R: Junior major of human parasites focusing on their etiology, epidemiology, immunology, diagnosis, and treatment. Major groups of protozoa, helminths, and medically important arthropods covered. Lab presents both live and fixed materials complementing lecture.

Z375 Invertebrate Zoology Laboratory (2 cr.) P or C: Z374. Laboratory and field studies of invertebrates, with an emphasis on experiments with living specimens.

L376 Biology of Birds (4 cr.) P: L111 and L112. Avian��统atics, distribution, evolution, ecology, and behavior, emphasis on migration and orientation, territoriality, communication, reproductive behavior. Field trips will concentrate on identification, interpretation of behavior, and research methods. Intended for biology majors.

L377 Biology of Amphibians and Reptiles (3 cr.) P: L111, L112, L113. An extensive study of amphibians and reptiles, including behavior, physiology, ecology, and evolution. Course will include a survey of world diversity, comparative dissections, field exercises, behavioral experiments, and review of the primary literature.

L390 Learning Enhancement in Biology (1 cr.) Additional discussion, learning group, laboratory, or field experiences to accompany another course in biology. Offered as a corequisite for the other course. May be repeated for a maximum of 4 credit hours when taken with different corequisite courses.

L410 Topical Issues in Biology (3-5 cr.) P: L111, L112, and L113. Topics not related extensively in other courses. The topic will vary depending on the instructor and on student needs. May be repeated once with a different topic for a maximum of 6 credit hours.

Z406 Vertebrate Zoology (5 cr.) P: L111 and L112, junior or senior standing or consent of instructor. Morphology, evolution, adaptations, and general biology of vertebrates.

M416 Molecular Biology of the AIDS Virus (3 cr.) P: CHEM C341 and BIOL L311. A detailed consideration of the human immunodeficiency virus (HIV), the causative agent of AIDS. The functions of the HIV genes and how those functions affect pathology and normal cellular mechanisms. For senior biology or biochemistry majors and beginning graduate students.

M430 Virology Lecture (3 cr.) N & M: P: L211. R: L311 and L312. Viruses of plants, animals (including humans), and bacteria; emphasis on molecular biology of viral systems. Viruses and human disease such as cancer and AIDS; viruses and their evolution.

L433 Tropical Biology (3 cr.) Field course taught in Costa Rica during winter semester break. Field study topics include plants and animals, their ecology and interactions in rain forests, seasonal dry forests, cloud forests, and the marine/land interface. Projects on particular aspects of areas visited and a detailed field notebook are required. Orientation meetings arranged during the fall semester.

M435 Viral-Tissue Culture Laboratory (5 cr.) P or C: M430 or consent of instructor. Laboratory techniques in phage, viruses, and tissue culture.

L440 Introduction to Biotechnology (3 cr.) N & M: P: L211 or consent of instructor. Lecture will cover topics central to biotechnology and the influence of technological innovations on traditional industries, recombinant DNA techniques, protein isolation and assay, genetic and molecular identification of therapeutic targets, development of therapeutics, bioinformatics, intellectual property, biotechnology companies, and regulatory issues.

M440 Medical Microbiology: Lecture (3 cr.) P: L211. R: M250. Microorganisms as agents of disease; host-parasite relationships; epidemiology, chemotherapy. Credit given for only one of M440 or M250.

M445 Medical Microbiology: Laboratory (3 cr.) P: M255 and M440, which may be taken concurrently. Laboratory methods of isolation and identification of microorganisms from