Course Proposal: Modify

CID and Name:
10268242----Burt, Donald

1. Course: **BIO 133 Principles of Zoology**

2. Term/Year: **Fall 2014**

3. CIP CODE/10 Digit Program Code: **2607010002**

4. Current Course Title: **Principles of Zoology**
   Modified Course Title: **N/A**

5. What is the primary reason you are modifying this course:
New core courses will be limited to 3 hours maximum. We are proposing to modify Bio 133 and Bio 133L from a single course to two courses

6. Enter course description exactly as it will appear in the general/graduation bulletin:

4 semester hours, 3 hours lecture per week, 2 hours lab per week. Fundamental principles of animal life, including invertebrate and vertebrate animals. Required lab fee.

7. Enter modified course description exactly as it will appear in the general/graduation bulletin:

3 semester hours, 3 hours lecture per week. Fundamental principles of animal life, including invertebrate and vertebrate animals.

8. Current Prerequisites:
N/A

9. Modified Prerequisites:

Corequisite: Bio 133L

10. College: **College of Science/Mathematics**

11. Department Teaching Course: **Biology**

12. Instruction Type: **N/A**

13. Modified Credit Hours Maximum: **3**

Credit Hours Minimum: **3**

Maximum Hours counted toward degree: **3**

14. Maximum contact hours each week Fall Semester: **3**

15. May this course be taken more than one time each semester? **N/A**

16. Grade Type: **N/A**

17. Describe the place of the modified course within your current curriculum. (Will it be elective or required? Part of a major or a minor?)

Bio 133 is required of Biology majors and minors with a grade of C or better.

18. How does the modified course differ from similar courses being offered at Stephen F. Austin?

NA

19. Syllabus: Course Learning Goals
List course objectives; describe what students who complete the course will now or be able to do.

Student Learning Outcomes: SLO 1. Critically assess information in primary literature articles and communicate their conclusions in oral and written form. SLO 2. Work in teams to apply basic methods for developing and testing scientific hypotheses and communicate their conclusions in oral, visual and written form. SLO 3. Explain how comparative methods are used to understand animal evolution ("Tree-thinking") and classification. SLO 4. Describe how animal anatomical and physiological adaptations have evolved in different ecological contexts. SLO 5. Identify major animal lineages and their distinguishing characteristics.

20. Syllabus: Course Outline
List the topics that the proposed course will cover and indicate the approximate proposed amount of time to be devoted to each, either by percent of course time or number of weeks. Please indicate which topics will be required in all sections of the course and which may vary.

N/A

21. Any Other Information.

NA

----Course Syllabus----
Must accurately reflect the course syllabus. (N/A is not acceptable response)

22. Program Learning Outcomes
List the program learning outcomes addressed in this course as identified in the course matrix for your degree program. If your department requires a listing of all Program Learning Outcomes (PLOs) on the syllabus, please identify those that are directly taught in this course. If this is a general education core curriculum course and no PLOs are taught in this course then insert the following statement under this heading:

This is a general education core curriculum course and no specific program learning outcomes for this major are addressed in this course.

Program Learning Outcomes: Departmental PLOs and associated Student Learning Outcomes. PLO 1. The student will demonstrate a good knowledge base in biological concepts (Knowledge). (SLO 3-5) PLO 2. Clearly

articulate scientific information in oral form. (SLO 1-2) PLO 3. Clearly articulate scientific information in written form. (SLO 1-2) PLO 4. Be able to design, carry out, and analyze experiments to answer biological questions. (SLO 2) PLO 5. Demonstrate teamwork skills needed to coordinate diverse multidisciplinary teams to solve challenges in the biological world. (SLO 2)

23. General Education Core Curriculum Objectives/Outcomes

List the Exemplary Educational Objectives (EEOs) for this course if the course is included in the general education core curriculum. If you have reworded the EEOs as outcomes for your course, please be sure that the original intent of the EEO is retained.

General Education Core Curriculum Objectives: Texas State Core Objectives and associated Student Learning Outcomes. CO 1. Critical Thinking: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLO 1-5) CO 2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication. (SLO 1-3) CO 3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLO 1-3) CO 4. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. (SLO 2)

24. Student Learning Outcomes

List all student learning outcomes (SLOs) for this course including the course specific student learning outcomes that support the PLOs above. In general, SLOs in a course that support the PLOs are specific and include the exact knowledge, skill or behavior taught in the course that supports the more global PLOs. For additional information on meaningful and measurable learning outcomes see the assessment resource page http://www.sfasu.edu/assessment/index

Student Learning Outcomes: After successful completion of this course student will be able to: SLO 1. Critically assess information in primary literature articles and communicate their conclusions in oral and written form. (CO 1, 2) SLO 2. Work in teams to apply basic methods for developing and testing scientific hypotheses and communicate their conclusions in oral, visual and written form. (CO 1, 2, 3, 4) SLO 3. Explain how comparative methods are used to understand animal evolution ("Tree-thinking") and classification. (CO 1, 2, 3) SLO 4. Describe how animal anatomical and physiological adaptations have evolved in different ecological contexts. (CO 1) SLO 5. Identify major animal lineages and their distinguishing characteristics. (CO 1)

25. Syllabus: Modified Textbook/Assigned Reading Materials for course:

Text and Materials: Lecture: *Integrated Principles of Zoology*, 15th Edition, Hickman et al.

26. Course Requirements

Describe the major course requirements, assignments, examinations, projects.

Students will be tested over lecture material using multiple-choice exams (4) covering material in specific quarters of the semester and one comprehensive final exam.

27. Course Calendar

Create a tentative timeline for the course. At a minimum, list the topics that the course will cover and indicate the approximate amount of time to be devoted to each, either by percent of course time or number of weeks. The calendar should provide information for the maximum number of weeks scheduled for the course.

Week 1- Intro. to Animals, Science, Nature of Comparative Studies Critical Thinking Instruction: D2L screencast lecture on critical assessment of scientific literature. Week 2- Homeostasis, Osmoregulation, Excretion, Nutrition Teamwork Instruction: Students will be instructed on how to work effectively in teams via a screencast lecture posted on D2L. Week 3- Circulation and Gas Exchange, Nervous and Sensory Systems. Empirical and Quantitative Skills Instruction: students will be instructed in the use of Microsoft Excel to calculate summary statistics for comparisons of experimental groups. Week 4- Movement and Support, Chemical Signals, Reproduction and Development. Week 5- Immune Systems, Animal Behavior Week 6- Phylogenies, Animal Body Plans, Protozoa Week 7- Porifera, Cnidaria, Ctenophora Week 8- Platyhelminthes, Pseudocoelomates (Rotifers, Nematodes) Week 9- Mollusca, Annelida Week 10- Arthropoda (Chelicerates, Crustaceans) Week 11- Arthropoda (Myriapods, Insects) Week 12- Echinodermata, Hemichordates, Invert Chordates Week 13- Vertebrates Week 14- Vertebrates

28. Grading Policy

Describe how the grade for the course is determined.

The lecture portion makes up 3/4 of your course grade with the lab portion making up the remaining 1/4th. The final grade is determined by earning 90%, 80%, 70% or 60% of the available points for the associated traditional letter grade. Students must have a 60% or higher average in both lecture and laboratory sections to pass the course.

29. Attendance Policy

State your attendance policy.

Attendance policy will vary among instructors.

30. Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

31. Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

32. Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices.

Dept. Chair _____ Date: 11/8/13

College Curriculum Chair _____ Date: _____

Dept. Dean _____ Date: _____

College Curriculum Dean _____ Date: _____

RELEASE: 8.3

Principles of Zoology
Biology 133

Department: Biology

Course Description:
3 semester hours, 3 hours lecture per week. Fundamental principles of animal life, including invertebrate and vertebrate animals.

Text and Materials: *Integrated Principles of Zoology*, 15th Edition, Hickman et al.

Corequisite: Bio 133L

Student Learning Outcomes:
After successful completion of this course student will be able to:
SLO 1. Critically assess information in primary literature articles and communicate their conclusions in oral and written form. (CO 1, 2)
SLO 2. Work in teams to apply basic methods for developing and testing scientific hypotheses and communicate their conclusions in oral, visual and written form. (CO 1, 2, 3, 4)
SLO 3. Explain how comparative methods are used to understand animal evolution ("Tree-thinking") and classification. (CO 1, 2, 3)
SLO 4. Describe how animal anatomical and physiological adaptations have evolved in different ecological contexts. (CO 1)
SLO 5. Identify major animal lineages and their distinguishing characteristics. (CO 1)

Program Learning Outcomes: Departmental PLOs and associated Student Learning Outcomes.
PLO 1. The student will demonstrate a good knowledge base in biological concepts (Knowledge). (SLO 3-5)
PLO 2. Clearly articulate scientific information in oral form. (SLO 1-2)
PLO 3. Clearly articulate scientific information in written form. (SLO 1-2)
PLO 4. Be able to design, carry out, and analyze experiments to answer biological questions. (SLO 2)
PLO 5. Demonstrate teamwork skills needed to coordinate diverse multidisciplinary teams to solve challenges in the biological world. (SLO 2)

General Education Core Curriculum Objectives: Texas State Core Objectives and associated Student Learning Outcome.
CO 1. **Critical Thinking**: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLO 1-5)
CO 2. **Communication Skills**: to include effective development, interpretation and expression of ideas through written, oral and visual communication. (SLO 1-3)
CO 3. **Empirical and Quantitative Skills**: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLO 1-3)
CO 4. **Teamwork**: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. (SLO 2)

Course Requirements:
Students must enroll in both lecture and lab and final grades will reflect both components. Your final grade in this course is determined by grades from the laboratory reports, laboratory quizzes, lecture exams, daily lecture quizzes and participation in the course evaluation.

Grading Policy:
The lecture portion makes up 3/4 of your course grade with the lab portion making up the remaining 1/4th. The final grade is determined by earning 90%, 80%, 70% or 60% of the available points for the associated traditional letter grade. Students must have a 60% or higher average in both lecture and laboratory sections to pass the course.

Attendance Policy:

Attendance is expected for each lecture and lab. Students with poor attendance typically do very poorly in this course. Students with excused absences in lab may makeup laboratories by attending other lab sections in the same week as their missed lab. Students missing more than three labs will automatically fail the course. Makeup lecture exams will be scheduled during dead week unless prior arrangements are made to take the exam prior to the scheduled exam.

Acceptable Student Behavior

Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1, http://www.sfasu.edu/policies/student_conduct_code.asp). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Class etiquette:

Do not be late for class.
Do not leave before the class period is over.
Do not anticipate the end of class and start putting your things away.
Do not talk during class.
Turn your phone off.
Use your computer for class work only.
Stay awake.

Academic Integrity (A-9.1)

Abiding by university policy on academic integrity is a responsibility of all university faculty and students. Faculty members must promote the components of academic integrity in their instruction, and course syllabi are required to provide information about penalties for cheating and plagiarism as well as the appeal process.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:

- using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class;
- falsification or invention of any information, including citations, on an assignment; and/or,
- helping or attempting to help another in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism include, but are not limited to:

- submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source; and,
- incorporating the words or ideas of an author into one's paper or presentation without giving the author due credit.

Procedure for Addressing Student Academic Dishonesty

A faculty member who has evidence and/or suspects that academic dishonesty has occurred shall gather all pertinent information, approach the student(s) involved, and initiate the following procedure:

- The faculty member shall review all evidence of cheating or plagiarism and discuss it

directly with the student(s) involved. The faculty member shall inform the student(s) of the procedure for addressing academic dishonesty, as well as the appeals process.

- After hearing the student(s)' explanation or defense, the faculty member will determine whether or not academic dishonesty has occurred and will inform the student(s) what action will be taken. Penalties may include reprimand, no credit for the assignment or exam, re-submission of the work, make-up exam, or failure of the course. The faculty member may consult with the academic unit chair/director and dean in making these decisions.
- After a determination of academic dishonesty, the faculty member shall notify the office of the dean of the student's major by submitting a Report of Academic Dishonesty, along with supporting documentation as noted on the form. This report shall be made part of the student's record and shall remain on file with the dean's office for at least four years.
- Upon second or subsequent offenses, the dean of the student's major will determine a course of action, which may include dismissal from the university. The dean may refer the case to the college council for review and recommendations before making this determination.

A student's record of academic dishonesty will not be available to faculty members. The purpose of the record is for the dean to track a pattern of academic dishonesty during a student's academic career at Stephen F. Austin State University.

Students who are found to have demonstrated academic dishonesty and have withdrawn prior to the award of a grade will continue to have the determination of the infraction within their student records.

Student Appeals

A student who wishes to appeal decisions related to academic integrity should follow procedures outlined in Academic Appeals of Students (A-2).

Source: http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)

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Source: http://www.sfasu.edu/policies/semester_grds.asp

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Course Calendar:
Each topic will be covered in all lecture and laboratory sections

Week	Lecture Topic	Lab Topic	SLO	CO	Lab Activity
1	Intro. to Animals, Science, Nature of Comparative Studies **Critical Thinking Instruction:** D2L screencast lecture on critical assessment of scientific literature.	Microscope use	1	1	Instruction on microscope use
2	Homeostasis, Osmoregulation, Excretion, Nutrition **Teamwork Instruction:** Students will be instructed on how to work effectively in teams via a screencast lecture posted on D2L.	Foraging and Predator/Prey Relationships	2	1, 2, 3, 4	**Oral, Written and Visual Communication Skills Instruction:** lab instructors will provide examples of effective and ineffective oral and written scientific communication. Students will also learn how to use Microsoft Excel to produce effective figures and graphs to visually communicate scientific results. Hypothesis testing: foraging success of a predator (*Hydra* sp.).
3	Circulation and Gas Exchange, Nervous and Sensory Systems	Cardiovascular System	2	1, 2, 3, 4	**Empirical and Quantitative Skills Instruction:** students will be instructed in the use of Microsoft Excel to calculate summary statistics for comparisons of experimental groups. Hypothesis testing: effects of temperature on heart rate in an ectotherm (*Daphnia* sp.).
4	Movement and Support, Chemical Signals, Reproduction and Development	Muscular System	2	1, 2, 3, 4	Hypothesis testing: effects of body size and temperature on muscle activity in cockroaches and crickets.
5	Immune Systems, Animal Behavior	Animal Behavior	2	1, 2, 3, 4	Hypothesis testing: behavioral response of isopods to different environmental stimuli.
6	Phylogenies, Animal Body Plans, Protozoa	Phylogenetics	3, 4, 5	1, 2, 3	Using organismal traits to construct phylogenetic trees.
7	Porifera, Cnidaria, Ctenophora	Cnidarians	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.
8	Platyhelminthes, Pseudocoelomates (Rotifers, Nematodes)	Lophotrochozoa I –Flatworms and Rotifers	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			2	1, 2, 3, 4	Hypothesis testing: flatworm phototropism.
9	Mollusca, Annelida	Lophotrochozoa	4, 5	1	Identification of body types,

Week	Lecture Topic	Lab Topic	SLO	CO	Lab Activity
		II –Molluscs, Annelids			structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.
10	Arthropoda (Chelicerates, Crustaceans)	Nematodes, Arthropods I - Chelicerates	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			2	1, 2, 3, 4	Hypothesis testing: courtship behavior in jumping spiders.
11	Arthropoda (Myriapods, Insects)	Arthropods II – Crustaceans and Insects	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			4, 5	1	Use of taxonomic keys.
12	Echinodermata, Hemichordates, Invert Chordates	Echinoderms	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.
13	Vertebrates	Vertebrates I - Fishes	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			2	1, 2, 3, 4	Hypothesis testing: shoaling behavior in zebrafish.
14	Vertebrates	Vertebrates II - Tetrapods	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.

Assessment of Core Objectives

Critical Thinking- Students will learn, via a podcast lecture, ways to find, read and assess scientific papers. Students will learn how to differentiate primary literature from gray literature and articles from popular press and informal Internet sources. Students will learn to locate a paper's study objectives and/or hypotheses and evaluate the quality of information and the organization of key portions of a paper (introduction, methods, results, discussion). These skills will be used in many subsequent lab assignments (see syllabus). Students will also be instructed on how to work in teams to form hypotheses and conduct basic experiments and phylogenetic comparative analyses in several labs (see syllabus). Teams will be required to examine their data, form conclusions and defend their conclusions and to reconcile differences in results and conclusions that might exist in comparisons with other teams. **Assessment of critical thinking will be based on the week 13 lab assignment "Hypothesis testing: shoaling behavior in zebrafish" using a rubric that will quantify students' creative thinking, depth of inquiry, level of analytical detail, and ability to evaluate results, integrate information and derive logical conclusions.**

Communication Skills- Students will be instructed on how to communicate effectively in two basic types of laboratory assignments. First, students will verbally communicate their assessments of primary literature articles in team discussions. Each team member will submit written summaries of their assessments using double-entry journals and use peer comparison rubrics that score the quality of information communicated by fellow team members. **Assessment of oral communication skills will be based on the peer comparison rubric scores from the paper discussions in week 14.** Second, teams will form and test hypotheses and conduct basic experimental studies. Teams will turn in a lab report that contains the following elements: the hypothesis, a description of the study methods, a copy of the Excel datasheet, figures used to interpret the data, a discussion with the team's conclusions, and a critique of the team's study. **Assessment of written and visual communication skills will be based on rubric scores of lab reports from the week 13 lab assignment "Hypothesis testing: shoaling behavior in zebrafish".**

Empirical and Quantitative Skills- Students will be instructed on how to develop empirical and quantitative skills while collecting data in biological studies in several labs (see syllabus). Students will learn how to develop Excel

data sheets, record data, compute basic summary statistics, compare relevant variables and draw conclusions from their analyses. Data types will include morphological measurements and quantification of animal behaviors. Students will also gain a better understanding of empirical and quantitative issues during their critical assessment of result in primary literature articles. **Assessment of critical thinking will be based on the week 13 lab assignment "Hypothesis testing: shoaling behavior in zebrafish" using a rubric that will quantify students' abilities to record data, integrate information, and derive logical conclusions.**

Teamwork- Students will be instructed on how to work in teams of four in labs to perform each biological experiment and phylogenetic comparative analysis (see syllabus). Teams members will be presented with strategies for effective teamwork so that they may work more efficiently together to collect and analyze data and to more effectively communicate results. **Assessment of empirical and quantitative skills will be based on the week 8 lab assignment "Hypothesis testing: flatworm phototropism" using a peer evaluation rubric that will quantify each members role in the study. Combined rubric scores for each team will then be compared to the quality of the final lab report for each team.**

Course Proposal: Modify

CID and Name:
10268242----Burt, Donald

1. Course: **BIO 133L Principles of Zoology Laboratory**

2. Term/Year: **Fall 2014**

3. CIP CODE/10 Digit Program Code: **2607010002**

4. Current Course Title: **Principles of Zoology**
   Modified Course Title: **N/A**

5. What is the primary reason you are modifying this course:
New core courses will be limited to 3 hours maximum. We are proposing to modify Bio 133 and Bio 133L from a single course to two courses

6. Enter course description exactly as it will appear in the general/graduation bulletin:

4 semester hours, 3 hours lecture per week, 2 hours lab per week. Fundamental principles of animal life, including invertebrate and vertebrate animals. Required lab fee.

7. Enter modified course description exactly as it will appear in the general/graduation bulletin:

1 semester hour, 2 hours lab per week. Fundamental principles of animal life, including invertebrate and vertebrate animals. Required lab fee

8. Current Prerequisites:
N/A

9. Modified Prerequisites:

Corequisite: Bio 133

10. College: **College of Science/Mathematics**

11. Department Teaching Course: **Biology**

12. Instruction Type: **N/A**

13. Modified Credit Hours Maximum: **1**

Credit Hours Minimum: **1**

Maximum Hours counted toward degree: **1**

14. Maximum contact hours each week Fall Semester: **2**

15. May this course be taken more than one time each semester? **N/A**

16. Grade Type: **N/A**

17. Describe the place of the modified course within your current curriculum. (Will it be elective or required? Part of a major or a minor?)

Bio 133L is required of Biology majors and minors with a grade of C or better.

18. How does the modified course differ from similar courses being offered at Stephen F. Austin?

NA

19. Syllabus: Course Learning Goals
List course objectives; describe what students who complete the course will now or be able to do.

Student Learning Outcomes: SLO 1. Critically assess information in primary literature articles and communicate their conclusions in oral and written form. SLO 2. Work in teams to apply basic methods for developing and testing scientific hypotheses and communicate their conclusions in oral, visual and written form. SLO 3. Explain how comparative methods are used to understand animal evolution ("Tree-thinking") and classification. SLO 4. Describe how animal anatomical and physiological adaptations have evolved in different ecological contexts. SLO 5. Identify major animal lineages and their distinguishing characteristics.

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N/A

21. Any Other Information.

NA

----Course Syllabus----
Must accurately reflect the course syllabus. (N/A is not acceptable response)

22. Program Learning Outcomes
List the program learning outcomes addressed in this course as identified in the course matrix for your degree program. If your department requires a listing of all Program Learning Outcomes (PLOs) on the syllabus, please identify those that are directly taught in this course. If this is a general education core curriculum course and no PLOs are taught in this course then insert the following statement under this heading:

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Program Learning Outcomes: Departmental PLOs and associated Student Learning Outcomes. PLO 1. The student will demonstrate a good knowledge base in biological concepts (Knowledge). (SLO 3-5) PLO 2. Clearly

articulate scientific information in oral form. (SLO 1-2) PLO 3. Clearly articulate scientific information in written form. (SLO 1-2) PLO 4. Be able to design, carry out, and analyze experiments to answer biological questions. (SLO 2) PLO 5. Demonstrate teamwork skills needed to coordinate diverse multidisciplinary teams to solve challenges in the biological world. (SLO 2)

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24. Student Learning Outcomes

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Student Learning Outcomes: After successful completion of this course student will be able to: SLO 1. Critically assess information in primary literature articles and communicate their conclusions in oral and written form. (CO 1, 2) SLO 2. Work in teams to apply basic methods for developing and testing scientific hypotheses and communicate their conclusions in oral, visual and written form. (CO 1, 2, 3, 4) SLO 3. Explain how comparative methods are used to understand animal evolution ("Tree-thinking") and classification. (CO 1, 2, 3) SLO 4. Describe how animal anatomical and physiological adaptations have evolved in different ecological contexts. (CO 1) SLO 5. Identify major animal lineages and their distinguishing characteristics. (CO 1)

25. Syllabus: Modified Textbook/Assigned Reading Materials for course:

Text and Materials: ***Zoology Laboratory Manual, An Integrative Approach*****, Burt and Kwiatkowski**

26. Course Requirements

Describe the major course requirements, assignments, examinations, projects.

Students will be tested over lab material using daily quizzes, lab reports, journal discussions and completion of lab manual exercises.

27. Course Calendar

Create a tentative timeline for the course. At a minimum, list the topics that the course will cover and indicate the approximate amount of time to be devoted to each, either by percent of course time or number of weeks. The calendar should provide information for the maximum number of weeks scheduled for the course.

Week 1, Microscope use; Week 2, Foraging and Predator/Prey Relationships; Week 3, Cardiovascular System; Week 4, Muscular System; Week 5, Animal Behavior; Week 6, Phylogenetics; Week 7, Cnidarians; Week 8, Lophotrochozoa I –Flatworms and Rotifers; Week 9, Lophotrochozoa II –Molluscs, Annelids; Week 10, Nematodes, Arthropods I – Chelicerates; Week 11, Arthropods II – Crustaceans and Insects; Week 12, Echinoderms; Week 13, Vertebrates I – Fishes; Week 14, Vertebrates II – Tetrapods;

28. Grading Policy

Describe how the grade for the course is determined.

The lecture portion makes up 3/4 of your course grade with the lab portion making up the remaining 1/4th. The final grade is determined by earning 90%, 80%, 70% or 60% of the available points for the associated traditional letter grade. Students must have a 60% or higher average in both lecture and laboratory sections to pass the course.

29. Attendance Policy

State your attendance policy.

Students will be able to makeup materials associated with 3 or fewer labs.

30. Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

31. Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

32. Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices.

Dept. Chair _____ Date: 11/8/13

College Curriculum Chair _____ Date: _____

Dept. Dean _____ Date: _____

College Curriculum Dean _____ Date: _____

RELEASE: 8.3

Principles of Zoology
Biology 133L

Department: Biology

Course Description:
1 semester hour, 2 hours lab per week. Fundamental principles of animal life, including invertebrate and vertebrate animals. Required lab fee

Text and Materials: *Zoology Laboratory Manual, An Integrative Approach*, Burt and Kwiatkowski

Corequisite: Bio 133

Student Learning Outcomes:
After successful completion of this course student will be able to:
SLO 1. Critically assess information in primary literature articles and communicate their conclusions in oral and written form. (CO 1, 2)
SLO 2. Work in teams to apply basic methods for developing and testing scientific hypotheses and communicate their conclusions in oral, visual and written form. (CO 1, 2, 3, 4)
SLO 3. Explain how comparative methods are used to understand animal evolution ("Tree-thinking") and classification. (CO 1, 2, 3)
SLO 4. Describe how animal anatomical and physiological adaptations have evolved in different ecological contexts. (CO 1)
SLO 5. Identify major animal lineages and their distinguishing characteristics. (CO 1)

Program Learning Outcomes: Departmental PLOs and associated Student Learning Outcomes.
PLO 1. The student will demonstrate a good knowledge base in biological concepts (Knowledge). (SLO 3-5)
PLO 2. Clearly articulate scientific information in oral form. (SLO 1-2)
PLO 3. Clearly articulate scientific information in written form. (SLO 1-2)
PLO 4. Be able to design, carry out, and analyze experiments to answer biological questions. (SLO 2)
PLO 5. Demonstrate teamwork skills needed to coordinate diverse multidisciplinary teams to solve challenges in the biological world. (SLO 2)

General Education Core Curriculum Objectives: Texas State Core Objectives and associated Student Learning Outcome.
CO 1. **Critical Thinking**: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLO 1-5)
CO 2. **Communication Skills**: to include effective development, interpretation and expression of ideas through written, oral and visual communication. (SLO 1-3)
CO 3. **Empirical and Quantitative Skills**: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLO 1-3)
CO 4. **Teamwork**: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. (SLO 2)

Course Requirements:
Students must enroll in both lecture and lab and final grades will reflect both components. Your final grade in this course is determined by grades from the laboratory reports, laboratory quizzes, lecture exams, daily lecture quizzes and participation in the course evaluation.

Grading Policy:
The lecture portion makes up 3/4 of your course grade with the lab portion making up the remaining 1/4th. The final grade is determined by earning 90%, 80%, 70% or 60% of the available points for the associated traditional letter grade. Students must have a 60% or higher average in both lecture and laboratory sections to pass the course.

Attendance Policy:

Attendance is expected for each lecture and lab. Students with poor attendance typically do very poorly in this course. Students with excused absences in lab may makeup laboratories by attending other lab sections in the same week as their missed lab. Students missing more than three labs will automatically fail the course. Makeup lecture exams will be scheduled during dead week unless prior arrangements are made to take the exam prior to the scheduled exam.

Acceptable Student Behavior

Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1, http://www.sfasu.edu/policies/student_conduct_code.asp). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Class etiquette:

Do not be late for class.
Do not leave before the class period is over.
Do not anticipate the end of class and start putting your things away.
Do not talk during class.
Turn your phone off.
Use your computer for class work only.
Stay awake.

Academic Integrity (A-9.1)

Abiding by university policy on academic integrity is a responsibility of all university faculty and students. Faculty members must promote the components of academic integrity in their instruction, and course syllabi are required to provide information about penalties for cheating and plagiarism as well as the appeal process.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:

- using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class;
- falsification or invention of any information, including citations, on an assignment; and/or,
- helping or attempting to help another in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism include, but are not limited to:

- submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source; and,
- incorporating the words or ideas of an author into one's paper or presentation without giving the author due credit.

Procedure for Addressing Student Academic Dishonesty

A faculty member who has evidence and/or suspects that academic dishonesty has occurred shall gather all pertinent information, approach the student(s) involved, and initiate the following procedure:

- The faculty member shall review all evidence of cheating or plagiarism and discuss it

directly with the student(s) involved. The faculty member shall inform the student(s) of the procedure for addressing academic dishonesty, as well as the appeals process.

- After hearing the student(s)' explanation or defense, the faculty member will determine whether or not academic dishonesty has occurred and will inform the student(s) what action will be taken. Penalties may include reprimand, no credit for the assignment or exam, re-submission of the work, make-up exam, or failure of the course. The faculty member may consult with the academic unit chair/director and dean in making these decisions.
- After a determination of academic dishonesty, the faculty member shall notify the office of the dean of the student's major by submitting a Report of Academic Dishonesty, along with supporting documentation as noted on the form. This report shall be made part of the student's record and shall remain on file with the dean's office for at least four years.
- Upon second or subsequent offenses, the dean of the student's major will determine a course of action, which may include dismissal from the university. The dean may refer the case to the college council for review and recommendations before making this determination.

A student's record of academic dishonesty will not be available to faculty members. The purpose of the record is for the dean to track a pattern of academic dishonesty during a student's academic career at Stephen F. Austin State University.

Students who are found to have demonstrated academic dishonesty and have withdrawn prior to the award of a grade will continue to have the determination of the infraction within their student records.

Student Appeals

A student who wishes to appeal decisions related to academic integrity should follow procedures outlined in Academic Appeals of Students (A-2).

Source: http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)

At the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future semesters, the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Source: http://www.sfasu.edu/policies/semester_grds.asp

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Course Calendar:
Each topic will be covered in all lecture and laboratory sections

Week	Lecture Topic	Lab Topic	SLO	CO	Lab Activity
1	Intro. to Animals, Science, Nature of Comparative Studies **Critical Thinking Instruction:** D2L screencast lecture on critical assessment of scientific literature.	Microscope use	1	1	Instruction on microscope use
2	Homeostasis, Osmoregulation, Excretion, Nutrition **Teamwork Instruction:** Students will be instructed on how to work effectively in teams via a screencast lecture posted on D2L.	Foraging and Predator/Prey Relationships	2	1, 2, 3, 4	**Oral, Written and Visual Communication Skills Instruction:** lab instructors will provide examples of effective and ineffective oral and written scientific communication. Students will also learn how to use Microsoft Excel to produce effective figures and graphs to visually communicate scientific results. Hypothesis testing: foraging success of a predator (*Hydra* sp.).
3	Circulation and Gas Exchange, Nervous and Sensory Systems	Cardiovascular System	2	1, 2, 3, 4	**Empirical and Quantitative Skills Instruction:** students will be instructed in the use of Microsoft Excel to calculate summary statistics for comparisons of experimental groups. Hypothesis testing: effects of temperature on heart rate in an ectotherm (*Daphnia* sp.).
4	Movement and Support, Chemical Signals, Reproduction and Development	Muscular System	2	1, 2, 3, 4	Hypothesis testing: effects of body size and temperature on muscle activity in cockroaches and crickets.
5	Immune Systems, Animal Behavior	Animal Behavior	2	1, 2, 3, 4	Hypothesis testing: behavioral response of isopods to different environmental stimuli.
6	Phylogenies, Animal Body Plans, Protozoa	Phylogenetics	3, 4, 5	1, 2, 3	Using organismal traits to construct phylogenetic trees.
7	Porifera, Cnidaria, Ctenophora	Cnidarians	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.
8	Platyhelminthes, Pseudocoelomates (Rotifers, Nematodes)	Lophotrochozoa I –Flatworms and Rotifers	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			2	1, 2, 3, 4	Hypothesis testing: flatworm phototropism.
9	Mollusca, Annelida	Lophotrochozoa	4, 5	1	Identification of body types,

Week	Lecture Topic	Lab Topic	SLO	CO	Lab Activity
		II –Molluscs, Annelids			structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.
10	Arthropoda (Chelicerates, Crustaceans)	Nematodes, Arthropods I - Chelicerates	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			2	1, 2, 3, 4	Hypothesis testing: courtship behavior in jumping spiders.
11	Arthropoda (Myriapods, Insects)	Arthropods II – Crustaceans and Insects	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			4, 5	1	Use of taxonomic keys.
12	Echinodermata, Hemichordates, Invert Chordates	Echinoderms	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.
13	Vertebrates	Vertebrates I - Fishes	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			2	1, 2, 3, 4	Hypothesis testing: shoaling behavior in zebrafish.
14	Vertebrates	Vertebrates II - Tetrapods	4, 5	1	Identification of body types, structures, and associated functions.
			3	1, 2, 3	Phylogenetic tree reconstruction.
			1	1, 2	Critical assessment of an article from the primary literature.

Assessment of Core Objectives

Critical Thinking- Students will learn, via a podcast lecture, ways to find, read and assess scientific papers. Students will learn how to differentiate primary literature from gray literature and articles from popular press and informal Internet sources. Students will learn to locate a paper's study objectives and/or hypotheses and evaluate the quality of information and the organization of key portions of a paper (introduction, methods, results, discussion). These skills will be used in many subsequent lab assignments (see syllabus). Students will also be instructed on how to work in teams to form hypotheses and conduct basic experiments and phylogenetic comparative analyses in several labs (see syllabus). Teams will be required to examine their data, form conclusions and defend their conclusions and to reconcile differences in results and conclusions that might exist in comparisons with other teams. **Assessment of critical thinking will be based on the week 13 lab assignment "Hypothesis testing: shoaling behavior in zebrafish" using a rubric that will quantify students' creative thinking, depth of inquiry, level of analytical detail, and ability to evaluate results, integrate information and derive logical conclusions.**

Communication Skills- Students will be instructed on how to communicate effectively in two basic types of laboratory assignments. First, students will verbally communicate their assessments of primary literature articles in team discussions. Each team member will submit written summaries of their assessments using double-entry journals and use peer comparison rubrics that score the quality of information communicated by fellow team members. **Assessment of oral communication skills will be based on the peer comparison rubric scores from the paper discussions in week 14.** Second, teams will form and test hypotheses and conduct basic experimental studies. Teams will turn in a lab report that contains the following elements: the hypothesis, a description of the study methods, a copy of the Excel datasheet, figures used to interpret the data, a discussion with the team's conclusions, and a critique of the team's study. **Assessment of written and visual communication skills will be based on rubric scores of lab reports from the week 13 lab assignment "Hypothesis testing: shoaling behavior in zebrafish".**

Empirical and Quantitative Skills- Students will be instructed on how to develop empirical and quantitative skills while collecting data in biological studies in several labs (see syllabus). Students will learn how to develop Excel

data sheets, record data, compute basic summary statistics, compare relevant variables and draw conclusions from their analyses. Data types will include morphological measurements and quantification of animal behaviors. Students will also gain a better understanding of empirical and quantitative issues during their critical assessment of result in primary literature articles. **Assessment of critical thinking will be based on the week 13 lab assignment "Hypothesis testing: shoaling behavior in zebrafish" using a rubric that will quantify students' abilities to record data, integrate information, and derive logical conclusions.**

Teamwork- Students will be instructed on how to work in teams of four in labs to perform each biological experiment and phylogenetic comparative analysis (see syllabus). Teams members will be presented with strategies for effective teamwork so that they may work more efficiently together to collect and analyze data and to more effectively communicate results. **Assessment of empirical and quantitative skills will be based on the week 8 lab assignment "Hypothesis testing: flatworm phototropism" using a peer evaluation rubric that will quantify each members role in the study. Combined rubric scores for each team will then be compared to the quality of the final lab report for each team.**