Principles of Ecology and Evolution
Biology 125
Spring 2019

Class meeting time and place: MWF 10:00-10:50 Ferguson 375
Instructor: Dr. Ray H. Kamps
Department: Biology
Phone: 936.468.2322
E-mail: kampsrh@sfasu.edu
Office: Miller Science Rm. 123
Office hours: M 2 p.m. to 4:30 p.m.  R 9 a.m. – 11:30 a.m., and by appointment
Text: Biological Science, Volume 2 Freeman 5th edition
Lab Subscription to SimBio is required. Information will be available on D2L
Course online resources: see D2L
SI:

Course Description:
4 semester hours, 3 hours lecture, 2 hours lab per week. Fundamental principles of biological inquiry, scientific analysis, and concepts in ecological and evolutionary biology.

Lecture style: The format of this class has been changed for this semester and so things may be a little awkward. It has only met 2 days/week in the past for 1 hour and 15 minutes, and this allowed time to change back and forth between lectures and activities within the same meeting period. Since we are now meeting 3 days/week for 50 minutes, all lecture material will be moved to Mondays and Wednesdays, while activities will occur on Fridays. Friday activities will include problem sets, games, acting, essay writing and group project meetings. Monday and Wednesday class attendance is mandatory and you are responsible for all material covered and announcements made. Friday class attendance is also mandatory, and prompt arrival is crucial. Students will participate in prepared group activities and will be graded on participation and the correctness of this work. Typically there will be 1 participation grade/Friday. However, there may be as many as 3 participation grades given on Friday and if any are missed do to an absence, tardy arrival, or early departure, a grade of “1” will be recorded. I record a “1” instead of a “0” so that you know when the grade is recorded. You have 2 weeks from the time that a “1” is recorded to make an appointment and see me about correcting it, if you think it is in error. Participation and in-class work counts for 10% of the total course grade.

Labs: Please refer to the lab syllabus for your individual lab section. The lab class and lecture class are completely independent except for the mid-term grade and final grade. Dr. Bennett’s lab class is completely separate from mine. Obviously, they should cover very similar material, and we have discussed appropriate penalties for tardiness and late work. However, we can and will have individual variations in how the labs are conducted, assignments are graded, and penalties given. You can not appeal any decision in Dr. Bennett’s lab section to me. You can not appeal any decision by me in lecture to Dr. Bennett. Do not attempt to turn in any lab work during lecture. Do not attempt to turn in any lecture assignment in lab.
## Course Calendar

(Timing of topics may be adjusted to meet needs and opportunities.)

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>W Jan 23</td>
<td>Course Orientation</td>
<td></td>
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<tr>
<td>2</td>
<td>F Jan 25</td>
<td>Group Project Orientation and Group Derby I</td>
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<td></td>
<td></td>
<td>Weekly 1 Lab: No Lab</td>
<td></td>
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<tr>
<td>4</td>
<td>W Jan 30</td>
<td>Intro to Evolution &amp; Evidence</td>
<td>p. 444-453, 459-462</td>
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<tr>
<td>5</td>
<td>F Feb 1</td>
<td>Essay and Group Derby II</td>
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<td></td>
<td></td>
<td>Weekly 2 Lab: SimUText simulation – Experimental Design and Data Analysis</td>
<td></td>
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<tr>
<td>6</td>
<td>M Feb 4</td>
<td>Heredity &amp; Mendelian genetics</td>
<td>Posted Reading</td>
</tr>
<tr>
<td>7</td>
<td>W Feb 6</td>
<td>Hardy Weinberg equilibrium</td>
<td>p. 465-472</td>
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<tr>
<td>8</td>
<td>F Feb 8</td>
<td>Problem sets and Group Contract due</td>
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<td></td>
<td></td>
<td>Weekly 3 Lab: Mendelian Genetics</td>
<td></td>
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<tr>
<td>9</td>
<td>M Feb 11</td>
<td>HWE continued, Exam I Review</td>
<td>p. 465-472</td>
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<tr>
<td>10</td>
<td>W Feb 13</td>
<td>Exam 1</td>
<td></td>
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<tr>
<td>11</td>
<td>F Feb 15</td>
<td>Group Meetings</td>
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<td>Weekly 4 Lab: Hardy-Weinberg (breeding bunnies)</td>
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<tr>
<td>12</td>
<td>M Feb 18</td>
<td>Microevolution: Natural Selection</td>
<td>p. 453-459, 472-475</td>
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<tr>
<td>13</td>
<td>W Feb 20</td>
<td>Microevolution: Sexual Selection</td>
<td>p. 475-478</td>
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<td>14</td>
<td>F Feb 22</td>
<td>TBA</td>
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<td>Weekly 5 Lab: SimUText simulations: Guppies (counts twice as much as other labs)</td>
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<tr>
<td>15</td>
<td>M Feb 25</td>
<td>Microevolution: Genetic drift</td>
<td>p. 478-482</td>
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<tr>
<td>16</td>
<td>W Feb 27</td>
<td>Microevolution: Migration &amp; Mutation</td>
<td>p. 482-486</td>
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<tr>
<td>17</td>
<td>F Mar 1</td>
<td>Microevolution Gameshow Quiz</td>
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<td>Weekly 6 Lab: SimUText simulation: Sickle Cell Disease</td>
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<tr>
<td>18</td>
<td>M Mar 4</td>
<td>Macroevolution: Species concepts &amp; Speciation</td>
<td>p. 489-502</td>
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<tr>
<td>19</td>
<td>W Mar 6</td>
<td>Macroevolution: Phylogenies &amp; Phylogeography</td>
<td>p. 505-509, 516-523</td>
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<tr>
<td>20</td>
<td>F Mar 8</td>
<td>Phylogenetic tree problem set</td>
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<td>Weekly 7 Lab: Species Concepts</td>
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<tr>
<td>21</td>
<td>M Mar 11</td>
<td>Exam 2 review</td>
<td></td>
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<tr>
<td>22</td>
<td>W Mar 13</td>
<td>Exam 2 (Likely to have a proctor give the exam.)</td>
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<tr>
<td>23</td>
<td>F Mar 15</td>
<td>Group Meeting, Office hours, Grade is entry in group journal</td>
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<td>Weekly 8 Lab: Building Phylogenies</td>
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<td></td>
<td>March 18-22</td>
<td>SPRING BREAK!!!!!!!!!!!!!!!!!!!!!!!!</td>
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<tr>
<td>24</td>
<td>M Mar 25</td>
<td>Climate</td>
<td>p. 1059-1068</td>
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<tr>
<td>25</td>
<td>W Mar 27</td>
<td>Biomes</td>
<td>p. 1068-1080</td>
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<tr>
<td>26</td>
<td>F Mar 29</td>
<td>Climate/Biome Gameshow Quiz</td>
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<td>Weekly 9 Lab: Ecology</td>
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The world ends (just kidding)

Populations: Dist’n & Life History


Week 10 Lab: Anthromes

Population Growth Continued, Exam 3 Review

Week 11 Lab: SimUText simulation: Population Growth

Community Ecology: Species interactions

Community Ecology: Biodiversity

F Apr 19 EASTER HOLIDAY

Week 12 Lab: No Lab. EASTER HOLIDAY

Succession

Ecosystem Ecology: Energy Flow

Week 13 Lab: SimUText simulation: Keystone Predator

Ecosystem Ecology: Nutrient cycling

Ecosystem Ecology: Climate Change

Week 14 Lab: Food webs

Student Presentations

Student Presentations

Dead Day

Final Exam Monday, May 13 10:30 a.m.-12:30 p.m.

Student Learning Outcomes:
After successful completion of this course student will be able to:
SLO 1. Demonstrate understanding of the process of science by distinguishing between science and non-science and designing experiments that address testable hypotheses.
SLO 2. Use quantitative reasoning to interpret evolutionary and ecological data (tables, figures and graphs) from primary research, theoretical models and computer based-simulation experiments.
SLO 3. Demonstrate understanding of the skills and attitudes necessary for effective teamwork in collaborative learning activities and a semester long project.
SLO 4. Critically assess the interrelationship of human dimensions and ecology/evolution and communicate resulting conclusions in oral, visual and written formats.
SLO 5. Understand evolution as the unifying concept in biology.
SLO 6. Understand the factors that govern interactions between organisms and their environments.

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 1,5-6)
PLO 2. Clearly articulate scientific information in oral form. (SLO 3-6)
PLO 3. Clearly articulate scientific information in written form. (SLO 3-6)
PLO 4. Be able to design, carry out, and analyze experiments to answer biological questions. (SLO 1-2)
PLO 5. Demonstrate teamwork skills needed to coordinate diverse multidisciplinary teams to solve challenges in the biological world. (SLO 2-4)
General Education Core Curriculum Objectives/Outcomes: Texas State Exemplary Educational Objectives and associated Student Learning Outcome.

CO 1. Critical Thinking: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLO 1-6)

CO 2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication. (SLO 3-6)

CO 3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLO 1-2)

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 2-4)

Course Requirements:

Your final grade in this course is determined by grades from lab based inquiry activities, lecture exams, a group project (with an individual component), quizzes, online discussion, and participation in the course evaluation.

Laboratory Activities: Students will conduct a variety of inquiry activities in the lab section of the course. Each lab meeting will include written and oral instruction on the critical thinking skills developed in that activity and will include written and oral instruction in the empirical and quantitative skills used in that activity. Laboratory activities will include structured/guided inquiries in which students work through examples, questions, problems and case studies. Students will evaluate examples of primary literature and participate in group discussions. Additionally students will conduct experiments to test hypotheses in which they collect data using online databases and field based methods, analyze data using computer software, synthesize data and present conclusions using visual (graphical), written (lab reports), and oral (presentation) communication.

Group Project: As a group, students will conduct a research project and present the results of the project to the class. This is a semester-long project designed to emphasize teamwork and communication skills. Students will be assigned groups in the first week of class and will participate in group and class discussions about characteristics and strategies for effective groupwork. The project itself will be a digital media that will require students to prepare a written script, present the project orally and with computer-generated visual aids. The project will consist of multiple assignments that will be assessed following the Core Curriculum Objectives including a Group Contract (CO2, 4), a Prospectus/Abstract (CO1, 2, 4), an annotated bibliography (CO1, 2, 4), a storyboard/draft (CO 1, 2, 4), a project journal (CO 4), a project reflection (CO 2, 4) and the final project itself (CO 1, 2, 4).

Grading Policy:

Your final grade in this course is determined by grades from the laboratory, lecture exams, quizzes and participation.

3 Mid-term exams 30%
1 Final Exam 15%
Quizzes 5%
In-class work/participation 10%
Group Project 15%
--individual grade is 5%, group grade is 10%
--Groups may elect to have a single grade
Lab Grade 25%

Your grade is determined by earning 90%, 80%, 70% and 60% of the available points for the associated traditional letter grade.

This is a complex formula. The main point is that your grade is based on a lot of small grades instead of a few big grades. Don’t fall behind in your work and don’t miss any classes or labs.
Exams: There will be 3 midterm exams. All exams will consist of 80% scantron questions (Multiple Choice, Matching, True/False) and 20% essay answer, which may include diagramming and calculation. The essay answers on the final exam may not be graded before grades are submitted if full credit will not change your final letter grade. You are very welcome to come by after grades are submitted to review your final exam scores, see if the scantron machine made a mistake (it happened several times last semester), and challenge questions. If you are able to successfully find sufficient points to raise your final grade by a letter, I will happily submit a grade change form. However, you must do this immediately after grades are submitted because my contract ends May 30th. Don’t think that you can wait until the summer or fall semester to challenge your grade. There are no dropped grades in this course. THE FINAL EXAM WILL BE CUMULATIVE:

Starting Exams On Time: All students must be there to start the exam at the start of the normal time whether in the lecture hall or Disability Services. No students will be allowed to leave exam until 30+ minutes of the exam period have passed. (Also, all Disability Services students must email the professor at least 24 hours in advance before the exam to confirm arrangements.)

Quizzes: Quizzes are designed to encourage you to keep up with the material and be ready for in-class activities. You will need to take the quizzes online in D2L before the class period starts. There will be no make-up for missed quizzes.

Evaluations and surveys: It is now departmental policy to require students to fill out online class evaluations at the semester’s end (instructions will be provided at a later date).

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 (negative)***
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 socially during class.
Use of electronic devices is restricted to enhancing the learning process and minor, unobtrusive use, or documented need (i.e. disability. Please see instructor)

***Class etiquette (positive)***
Come on-time to class and be prepared to be awesome!
Grace us with your awesomeness all the way to the end of class!
If you have questions or comments about Biology, I want to hear them!
Please use your cell phone, tablet, laptop, or other electronic device during class to enhance your learning opportunity!

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](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. **Special note:** A grade of WH is almost impossible for this class because my contract ends May 30th. If this is something that you need, do not delay to set it up with me and the department. I will do whatever I can.

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/.

**Copyright notice:** Most of the material in this course is copyrighted and either used with permission or used under the educational “fair use” doctrine. The permissions and “fair use” doctrine both require that the material not be made available publicly. Additionally, there is a reasonable expectation of privacy by the students in the class and/or the instructor in some circumstances. **Students are prohibited from recording audio and video and subsequently sharing it on social media sites.** (The instructor is prohibited from doing this too.)

**And Finally,** BIO 125 is a general education core curriculum course and fulfills the “Teamwork” general education core curriculum requirement. The university sometimes double checks to be sure that the course is actually fulfilling the requirement that it claims it is. If that happens this semester, I am required to notify you of the following:

**General Education Core Curriculum**

The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives.

By enrolling in BIO 125, you are also enrolling in a Core Curriculum Course that fulfills the Teamwork general education core curriculum requirement. Another, “shell” course has been created to collect student artifacts to meet this state requirement. You will see this course on your D2L list.

During this semester, you will receive an assignment that fulfills both the requirements of this course and the needs of Stephen F. Austin State University’s Core Curriculum Assessment Plan with the Texas Higher Education Coordinating Board.

When you complete this one assignment, you need to upload the assignment to both the **BIO 125** dropbox and the **Teamwork** dropbox.
Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations.

If you have any questions, please see your instructor or contact the Office of Student Learning and Institutional Assessment at (936) 468-1130. The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the D2L Teamwork dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Teamwork dropbox. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the D2L Teamwork dropbox.

Include only the core objectives taught in this course and indicate which objectives are being formally assessed in this semester.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Group Project Evaluation</td>
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