COURSE SYLLABUS

EASTFIELD COLLEGE
STEM DIVISION

BIOLOGY FOR SCIENCE MAJORS
BIOL – 1407-43362/43363
SPRING 2015

Instructor: L. A. Walker

Contact Information
Office: Sunnyvale I.S.D. Room 208
Phone: 972-203-4600
Email Address: lisa.walker@sunnyvaleisd.com
Hours Available: Monday – Thursday 7:30 to 8:00 a.m. & 3:25 – 3:45 p.m.
Friday 1:02 to 8:00 a.m.

Meeting Time:
Every A-Day from 12:50 to 2:32 and Every B-Day from 10:26 to 11:58

Textbooks


BIOL 1407 Biology for Science Majors II (4 Credit Hours) TCCNS: BIOL 1407: Biology for Science Majors II
2014 Core Curriculum Foundational Component Area: 030 Life and Physical Sciences

Course Description: An introductory survey of current biological concepts for students majoring in the sciences.
Emphasis will be placed on topics which include evolution, biological diversity, ecology, and comparative structure
and function of organisms. (3 Lec., 3 Lab.)
Coordinating Board Academic Approval Number 26.0101.51 03

Student Learning Outcomes:
Upon successful completion of this course, students will:

Lecture
1. Describe modern evolutionary synthesis, natural selection, population genetics, micro and
   macroevolution, and speciation.
2. Describe phylogenetic relationships and classification schemes.
3. Identify the major phyla of life with an emphasis on plants and animals, including the basis for
   classification, structural and physiological adaptations, evolutionary history, and ecological
   significance.
4. Describe basic animal physiology and homeostasis as maintained by organ systems.
5. Compare different sexual and asexual life cycles noting their adaptive advantages.
6. Illustrate the relationship between major geologic change, extinctions, and evolutionary trends.
Lab
1. Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Demonstrate knowledge of modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
5. Distinguish between phylogenetic relationships and classification schemes.
6. Identify the major phyla of life with an emphasis on plants and animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.
7. Describe basic animal physiology and homeostasis as maintained by organ systems.
8. Compare different sexual and asexual life cycles noting their adaptive advantages.
9. Illustrate the relationship between major geologic change, extinctions, and evolutionary trends.

Core Objectives:
BIOL 1407 develops the following Core Objectives: Critical Thinking - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. Communication - to include effective development, interpretation and expression of ideas through written, oral and visual communication. Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Core Objective Development Statements: BIOL 1407 develops Critical Thinking and Empirical and Quantitative skills by requiring students to research, analyze and interpret data derived from an experimental setting and drawing a well-informed conclusion of the data through the application of sound biological concepts. Examples: research paper, case studies, lab report

BIOL 1407 develops Teamwork and Communication by requiring students to effectively work in a small group on an assigned problem, exercise or course concept that will then be presented in a written, oral or visual format. Examples: lab experiment, group teaching of course topic, case study, group research project

BIOL 1408 Biology for Non-Science Majors I (4 Credit Hours) TCCNS: BIOL 1408: Biology for Non-Science Majors I 2014 Core Curriculum Foundational Component Area: 030 Life and Physical Sciences

Course Description: Presentation of biological concepts for the non-science major. Emphasis will be on scientists and their contributions to the science field, scientific problem solving, unity of life including cells and genetic information, energy pathways important to life, and current issues in biology. (3 Lec., 3 Lab.)

Coordinating Board Academic Approval Number 26.0101.51 03

Student Learning Outcomes:
Upon successful completion of this course, students will: Lecture
1. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
2. Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
3. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
4. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
5. Describe karyotyping, pedigrees, and biotechnology and provide an example of the uses of each.
6. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
7. Analyze evidence for evolution and natural selection. Lab
8. Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
9. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
10. Communicate effectively the results of scientific investigations.
11. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.

Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.

Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.

Identify the importance of karyotypes, pedigrees, and biotechnology.

Identify parts of a DNA molecule, and describe replication, transcription, and translation.

Analyze evidence for evolution and natural selection.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Lecture Exams</td>
<td>2 X 100 = 200</td>
</tr>
<tr>
<td>Semester Project</td>
<td>1 X 100 = 100</td>
</tr>
<tr>
<td>Lecture Presentation</td>
<td>1 X 100 = 100</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>10 X 10 = 100</td>
</tr>
<tr>
<td>Lab Practical</td>
<td>2 X 100 = 200</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10 X 10 = 100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1 X 200 = 200</td>
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</tbody>
</table>

Grading Rationale

All grades will be added together for the final point total. Final grade will be based on the following criteria.

90% of highest point total = A = 900 – 1000
80% of highest point total = B = 800 – 899
70% of highest point total = C = 700 – 799
60% of highest point total = D = 600 – 699
Below 60% = F = Below 599

Lecture/Lab Presentations: (100-points): Students will be required to review an article from a scientific journal and write a two-page (minimum) summary of the article and also present a power point covering the written summary. The article may be of any topic that interests you but it MUST come from a scientific journal. The article you review should be written in scientific format with the following components: abstract, introduction, materials/methods, results, comments/discussion. If you are not sure the article you are considering is satisfactory for the assignment then verify it with your instructor. In order to receive full credit for your review of the article, you will need to address/answer the following objectives:

1. Who conducted the research?
2. What was the purpose for conducting the research? / Why was it important?
3. What was the hypothesis for the study? / What did they expect?
4. How did they conduct the experiment?
5. What were the results of their experimentation?
6. What did these results mean/indicate to the researchers?
7. What impact does this study have on your life? / How does it affect you?

Your journal review must also:

1. Be typed, double-space, 12-point, 1.0-inch margins, paragraph-form.
2. Have a cover page with: your name, course number and section; semester.
3. Have a minimum length of 2-pages.
4. Have a copy of the actual journal article stapled to the back for reference.

Your power point must:
Answer the same objectives as the article review. (1 – 7 above)

Obtaining Final Course Grades Using eConnect
Final Grade Reports are no longer mailed. Convenient access is available online at www.econnect.dcccd.edu. Use your identification number when you log onto eConnect, an online system developed by the DCCCD to provide you with timely information regarding your college record. Your grades will also be printed on your Student Advising Report, which is available in the Admissions Office.

Eastfield College Email Policy
Faculty and students must have and use a DCCCD account for all correspondence relating to academic coursework. For information on setting up a DCCCD student email account go to: http://www.dcccd.edu/netmail/home.html.

Attendance:
Students are expected to follow the attendance policies of Sunnyvale I.S.D. as established in the student handbook.

Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

Financial Aid Statement for Distance Learning Classes
If you are receiving Financial Aid grants or loans and are enrolled in a Distance Learning class, you must show participation in this class prior to the certification date by either e-mailing or contacting the instructor or logging on to eCampus. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds.

Repeating This Course: (Third Attempt to Enroll in a Course)
Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. All third and subsequent
attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any of the Dallas County Community Colleges since the Fall 2002 Semester. See Third Attempt to Enroll in a Course at: http://www.dcccd.edu/thirdcourseattempt/

**Academic Honesty**
Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion.

As a college student, you are considered a responsible adult. Your enrollment indicates acceptance of the DCCCD Code of Student Conduct published in the DCCCD Catalog at http://www1.dcccd.edu/cat0506/ss/code.cfm

Academic dishonesty includes, but is not limited to, cheating on tests, plagiarism and collusion. **Cheating** includes copying from another student's test or homework paper, using materials not authorized, collaborating with or seeking aid from another student during a test, knowingly using, buying, selling, stealing, or soliciting the contents of an unadministered test, and substituting for another person to take a test. **Plagiarism** is the appropriating, buying, receiving as a gift, or obtaining by any means another’s work and the unacknowledged submission or incorporation of it in one’s own written work. **Collusion** is the unauthorized collaboration with another person in preparing written work for fulfillment of course requirements. Academic dishonesty is a serious offense in college. You can be given a failing grade on an assignment or test, can be failed for the class, or you can even be suspended from college. Students will receive a failing grade for the course if caught cheating and will be given a “0” for plagiarism. If cheating occurs in the first semester of a two-semester course, that student will not be allowed to take the second half of the course. All other infractions will follow the student handbook of Sunnyvale I.S.D.

**Food and Drink Policy**
Food, drinks, and tobacco products are prohibited in Eastfield College classrooms.

**ADA Statement**
Students with a physical, mental or learning disability who require accommodations should contact the college Disability Services Office in C237. Call 972.860.8348 or email efcdso@dcccd.edu. For more information: http://www.eastfieldcollege.edu/SSI/DSO/index.html

**Religious Holidays**
Absences for observance of a religious holy day are excused. Notification of the absence must be given to the instructor in writing at least two weeks prior to the date of the holy day. A student whose absence is excused to observe a religious holy day is allowed to contract with the instructor to take a make-up examination or complete an assignment within a mutually agreed upon time after the absence.
Withdrawal Policy

If you are unable to complete this course, it is your responsibility to withdraw formally. The withdrawal request must be received in the Registrar’s Office by May 16, 2015. Failure to do so will result in your receiving a performance grade, usually an “F.” If you drop a class or withdraw from the college before the official drop/withdrawal deadline, you will receive a “W” (Withdraw) in each class dropped. For more information about drop deadlines, refer to the current printed Credit Class Schedule, contact the Admissions/Registrar’s Office at 972-860-7167 (Room C119), or contact the division office.

If you drop a class via eConnect, make sure to print a copy of the confirmation and keep the copy. In the event of a discrepancy it will be the responsibility of the student to provide documentation of having dropped the class.

STOP BEFORE YOU DROP

For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

Family Educational Rights and Privacy Act of 1974 (FERPA)

In compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), the College may release information classified as “directory information” to the general public without the written consent of the student. Directory information includes: (1) student name, (2) student address, (3) telephone numbers, (4) date and place of birth, (5) weight and height of members of athletic teams, (6) participation in officially recognized activities and sports, (7) dates of attendance, (8) educational institution most recently attended, and (9) other similar information, including major field of student and degrees and awards received. Students may protect their directory information at any time during the academic year. If no request is filed, directory information is released upon written inquiry. No telephone inquiries are acknowledged. No transcript or academic record is released without written consent from the student, except as specified by law.

Classroom Etiquette

Students will follow the behavioral policies set forth in the student handbook of Sunnyvale I.S.D.
Children on Campus
The institution strives to protect an environment most conducive to teaching and learning for all enrolled students. Children who are taking part in organized scheduled activities or who are enrolled in specific classes are welcomed. Minor children, however, should not be brought to the institution unless closely supervised by their parent. Minor children should not be brought into classrooms, laboratories or other facilities of the college. This practice is disruptive to the learning process. In the case of an emergency where the student-parent has no alternative but to bring the child to campus, classroom faculty or the administrative heads of other units have full discretion as to whether a child may be allowed to quietly stay in the location. These individuals may require that children be removed by the student-parent from the setting if, in their opinion, the presence of the child is deemed to be disruptive to the learning process. For reasons of security and child welfare the institution will not permit unattended children to be left anywhere on the premises. Parents who have problems with childcare should visit the Counseling and/or Advisement Center to receive referrals to childcare services in the area.
<table>
<thead>
<tr>
<th>WEEK OF</th>
<th>CHAPTER/TOPIC</th>
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<tbody>
<tr>
<td>January 5</td>
<td>Class Introduction/Chapter 22: Descent with Modification A Darwinian View of Life</td>
</tr>
<tr>
<td>January 12</td>
<td>Chapter 23: The Evolution of Populations Chapter 24: The Origin of Species</td>
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<tr>
<td>January 19</td>
<td>Chapter 25: The History of Life on Earth Chapter 26: Phylogeny &amp; the Tree of Life</td>
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<tr>
<td>January 26</td>
<td>Chapter 27: Bacteria and Archaea Chapter 28: Protists</td>
</tr>
<tr>
<td>February 2</td>
<td>Chapter 31: Fungi</td>
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<tr>
<td>February 9</td>
<td>Chapter 29: Plant Diversity I: How Plants Colonized Land</td>
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<tr>
<td>February 16</td>
<td>Chapter 30: Plant Diversity II: The Evolution of Seed Plants Chapter 35: Plant Structure, Growth, &amp; Development</td>
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<tr>
<td>February 23</td>
<td>Chapter 36: Resource Acquisition &amp; Transport in Vascular Plants Chapter 38: Angiosperm Reproduction &amp; Biotechnology</td>
</tr>
<tr>
<td>March 2</td>
<td>Chapter 32: An Introduction to Animal Diversity Chapter 33: Invertebrates</td>
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<tr>
<td>March 9</td>
<td><strong>SPRING BREAK</strong></td>
</tr>
<tr>
<td>March 16</td>
<td><strong>Lecture Exam I</strong> (March 7th) Chapter 34: Vertebrates</td>
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<tr>
<td>March 23</td>
<td>Chapter 40: Basic Principles of Animal Form &amp; Function Chapter 41: Animal Nutrition</td>
</tr>
</tbody>
</table>
March 30  Chapter 42: Circulation and Gas Exchange
April 6    Chapter 44: Osmoregulation and Excretion
April 13   Chapter 50: Sensory & Motor Mechanisms
April 20   Chapter 46: Animal Reproduction
April 27   Chapter 47: Animal Development
May 4      Lecture Exam II
            Chapter 51: Animal Behavior
May 11     Chapter 52: An Introduction to Ecology & the Biosphere
May 18     Chapter 55: Ecosystems
May 25     Outdoor Skills & Orienteering
June 1     FINAL EXAM WEEK

_The instructor reserves the right to amend this syllabus as necessary._ The guidelines set forth in this syllabus may be changed, deleted, or amended at any time by the instructor. Any changes that are made to the class policies or course outline will be announced in class.
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<tr>
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<tr>
<td>January 6</td>
<td>Orientation; Lab Safety; Topic-2: “Metric System”</td>
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<tr>
<td>January 13</td>
<td>New Vegetables From Old/ Modeling Coevolution</td>
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<tr>
<td>January 20</td>
<td>Lab 23: Evidences of Evolution</td>
</tr>
<tr>
<td>January 27</td>
<td>Lab 24: Microbiology</td>
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<tr>
<td>February 3</td>
<td>Mushroom Spore Patterns</td>
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<tr>
<td>February 10</td>
<td>Lab 25 Seedless Plants/Lab 26 Seed Plants</td>
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<tr>
<td>February 17</td>
<td>Lab 9 Organization of Flowering Plants/ Lab 10 Reproduction in Flowering Plants</td>
</tr>
<tr>
<td>February 24</td>
<td>Lab 27: Introduction to Invertebrates/ Lab 28: Invertebrate Coelomates</td>
</tr>
<tr>
<td>March 3</td>
<td>LAB PRACTICAL I</td>
</tr>
<tr>
<td>March 10</td>
<td>SPRING BREAK</td>
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<tr>
<td>March 17</td>
<td>Lab 29: The Vertebrates</td>
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<tr>
<td>March 24</td>
<td>Lab 11: Animal Organization/Lab 12: Chemical Aspects of Digestion</td>
</tr>
<tr>
<td>March 31</td>
<td>Lab 13: Basic Mammalian Anatomy I/ Lab 14: Cardiovascular System</td>
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<tr>
<td>April 7</td>
<td>Lab 15: Basic Mammalian Anatomy II/ Lab 16: Homeostasis</td>
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<tr>
<td>April 14</td>
<td>Lab 17: Nervous System</td>
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<td>April 21</td>
<td>Lab 18: Musculoskeletal System</td>
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<td>April 28</td>
<td>Lab 19: Development</td>
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<tr>
<td>Date</td>
<td>Activity</td>
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<tr>
<td>May 5</td>
<td>LAB PRACTICAL II</td>
</tr>
<tr>
<td>May 12</td>
<td>Lab 30: Sampling Ecosystems</td>
</tr>
<tr>
<td>May 19</td>
<td>Lab 31: Effects of Pollution on Ecosystems</td>
</tr>
<tr>
<td>May 26</td>
<td>Observing Succession</td>
</tr>
<tr>
<td>June 2</td>
<td>FINAL EXAM</td>
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