Foundational Approaches to the Biological Sciences

SCIENCE, MATHEMATICS, AND TECHNOLOGY EDUCATION SMTE 3316
MW 2:00-3:50 (SMTE3316.002/102)

INSTRUCTOR: Terri Nicolau
Office Location: Engineering (EN) 310 B
Office Phone: (361) 825-2166
Office Hours: M-T 10-12; W 11-12 & by appointment
E-mail: terri.nicolau@tamucc.edu

Students are welcome to make appointments to see me at times other than office hours.

REQUIRED MATERIALS:
- SMTE 3316 Foundations of Biological Sciences by C. McCollough course packet (available in Islander bookstore)

INTERNET AND WEBSITE REQUIREMENTS:
This course requires the use of the internet (email, listserv, and worldwide web) to foster the technological abilities of the student. All students are expected to subscribe to and utilize the course Blackboard account regularly.

OTHER RESOURCES: The instructor will make additional learning resources (e.g., books, handouts, reserve articles, software, websites) available during the semester. You will be given information about these resources. In addition, invited speakers may address various topics during this class.

COURSE DESCRIPTION: Emphasis on teaching biological concepts including cells, plants, vertebrate and invertebrate structural systems, cell biology, ecology, and other concepts relevant for K-8 science classrooms and associated with the Texas Essential Knowledge and Skills (TEKS). Instruction regarding pedagogical foundations are those that are contained in the Science Content Standards and Science Teaching Standards as prescribed by the National Science Education Standards, the National Science Teachers Association and the Texas Education Agency.
STUDENT LEARNING OUTCOMES: The student will:
1. Compare and contrast plant and animal cells and tissues
2. Demonstrate ability to use the microscope
3. Classify organisms as bacteria, protists or fungi
4. Identify basic plant structures
5. Outline a variety of plant life processes
6. Describe the basic life processes of animals
7. Discuss the scientific foundation of evolutionary processes.
8. Describe general classification of animals
9. Demonstrate the use of the scientific method in problem solving
10. Describe/demonstrate/discuss the theoretical and pedagogical methods in teaching the above material to elementary and middle school students. Such methods are according to the NSES, NSTA, TEA and other professional organizations that prescribes methods that are based on scientific research.
11. Learn the importance of culturally relevant teaching and use family learning events as an example of culturally relevant teaching; participate in a family learning event.

Course Requirements and Grading Criteria:
The student will be expected to:
• Attend and participate in classroom and laboratory activities
• Read textbook assignments prior to class
• Take exams
• Participate in developing presentations and projects while working both collaboratively and alone.
• Correlate laboratory and other activities with the Texas Essential Knowledge and Skills (TEKS).
• Write original, research-driven, learner-centered classroom and laboratory exercises based on units of instruction that follow guidelines of the No Child Left Behind Act of 2001, as well as TEKS or other state guidelines.
• Design, write, and direct (as an individual) lesson plans on a scientific topic of his/her own choosing as approved by the instructor, and revise the lesson plans based on instructor and peer comments.
• Model appropriate and approved practices in managing a laboratory setting, including basic laboratory skills.
• Create a presentation and participate in Family Learning Events.

ATTENDANCE POLICIES: Students are expected to attend every scheduled class and laboratory meeting. Family vacations and celebrations of your birthday are worthwhile, but are not classified as excused absences. If you book an airplane flight which conflicts with class, I do NOT consider that to be an excused absence. Routine events should be scheduled to avoid class conflicts. In general, only unavoidable and documentable absences are excused (major family illness or accidents, deaths, funerals).
I WILL BE TAKING ATTENDANCE AT EACH CLASS. STUDENTS ARE GIVEN ONE UNEXCUSED ABSENCES PER SEMESTER FOR THIS CLASS. AFTER THAT ABSENCE, THEY WILL RECEIVE A 10% DROP IN THEIR FINAL LETTER GRADE FOR EACH ADDITIONAL UNEXCUSED ABSENCE. LEAVING CLASS EARLY/ARRIVING LATE FOR CLASS WILL COUNT AS \( \frac{1}{2} \) ABSENCE.

Points missed because of an unexcused absence (including tardiness and leaving early) cannot be recovered. An excused absence allows us to make alternative arrangements for completing assignments. The documentation required for an absence to be excused must be...

- from an appropriate source (e.g., doctor, dentist, funeral director) who states the nature of the event that caused (or will cause) your absence.
- in writing, on official stationary, and signed. (I do not return excuses to you.) Telephone calls, FAXes, and e-mails are not acceptable.
- presented prior to the absence for a scheduled event (e.g., university-sponsored activity, recognized religious holiday, military service).
- presented no more than one week after the date of an unexpected absence.

Unacceptable Excuses: Only unavoidable absences are excused (see above), so you should schedule routine personal events (e.g., vacations, wedding, reunions, non-emergency medical or dental visits, parent-teacher conferences, household or auto repairs) to avoid conflicts with your classes. Oversleeping is never an acceptable excuse. Employment conflicts are not acceptable excuses for absences, tardiness, or leaving class early. Texas waves jury duty for students, so jury duty is not an acceptable excuse. If you arrange to take any test at an alternate time and do not show for that appointment, then you forfeit the opportunity to take the test except at its originally scheduled time.

It is the responsibility of the student to obtain any material missed during an absence from his/her classmates. It is always your responsibility to determine what happened in class or laboratory during your absence. If you are absent, you must obtain any handouts or assignments from me in my office on your own time: I rarely bring assignments to class more than once. You must obtain class notes from other students.

Special circumstances may warrant deviating from these guidelines (including administering a “make-up” examination) and will be referred to the Vice President of Student Affairs. This also applies to any situations for which you cannot provide an acceptable excuse as outlined above.
Except in cases where prior arrangements have been made with the instructor for university approved absences, there is NO provision for making up late work and/or missed exams and quizzes. Anyone arriving after someone has completed an examination and left the room will not be allowed to take that examination. If you leave an examination room, for any reason, you must hand in your answer sheet and you will not be allowed to resume the examination. In the event of an examination that is missed, regardless of circumstances regarding illness, absenteeism, death in the family, etc., NO make-up examinations will be administered.

**EVALUATION**

Points will be awarded for the following. Please refer to handouts for rubrics, criteria, and examples of completed assignments and examinations in order to identify expectations for these assignments. Every student should have a clear idea of expectations prior to completion of the following assignments/test administration. Any and all questions regarding expectations should be immediately referred to the instructor. Please do not wait until the day before the assignment is due to ask questions!

**NO E-MAILED ASSIGNMENTS WILL BE ACCEPTED! HARD COPIES MUST BE SUBMITTED WHEN DUE TO RECEIVE CREDIT!**

1. Four examinations @ 200 points each  
   **40%**

2. Family Science Reflections (3@ 100 points each)  
   **30%**

(Attendance at 3 family science events is expected – if absent and not able to make-up work, 100 points will be missing from your final grade! Only absences that involve classes where you cannot excused will be allowed to make up work and this is done on a case-by-case basis with professor)

3. Family Science Project Peer Evaluation  
   **10%**

4. Assignments: including Candle Lab/Lord of Nature/Evolution paper  
   **20%**

**Total:**  
1225

**Scale:**  
A – 90 – 100%  
B – 80 – 89%  
C – 70 – 79%  
D – 60 – 69%  
F -- < 60%
**Missed Exams** – excused only per TAMUCC guidelines; such exams are given only under EXTREME circumstances and will be **total essay**.

Please turn off all cell phones, beepers, tablets, computers and other electronics before entering the classroom or laboratory.

*Academic Integrity/Plagiarism*
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a grade of zero for the work and possible dismissal from the class.

*Dropping a Class*
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, **you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form.** Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. November 7 is the last day to drop a class with an automatic grade of “W” this term.

*Classroom/professional behavior*
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

*Disabilities Accommodations*
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
Grade Appeals ***
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Statement of Academic Continuity*
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

General Disclaimer: This syllabus is a draft in progress: the instructor reserves the right to modify its contents. The Instructor reserves the right to modify the schedules and policies in this syllabus if and when necessary. Such changes will be announced during regularly scheduled lecture or laboratory periods, but it is not the responsibility of the instructor to contact students who were absent when an announcement was made. Students are responsible for abiding by all announced changes, and it is a student’s responsibility to obtain this information.
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<thead>
<tr>
<th>WEEK</th>
<th>Time: CLASS</th>
<th>Time: LAB</th>
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<tbody>
<tr>
<td>TO BE ANNOUNCED</td>
<td>FAMILYSCIENCE NIGHT (3 Events)</td>
<td>Attendance is required</td>
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<tr>
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<td>Syllabus, Intro, Expectations, Surveys</td>
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<td>How People Learn</td>
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<td>A. Beliefs about Science</td>
<td>Candle Lab</td>
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<td>B. FOUNDATION II: Inquiry and Standards of Science Education</td>
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<td>Culturally Relevant Teaching in Science</td>
<td>Family Science DR. CHERIE MCCOLLOUGH</td>
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<td>Evolution and Natural Selection(D)/ Teaching</td>
<td>Evolution - Why Bother</td>
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<td>Evolution According to the State standards (E)</td>
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<td>Ecology and Cycles</td>
<td>Wolves Assignment</td>
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<td>Family Science Construction</td>
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<td>Cell Theory/Cell Structure assignment</td>
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<td>Family Science Peer Evaluation</td>
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<td>Mitosis/Meiosis and associated lab</td>
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<td><strong>Exam I 3-4pm</strong></td>
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<td>Classification and the Five Kingdoms</td>
<td>Microscopes</td>
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<td>Monera, Fungi, Protista</td>
<td>Microscopes</td>
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<td>Porifera, Cnidera, Platyhelminthes</td>
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<td>Mollusca, Annelida,</td>
<td>Earthworm Dissection</td>
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<td><strong>Exam II</strong></td>
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<td>Arthropoda/Echinodermata</td>
<td>Viruses</td>
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<td>The Chordates:Fish, Amphibians</td>
<td>Starfish Dissection</td>
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<td><strong>Exam III</strong></td>
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<td>NO CLASS - AT HOME ASSIGNMENT</td>
<td>Dissect owl pellets/ Mammals</td>
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<td>Reptiles, Birds/</td>
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<td>Circulatory/Respiratory System - heart dissection</td>
<td>Muscular System/Skeletal System</td>
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<td>Flowering plants, roots, stems, leaves</td>
<td>Slides, Flower Dissection/ Viruses</td>
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<td>No class - Thanksgiving Travel Day</td>
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<td><strong>Exam III</strong></td>
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<td>Final Exam</td>
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**Note:** Attendance is required for all Family Science Night events.