Foundational Approaches to the Biological Sciences

SCIENCE, MATHEMATICS, AND TECHNOLOGY EDUCATION 3316
M-R 10:00-1:00 Science and Technology Building 201

INSTRUCTOR: Dr. Cherie A. McCollough, Ph.D.
E-mail: Cherie.McCollough@tamucc.edu
Office hours: 9-10 M-R; after class and by appointment

REQUIRED MATERIALS:
1. TAKS Reader: An interactive Student Textbook – McGraw-Hill Glencoe
2. SMTE 3316 Foundations of Biological Sciences by C.Mccollough course packet
   (available at the Islander bookstore – Corner Ennis Joslin and Ocean Drive)

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 examinations
- 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 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 Science Learning Events.

ATTENDANCE POLICIES: Students are expected to attend every scheduled class and laboratory meeting. Family vacations and celebrations of your 21st 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 absences are excused (major family illness or accidents, deaths, funerals).

I WILL BE TAKING ATTENDANCE AT EACH CLASS. STUDENTS ARE GIVEN ONE UNEXCUSED ABSENCE 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 ½ 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.

DOCUMENTATION FOR EXCUSED ABSENCES MUST BE TURNED IN WITHIN ONE WEEK OF THAT ABSENCE – NO EXCEPTIONS!

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 refereed 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.

***Please turn off all cell phones, beepers, Palm Pilots, etc., before entering the classroom or laboratory, or at least place them on silent mode.
**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!**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>1. Three examinations @ 200 points each</td>
<td>600 points*</td>
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<tr>
<td>2. Science Learning Event</td>
<td>100 points</td>
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<td>3. Peer Evaluation Science Learning Event</td>
<td>100 points</td>
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<tr>
<td>4. Lords of Nature, Candle lab – 25 pts each</td>
<td>50 points</td>
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<tr>
<td>5. Evolution DVD Reflection</td>
<td>50 points</td>
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<tr>
<td>5. Annenberg Videos (2 @ 50 points each)</td>
<td>100 points</td>
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<tr>
<td>6. Student Lesson Plan</td>
<td>100 points</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>1100 points</strong></td>
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Scale:

- A – 90 – 100%
- B – 80 – 89%
- C – 70 – 79%
- D – 60 – 69%

**Missed Exams – excused only per TAMUCC guidelines; such exams are given only under EXTREME circumstances and will be total essay.**

**This syllabus is a draft in progress:** the instructor reserves the right to modify it’s contents. While the instructor will attempt to notify all students of any changes, it is ultimately the student’s responsibility to keep apprised of those modifications/changes/additions/deletions/etc.
*Disability and Veterans’ Services:* Texas A&M University-Corpus Christi is committed to providing persons with disabilities an equal opportunity to access campus facilities, resources and programs. 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. Support and accommodations are also available for returning veterans who experience cognitive and/or physical access issues in the classroom or on campus. Our Office of Disability Services arranges such support and academic accommodations. To make a request, or for more information, call (361) 825-5816 or visit Driftwood 101. It is important to contact the Office of Disability Services in a timely fashion as it will take time for them to review requests and prepare accommodations and accommodation letters.

Students with Disabilities: The Students with Disabilities Center is located in the Student Services Center (361.825.5816). If you have special needs, please contact this center. I cannot make modifications without the center’s involvement, even if you show me your IEP. If you have mobility problems, please notify me so that assistance can be given in case of fire drills or emergencies.

Scholastic dishonesty will not be tolerated. All students are expected to conform to college level standards of academic integrity and quality of work (this includes spelling and grammar where applicable). Additional general guidelines that may be of interest to the student can be found in the “General Academic Policies and Regulations” section of the 2005 – 2006 TAMUCC undergraduate catalogue as well as the “The Student Code of Conduct”. In cases involving a academic dishonesty as defined by the Student Handbook, proceedings that have been outlined in the current academic undergraduate Texas A&M University – Corpus Christi catalog will be followed.