INSTRUCTOR: Cherie A. McCollough, Ph.D.

Office Location: Science and Engineering (EN) 310A
Office Phone: (361) 825-3166
Office Hours: TR 9-10, TWR 1-2
E-mail: Cherie.McCollough@tamucc.edu

Students may make appointments to see me at times other than those listed above. If I am unavailable or need to relocate during office hours, I will post a note on my office door.

REQUIRED MATERIALS:
1. Textbook: Understanding by Design; Wiggins and McTighe 2005

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: Presentations of contemporary issues in science education. Topics include history of science education, state and national standards for science education, cognitive development, the importance of culture, language and gender in learning science, authentic assessment, and interdisciplinary curriculum.

Additional Course Information: This course involves the students in a wide range of methods and materials designed to portray the teaching of science as a student-centered experience. The science teacher is urged to design courses for students in order to serve their personal needs and responsibilities for society and career decisions.

The course is centered upon the recent publication of National Academy of Sciences “How People Learn” and will consider theories of learning in science in light of understanding and advancing students’ learning, classroom interactions, and the organization of schools.

The course will provide experiences that will respect cultural diversity, and provide activities that will draw upon the cultural diversity implicit in the content being presented as well as providing for differences in such factors as gender, ethnic membership, academic ability and background.
The student is required to demonstrate knowledge of assigned readings, subjects discussed in class, and current trends in science education. The creation of a workable format for daily plans, unit plans, resource units and pencil-paper examinations is expected.

The student is expected to develop an attitude that is more than knowledge of facts about our world and universe, but it is also a way of thinking. Recognizable interest in associating science with all other areas of knowledge is considered. Interested in continued professional growth is strongly encouraged.

To prepare students for the 21st century, it is clear that an understanding of the principles and practice of science is an essential goal for students. Teaching science through inquiry approach is central to the course. Students will learn to deal with discrepancies, to raise and answer questions, and to use inquiry skills in defining and resolving problems. The inquiry model used in this course will consist of a series of non-linear steps as outlined by the How People Learn (NRC, 2000). Please see the course schedule for the outline of topics to be covered.

**STUDENT LEARNING OUTCOMES**

Students will:

- Use the Texas Essential Knowledge and Skills (TEKS), *How People Learn Framework* (NRC) criteria to plan a unit of study.
- Outline a science unit of study appropriate for target grade level that is based on inquiry and student centered teaching.
- 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.
- Research current issues in science education including subjects such as accountability and high-stakes testing, educational equality, assessment and tracking in schools, culturally relevant science teaching and classroom management challenges.
- Conduct classroom presentations using appropriate design and incorporating reflective questions for students to answer regarding that content.
- Attend Family Science Learning Events as outlined in the course schedule and present a culturally relevant science activity as discussed in class.
- Organize and create a classroom science lesson to be given in an area school under the supervision of the supervising teacher choice as per outlined during class discussion of this assignment.

**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 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 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.

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 were 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 as that grade will be dropped if it is the lowest grade.

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

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.

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 students responsibility to keep appraised of those modifications/changes/additions/deletions/etc.
The attached schedule is **TENTATIVE** – any changes in this schedule that are announced during class become the responsibility of the student. PLEASE keep appraised of schedule changes if you are absent! YOU are responsible for YOUR grade!

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### EVALUATION

**PLEASE NOTE: EMAILED ASSIGNMENTS WILL NOT BE ACCEPTED.** Type-written assignments are due in class at the beginning of class. Late assignments will NOT be accepted!

Points will be awarded for the following:

| 1. Homework Assignments – completed assigned questions – 9 assignments @ 25 points each | **225 points** |
| 2. Science Teaching Experience Reflection | **100 points** |
| 3. Classroom Action Research Report | **100 points** |
| 4. Family Science Reflections – 100 points each attendance mandatory at 2 events or 100 points deducted from final grade for each missed event. | **200 points** |
| 5. Family Science Project Peer Evaluation | **50 points** |
| 6. Evolution Paper | **25 points** |
| 7. Family Science Lesson Plan | **100 points** |
| 8. Educational Courage Assignments:  
  a. Presentation to class | **100 points**  
  b. Peer Assessment of group contributions | **50 points**  
  c. Class questions (written assignment x 4) | **100 points**  
  d. Individual reflection of presentation | **100 points** |

**Total:** **1150 points**

Scale:

- **A = 90%**
- **B = 80%**
- **C = 70%**
- **D = 60%**
- **F = less than 59%**
# SCHEDULE

<table>
<thead>
<tr>
<th>Class #</th>
<th>Class - First Hour</th>
<th>Class - Second Hour</th>
<th>READING AND OTHER ASSIGNMENT DUE</th>
<th>WRITTEN ASSIGNMENT DUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Syllabus. Expectations, etc</td>
<td></td>
<td>HPL Chapters 1-5; Zull - The Art of Changing the Brain and <em>Science</em> article(Art 4, 5)</td>
<td></td>
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<tr>
<td>2</td>
<td>How People Learn - Practical Applications in Teaching and Learning</td>
<td>HPL Lesson Construction</td>
<td></td>
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<tr>
<td>3</td>
<td>Family Science and Culturally Relevant Learning</td>
<td>Research Family Science Ideas</td>
<td>Family Science Articles; What is Family Science section (Art 3)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Understanding By Design I</td>
<td>UBD and Family Science</td>
<td>UBD 1-81; 105-125</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Family Science Project Construction</td>
<td>Family Science Project Construction</td>
<td>No Reading</td>
<td>No HW Questions- work on lesson plan</td>
</tr>
<tr>
<td>6</td>
<td>Family Science Peer Evaluation</td>
<td>Educational Courage Assignment</td>
<td></td>
<td>Family Science Lesson Plan due</td>
</tr>
</tbody>
</table>
| Week | Topic | Lecture/Activity | Readings | Homework
|------|-------|-----------------|----------|-----------------
| 7    | Inquiry and Standards in Science Teaching | Inquiry Lab | How People Learn Chapters 6-9; misc news pubs | HW Questions Set 4 |
|      | FAMILY SCIENCE WEDS 19th | 5:00-6:30 Blanche Moore Elementary School | | |
| 8    | Project Based and Inquiry Instruction | The Legacy Cycle | UBD Chapters 6, 8 and 9 | HW Questions Set 5 |
| 9    | Teaching Evolution | Evolution- Why Bother CD | Evolution Readings (Articles) | HW Questions Set 6/Family Science Reflection I |
| 10   | Science Standards and Standardized Testing | Standardized Testing in Science | Standards Chapters 1, 2, 3, 5, 6; Equity Readings (Articles) | HW Questions Set 7/Family Science Reflection II |
| 11   | Educational Courage Group I | UBD/Equity and Funding | UBD 13; Equity and Funding Articles | HW Questions Set 8/Evolution Paper |
| 12   | Educational Courage Group II | HPL/UBD | HPL Chapters 10 & 11; UBD 10, 11, 12 | HW Questions Set 9 |
| 13   | Educational Courage Group III | | | Family Science Reflection #2 Due |
| 14   | Educational Courage Group IV | | | Classroom Action Research Report and Classroom Evaluation Project Due |

**Information I am required to give you per TAMUCC procedure and policy:**

**Academic Integrity/Plagiarism:**
**Academic dishonesty will NOT be tolerated.** 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 ‘F’ for the course and the offense will be reported to the Office of the College of Science and Engineering Dean, or the Office of the Provost.
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. April 8th 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.

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.

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. 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.

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.